

2016-BR-21

The Seoul Institute Annual Research Digest 2016

Chang Yi



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Editor's Note

Greetings from the Seoul Institute.

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

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

Recently, the SMG has set up an online platform called 'Seoul Solution' (www.seoulsolution.kr) to share a range of policies that have been implemented in Seoul. At the same time, cities in other nations are interested in original SI policy research studies than policy outcomes per se to the extent that the SMG, before adopting new policies in the field, tends to consult the SI. Unfortunately, we have not offered our research in other languages besides Korean. We have, accordingly, decided to publish English summaries of major research produced in 2016. This book represents our first such attempt. It contains 20 research studies chosen from over 100 that cover a range of fields in urban planning.

After reading this report, you will see that 2016 was a productive year for the SI. We hope that the year 2017 will be the same.

Chang Yi

01 Transportation Planning

International comparative study of Seoul BRT system

Ko, Joonho

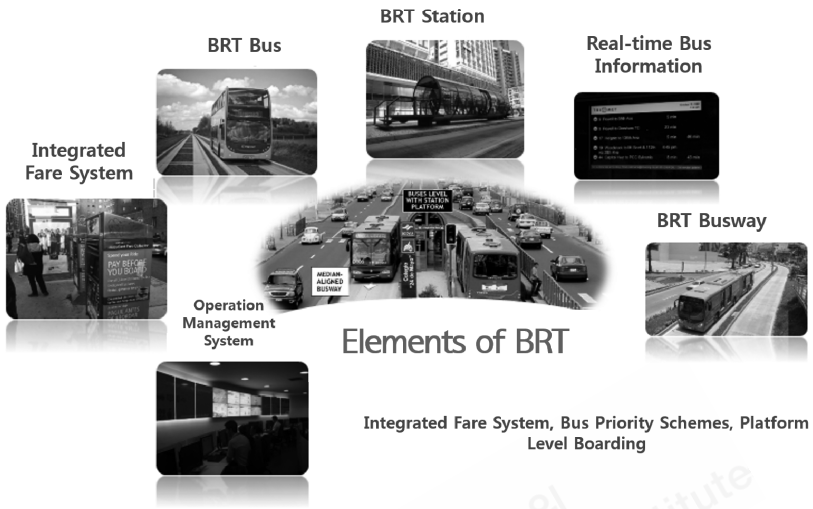
Summary

The ridership of the bus rapid transit system in Seoul is the fifth highest among 162 cities worldwide, but the system still needs more improvements.

1. Introduction

Bus Rapid Transit (BRT) sets a new global trend in public transportation

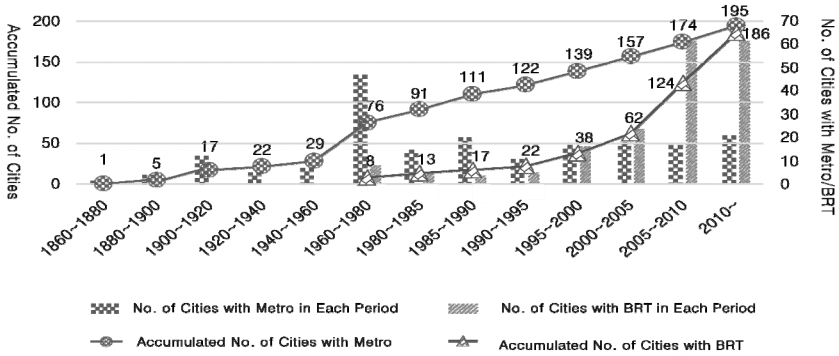
Since the 1970s, the worldwide adoption of Bus Rapid Transit (BRT) has continued unabated. Today, the system is recognized as the most widely used public transportation in the world. Following the trend, Seoul installed a BRT system on median bus-only lanes in 2004. The BRT innovatively combines various facilities, services, and technologies into an integrated system. As a result, efficient travel is possible. The system has two salient features: bus-only lanes and user-friendly bus stops. The bus lanes enhance the speed and punctuality of bus service. A carefully designed user-friendly bus stops can ensure the convenient boarding and alighting of passengers. A high-capacity vehicle is also deemed as the essential element of BRT. The same goes for the technologies that provide the public with easy fare payment service and real-time bus information. They are both requisites for user convenience.



[Figure 1] Elements of BRT

Over 190 cities worldwide have adopted BRT

Despite the short history of BRT, it has become a mainstream in such a short period of time. Since the 1970s, cities around the globe increasingly have installed the system. Before long by 2014, the number of cities with BRT reached 191. By comparison, the metro system took more than a century to achieve the similar score: Since the system was first introduced in London in 1863, cities in other parts of the world have constructed subways and the figure of 195 was attained 2011, showing a slower pace than BRT. The rapid, widespread adoption of BRT largely attributes to its lower capital cost than that of rail transit. This has facilitated the construction of fast and high-capacity public transportation. This report analyzes the advantages and disadvantages of Seoul BRT compared to other cities worldwide.

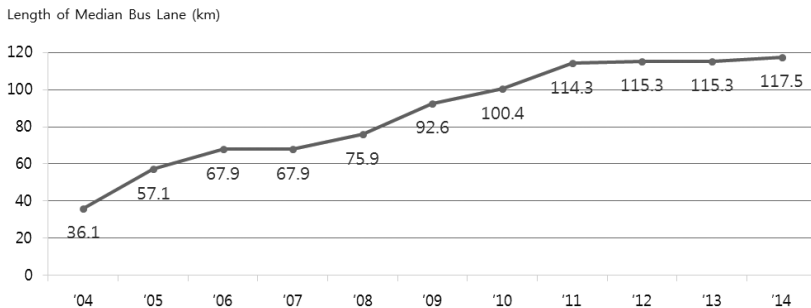


[Figure 2] Number of Cities with Metro/BRT in Each Period

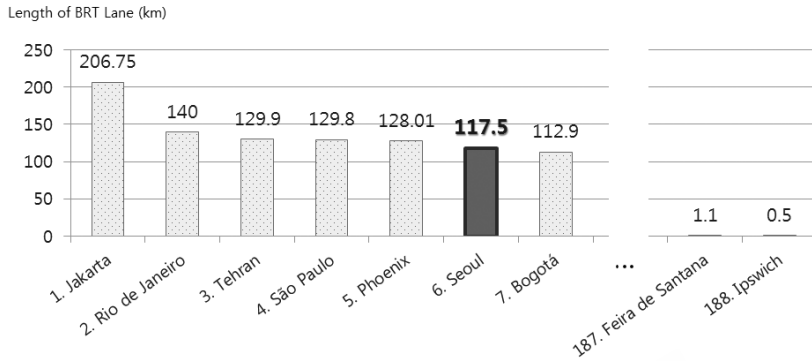
2. Main Findings

Seoul has 6th longest BRT bus lanes in the world

Seoul has extended its BRT busways at a faster pace than most other cities worldwide. Seoul Metropolitan Government (SMG) undertook a public transportation reform in July 2004. The reform began with constructing 36.1 km-long exclusive median bus-only lanes spanning four segments. SMG has continued to further lengthen the busways. Now its exclusive bus lanes spread 117.5 km across 12 sections. It is the 6th longest bus-only lane in the world, with Seoul being just behind cities like Jakarta, Rio de Janeiro, and Teheran.



[Figure 3] Length of Median Bus Lane in Seoul Each Year

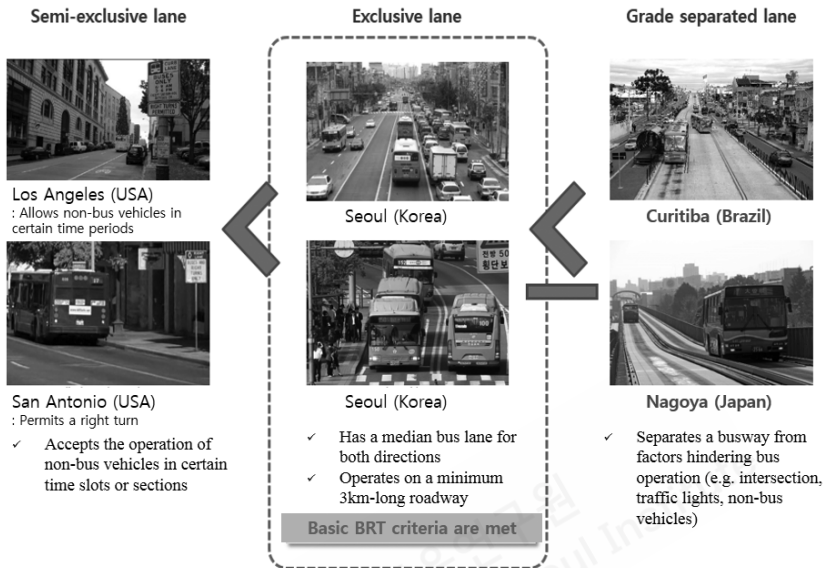


[Note: The data is based on the Global BRT Data (<http://brtdata.org>)]

[Figure 4] Length of BRT Lane in Cities Worldwide

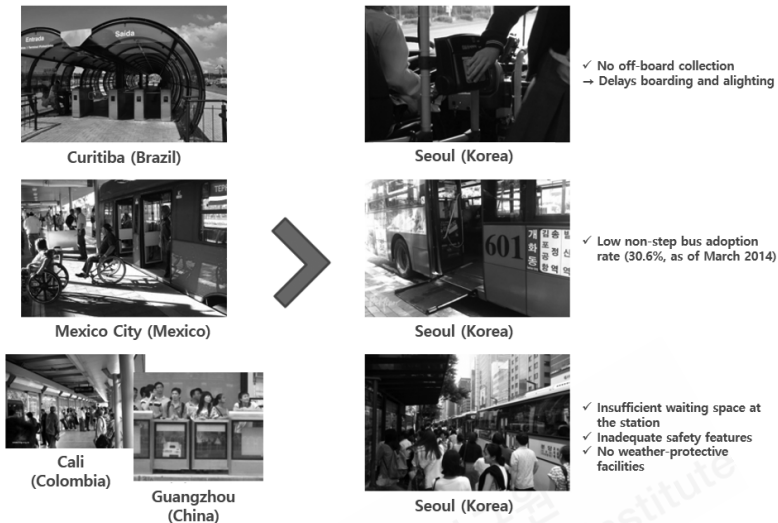
Conditions of Seoul BRT infrastructures are just around the world average

Seoul touts the long length of its BRT busways. Yet, it would welcome improvement in several areas of the system including bus lane configurations. Seoul's bus only lanes operate on the road with a minimum length of 3km, ensuring a certain level of travel speed. The lanes operate in an exclusive manner, strictly prohibiting other automobiles than buses. This bus lane configuration is better than a semi-exclusive lane that permits non-bus vehicles in certain time periods or sections. Yet, it is not as effective as a grade-separated lane physically disconnected from other roadways. This alignment inevitably precludes the entrance of other cars even at the intersection and thus some cities adopt this system for better bus operations.



[Figure 5] Comparison between BRT Busways in Seoul and Other Major Foreign Cities

Bus stops are another area for improvement. First, there needs off-board fare collection. This will eliminate the delay caused by passengers paying on board, hence faster bus operation. Second, more low-floor buses should be provided. At present, Seoul has the non-step bus adoption rate of a mere 30 percent. This renders the bus transit inaccessible for the mobility handicapped (e.g. wheelchairs, disabled passengers, baby strollers). Third, passenger waiting rooms at the stop need to be enlarged. The current space is minuscule compared to ones in other foreign cities with a good BRT system. Lastly, safety features like a screen door are to be built more adequately.

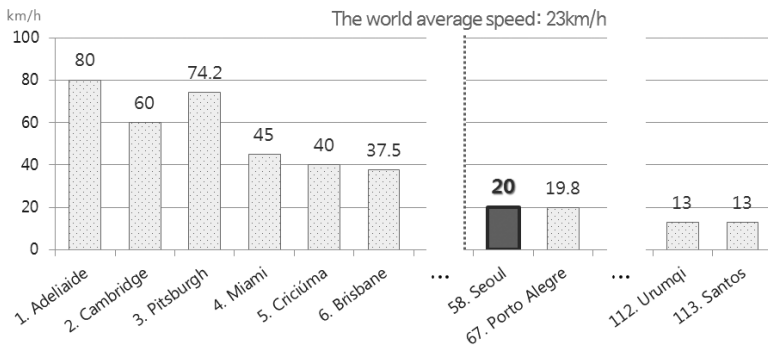


[Figure 6] Comparison between BRT Features in Seoul and Other Major Foreign Cities

The speed of Seoul BRT buses is below the world average

In Seoul, buses operate at the average speed of 20 km/h on the median bus-only lanes. It is below the global average of 23 km/h. According to the Global BRT Data, Seoul sits at 58th place among 113 cities worldwide. Speedy bus operation is only possible when BRT lane is constructed on a freeway. High-speed transportation service is hindered since Seoul BRT is built on urban roadways. Nevertheless, Seoul can expedite the service by a certain extent thanks to the improvement made to its bus-only lanes.

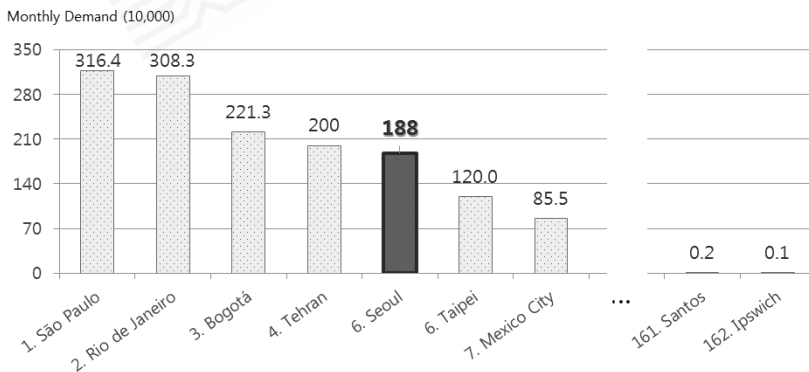
Besides the location, two factors hamper faster bus travel in Seoul; a lack of passing lanes is one. Currently, only 52% of median bus stop (i.e. bus stops alongside a median bus-only lane) have passing lanes. A study shows that buses generally operate 19 percent faster in a city with a host of passing lanes. Another impediment is the inadequate spacing of stations on a bus-only lane (measured in the number of stations relative to the length of a bus-only lane). This slows down bus operation.



[Figure 7] The Average Operating Speed of BRT Bus in Each City

Seoul BRT has the high user demand above the global average

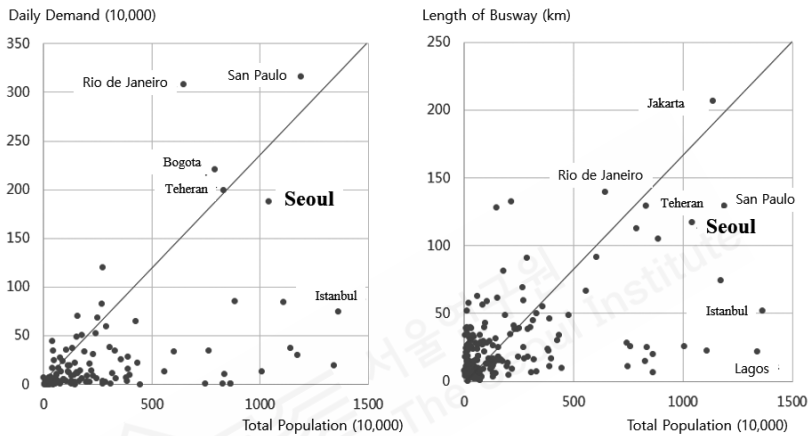
The pattern of daily BRT users in 162 cities worldwide was studied. The result has revealed that Seoul has the 5th biggest figure (1.88 million). The top four cities are Sao Paulo (Brazil), Rio de Janeiro (Brazil), Bogota (Colombia), and Teheran (Iran). The study indicates that the demand is greatly influenced by factors such as fare levels and whether an integrated fare system operates.



[Note: The data on the BRT demand in foreign cities is based on the Global BRT Data. The figure of Seoul represents the number of daily BRT users at BRT bus stops]

[Figure 8] Daily BRT Demand Rankings

As previously stated, Seoul has the 5th highest BRT user demand in the world. It is also the case when the demand is compared to the city population. Likewise, Seoul has a adequate length of median bus-only lanes relative to its population. It perches on 4th place just behind Jakarta(Indonesia), Rio de Janeiro(Brazil), and Teheran(Iran).



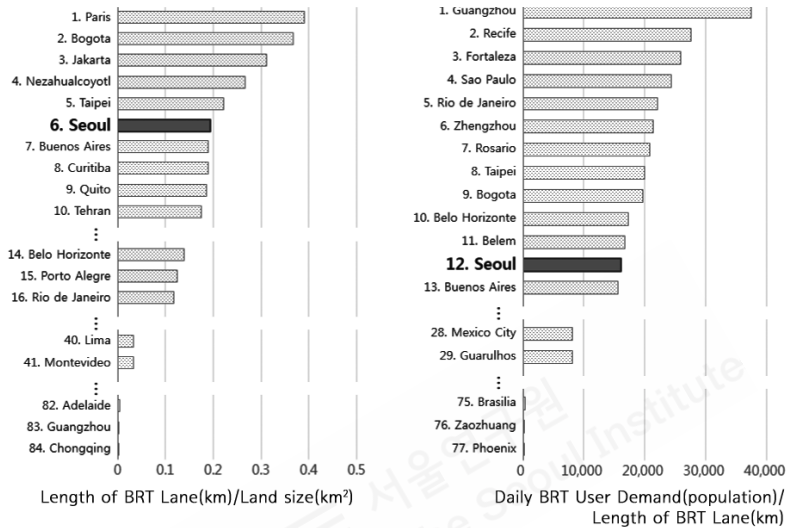
[Figure 9] Population, BRT User Demand, and Length of Busway by City

The length of Seoul BRT median bus-only lane is long, yet the relative user demand to the length is low among large metropolises

The adequacy of each city's median busway length relative to the land size has been investigated. The study looked at 84 cities with a population of over one million. It has measured Seoul's median bus-only lane per square kilometer is approximately 0.2 km. This positions the city in the sixth place in the ranking.

Though Seoul BRT has the high-ranking median bus-only lane, the user demand is not as high. This time, the study analyzed 77 cities where over one million population dwells. It has found that Seoul has the 12th largest number of passengers (16,000) boarding on the median bus-only lane per km. Cities in a higher rank are

found to have high-capacity buses as well as physically segregated exclusive bus lanes, showing an importance of the BRT operation capacity for ridership.

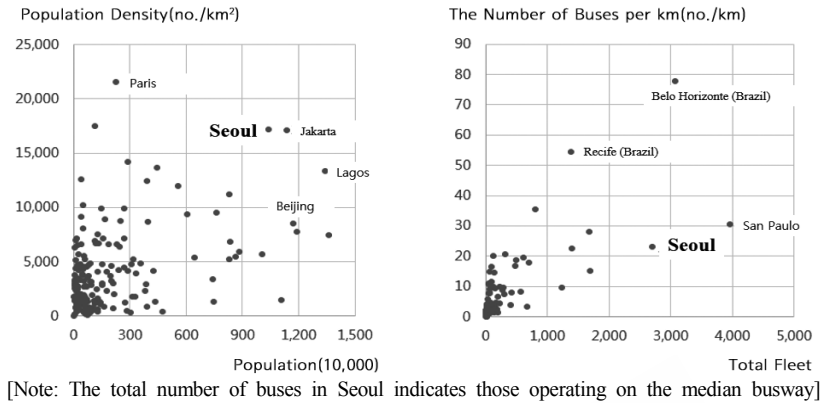


[Note: Only considered cities with a population of more than one million]

[Figure 10] (Left) Length of BRT Lane Relative to Land Size / (Right) Average Daily BRT User Demand per Unit Length of Busway

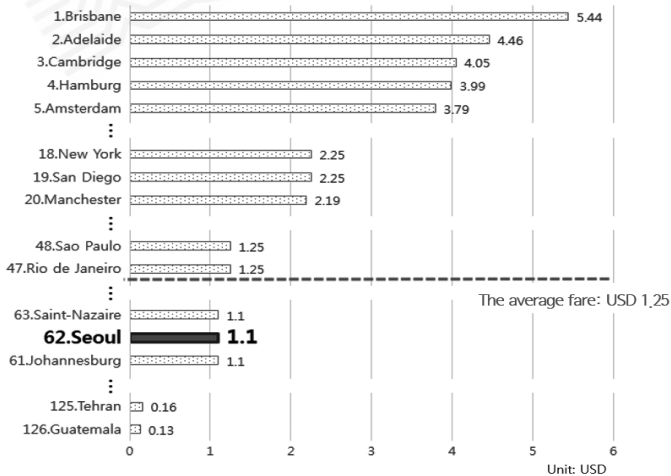
Population and affordability are two major variables to user demand

The size and density of population significantly affect the BRT user demand. The quantity of buses operating on median busways is also important. Among cities that have implemented BRT, Seoul is the 5th most densely populated city. Moreover, it is one of the top three cities operating the greatest number of buses on median bus-only lanes. When this is reviewed relative to the length of median busways, Seoul stands near the 5th place. All of these implicate that Seoul is adequately handling the potential user demand (represented by the population size) by deploying a sufficient number of buses.



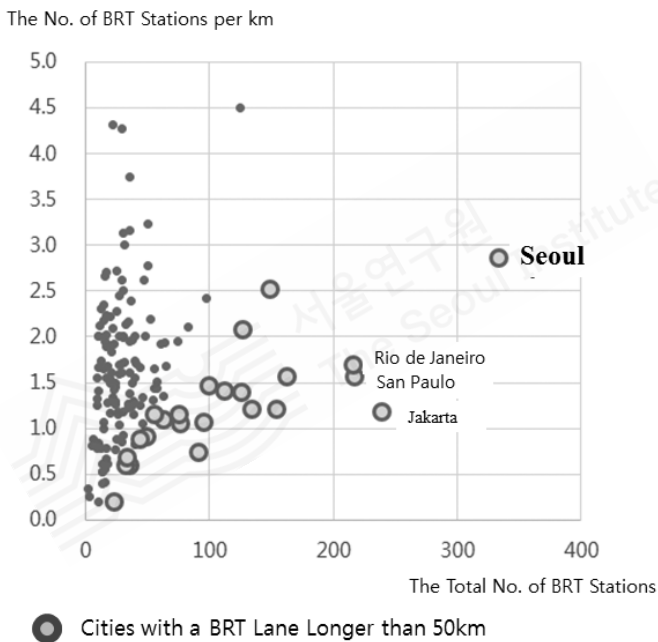
[Figure 11] (Left) Population Size and Density of Cities with BRT / (Right) Total Fleet and the Number of Buses in Operation

The lower bus fare levels and the number of stations positively affect the user demand. Besides demographics, these two factors have been conducive to the passenger demand. Seoul’s bus fare is below the average of other cities with BRT. Whether a citywide integrated public transportation fare system operates is another positive factor for BRT demand.



[Figure 12] Bus Fares of Cities with BRT

The number of stations alongside a median busway also has influence on the user demand. Seoul has the largest number of median bus stops in the world - 334 in total. The figure is much greater than 93 of Jakarta, a runner-up. Among cities that have minimum 50km-long BRT lanes, Seoul perches on the top with the highest station density (measured in the number of stations per km). The easy access to bus stations contributes to the rise of user demand.

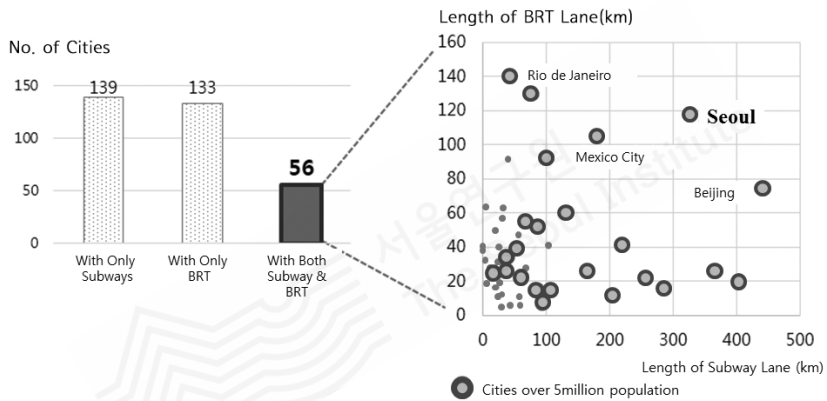


[Figure 13] The Number of BRT Stations

3. Conclusions & Policy Recommendations

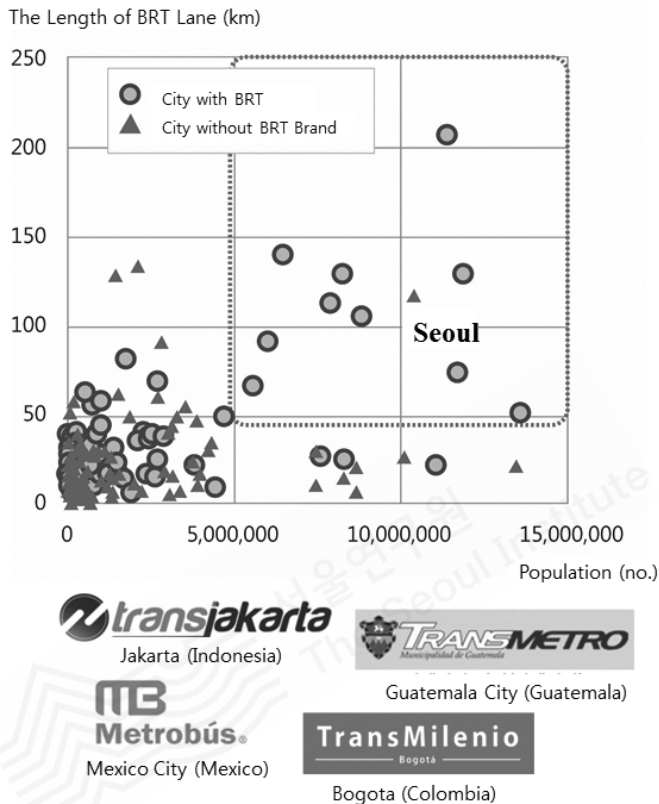
Strong systematical connection with subways, but no prominent brand

Seoul BRT is adequately and effectively connected to the metro system. Only a few cities worldwide have successfully established both metro and BRT systems at a large scale. Today, there are 189 cities operating BRT. Among them, just 56 cities including Seoul, Mexico City, and Beijing run subways as well as BRT.



[Figure 14] Cities with BRT and/or Subways & the Length of each System

Seoul BRT has no prominent identity, while 77 out of 191 cities worldwide own a unique and distinctive brand for their BRTs. This study’s survey revealed that Seoul is the only city that does not have its own BRT brand among the 11 cities which have a population of more than five million and BRT lanes longer than 50 km.



[Figure 15] (Top) Presence of BRT Brand Relative to Population and the Length of BRT Lane / (Bottom) BRT Brands of Major Cities.

Introduce a unique identity and special vehicles for its BRT system

As mentioned earlier, major cities with a large-scale BRT have distinctive images for their systems. Seoul is the only exception. As a first step to improve its BRT, SMG should create a prominent identity, reflecting the system's distinctive qualities.

Continue to expand the BRT network, while enhancing connection with the subway

In Seoul, the present number of median bus stops accounts for only 5 percent of the total number of bus stops. The number of passengers boarding at the median bus stops, however, takes up as much as 34%. The ridership of BRT buses which operate mostly (50% of the route length or more) on the median bus-only lanes tends to be much higher than that of non-BRT buses. Overall, the ridership of BRT routes is twice greater than other routes.

It is crucial to fully utilize the superior passenger capacity of BRT. To do so, the current BRT network should be expanded. This requires the expansion of median bus-only lanes, particularly over trunk roads. The process should take the user demand and road conditions into account. Overall, the improvement plan needs to revise the system from various angles. For instance, it should consider creating passing lanes and widening the scope of real-time bus information.

The system improvement also asks for enhanced connections between BRT and the metro system. It is especially true considering that Seoul has large-scale networks for both systems. Here, convenient transfers between buses and between buses and subways are crucial. Moreover, the efficient integration of public transportation fare is necessary. Needless to say, a convenient fare collection system should be installed. Currently, SMG is planning on expanding its bicycle sharing program. This should also be factored in the plan for improving connections with BRT system.

Traffic Operation Strategy to Improve Pedestrian Safety at Signalized Intersections

Kim, Wonho

Summary

Efficiency of traffic islands is very limited. Traffic signal for right turning vehicles should be selectively introduced.

1. Introduction

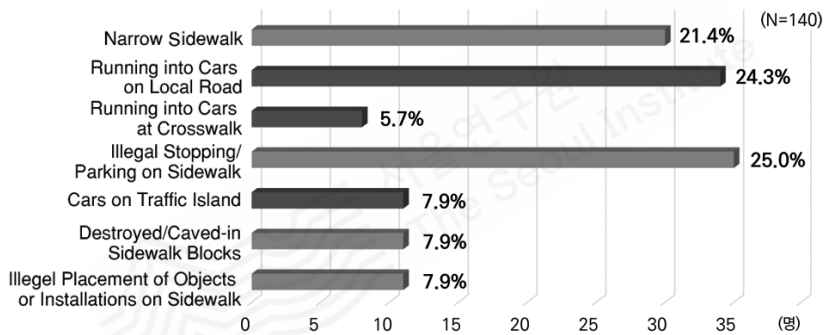
The Seoul Metropolitan Government (SMG) has carried out various policies and programs to enhance the convenience and safety of pedestrians. For example, it has upgraded pedestrian facilities and enlarged the walking space. Nonetheless, a recent study has discovered that Seoul citizens still suffer from cars intruding pedestrian areas such as crosswalks. In fact, 37.9 percent of the people considered such intrusion the biggest inconvenience. It is also found to be the main culprit of pedestrian deaths - nearly half of the victims killed in car accidents were pedestrians. Certainly, there needs a solution to reduce collision between pedestrians and vehicles. In this regard, this research examines the operational effectiveness of traffic systems in Seoul: It looks at intersections on traffic islands - the place where the aforesaid collision mostly happens. This study also takes a look at crossroads that allow a right turn on red (RTOR). It then suggests directions for improvement.

Paradigm shift from vehicle-oriented to pedestrian-oriented policies

Starting with setting up the Walkable City Headquarters in 1996, Seoul began to shift its transport policies from a vehicle to people-oriented paradigm. The city then followed up with the Walkable Street Pilot Project (2000) and the Design Seoul Street Project (2007). In recent years, Seoul has continued to implement policies to

improve the pedestrian environment. Some examples include “Improvement Plans for the Pedestrian Environment” and “Renovation of Landmark Spaces towards Improvement of the City’s Pedestrian Environment”.

In Seoul, 50 percent of traffic fatalities are caused by the conflict with vehicles while pedestrians are crossing the road¹. The fatality rate from vehicle-to-people accidents is 53.5 percent for Seoul, and 38.7 percent for the entire country. A survey on Seoul citizens revealed that one of the greatest inconveniences for pedestrians is coming face to face with cars on local roads, crosswalks, or traffic islands (37.9 percent of respondents).



[Figure 1] Inconvenience to Pedestrians

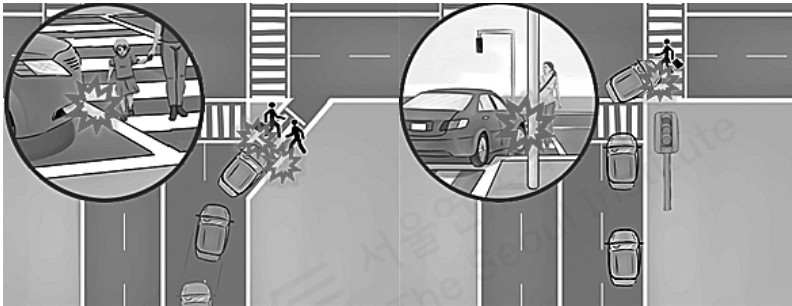
Risk of conflict with vehicles is significant for pedestrians while crossing the intersection

Traffic islands for channelizing right-turn traffic may be convenient for drivers but does not ensure the safety of pedestrians. There are crosswalks at intersections where right-turn traffic is channelized by a traffic island, but many are unsignalized. While this may be convenient for drivers, it poses a serious threat to pedestrians as

¹Source: Korea Road Traffic Authority, 2014, Traffic Accident Analysis System.

the speed of right-turning vehicles at the break in the traffic island is too fast for them to react.

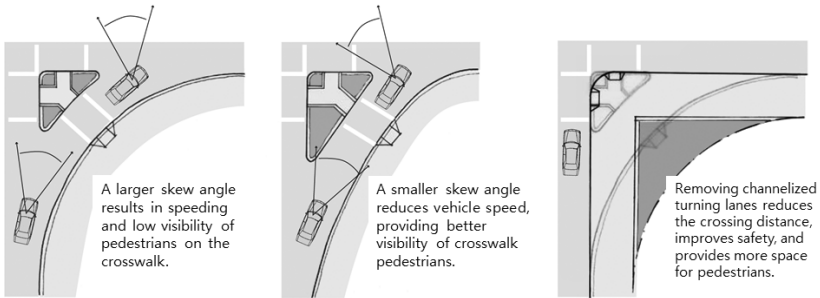
Because right turn on red (RTOR) is allowed for vehicles at all signalized intersections, pedestrians need to avoid cars even when the crosswalk light is green, frequently resulting in conflict with right-turning cars. The risk of conflict is especially high when right-turning vehicles do not have good visibility of crosswalks they are approaching.



[Figure 2] Vehicle-Pedestrian Conflict at Channelized Right-turning Lanes (Left) and at Intersections (Right)

Other cities around the world change transport policies to reduce accidents involving pedestrians

Cities around the world are moving toward limiting RTOR for improving pedestrian safety. For instance, San Francisco proposed removing channelized right-turn islands in locations where big turns are unnecessary to secure space for pedestrians. Many cities in the US have placed RTOR restrictions - NTOR (no turn on red) - at certain intersections in the CBD where pedestrian traffic is high.



Source: San Francisco, 2010. A Guide to Making Street Improvements in San Francisco.

[Figure 3] Replacing Channelized Right-turn Traffic Islands with Pedestrian Spaces

2. Main Findings

Traffic islands were built without standardized guidelines

In a comparative analysis with other major cities around the world, it was found that Seoul has twice as many traffic islands on average. The study on traffic islands at arterial roads within a 20 km radius of CBDs in Tokyo, London and other major cities revealed that Seoul has as many as 11.7 traffic islands per 10 km, up to nine times more than other cities in the study. The number of traffic islands per intersection in Seoul was 2.6, twice as many as other major cities.

[Table 1] Traffic Islands in Major Cities around the World

City	No. of Intersections	Length of Lane (km)	No. of Traffic Islands	No. of Traffic Islands by Length of Lane (per 10 km)	No. of Traffic Islands per Intersection
Seoul	82	181.1	212	11.7	2.6
Tokyo	50	138.1	67	4.8	1.3
London	66	208.3	79	3.7	1.2
Chicago	35	296.2	65	2.1	1.9
LA	28	184.5	32	1.7	1.1
Vancouver	11	95.15	13	1.3	1.2

In Korea, traffic islands were designed to guide cars to a designated channel and narrow the gap between the stop line and pedestrian crossing. Intersections at major roads in Seoul gradually adopted traffic islands from 1988 as part of a government program to improve traffic system. Traffic islands mushroomed, even within the CBD where pedestrian traffic is high.

In other cities around the world, there are guidelines which specifically recommend building traffic islands where pedestrian traffic is low and where improvements are needed for right-turning traffic. Traffic islands increase the speed of right-turning vehicles, reduce delays, and offer a broad radius for large vehicles such as trucks. Motorists tend to pay full attention to traffic they will soon be joining and are less likely to be fully aware of the location of crossing or pedestrian signals. Pedestrians also find it hard to be instantly aware of approaching vehicles. This is one of the reasons that traffic islands are usually built on main roads in the outskirts of cities.



[Figure 4] Traffic Islands in Major Cities around the World

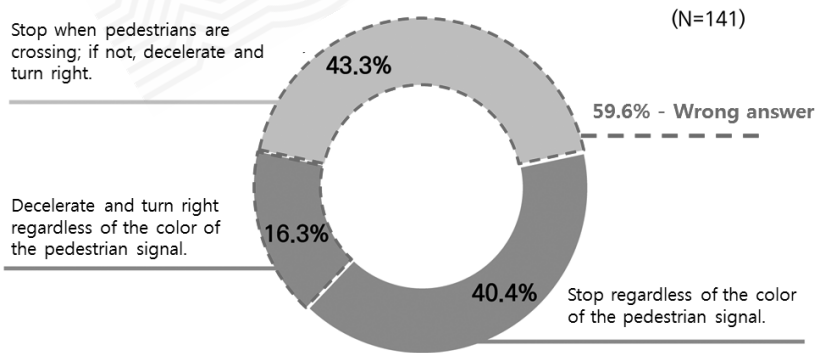
Traffic island intersections increase vehicle-pedestrian conflicts

There are more conflicts than ordinary intersections as right-turning vehicles do not decelerate. Conflicts due to traffic islands increase when pedestrian traffic is high and/or right-turning traffic is low. According to a simulation where right-turning traffic increases from 20 to 1,000 vehicles/hour intervals and pedestrian traffic increases at intervals from 100 to 2,500 people/hour, the number

of conflicts is 16 - 2,892 times/hour when a traffic island is present, far more frequent than when no traffic island exists (0 - 108 times/hour). This is the case except when there are 760 or more right-turning vehicles per hour and 300 - 500 pedestrians per hour.

Regulations for RTOR are unclear, and there is lack of awareness of correct turning

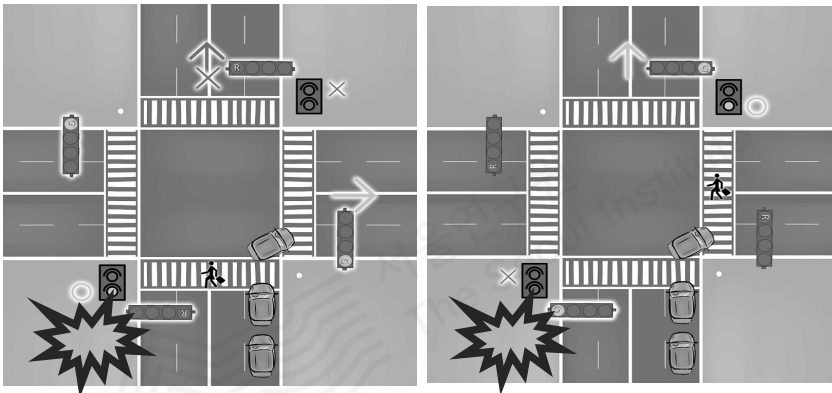
This research found that a majority of motorists are unaware of correct RTOR, increasing the risk of accidents. A survey revealed that 59.6 percent gave wrong answers regarding the correct way to make a right turn on red. According to the Road Traffic Act, vehicles must come to a complete stop at the stop line, crossing, or intersection before turning right regardless of the color of the pedestrian signal. However, the failure by most motorists to be aware of the correct RTOR increases the risk of accidents. Furthermore, the regulations are not sufficiently clear and often result in varying legal interpretations of what led to an accident.



[Figure 5] Responses to “The Correct Right Turn on Red Rule

Pedestrian at crossings are more exposed to accidents

Allowing RTOR at signalized intersections leads to frequent conflict between pedestrians using the crossing and right-turning vehicles. Conflict occurred i) when the vehicle signal is red at the intersection and the pedestrian signal is green before the vehicle turns right; and ii) when the vehicle signal is green at the intersection and the pedestrian signal becomes green after the vehicle has begun turning right.



[Figure 6] Vehicle-Pedestrian Conflict Before (Left) & After (Right) Making a Right Turn

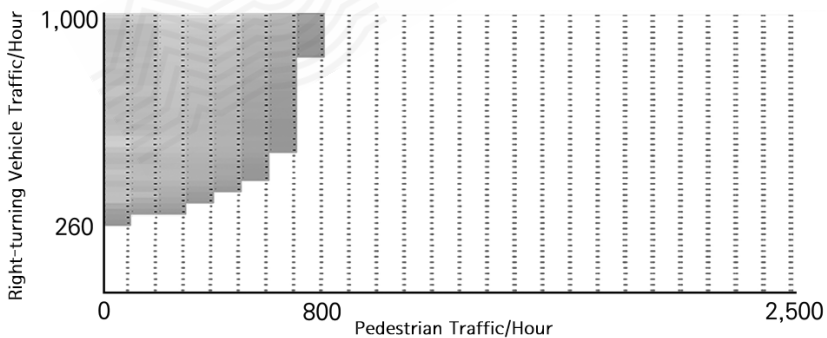
The number of conflicts is double at pedestrian crossings located after right-turning point than at crossings located before right-turn point, according to a preliminary study at Heunginjimun Intersection in Seoul. The number of conflicts per 1,000 pedestrians doubled at crossings located after right-turning point as opposed to six times at crossings located before right-turn point. This is clear evidence of the necessity to change locations of pedestrian crossings.

Most traffic islands are ineffective for smooth traffic flow

This study found that traffic islands are effective when there are at least 260

right-turning vehicles/hour and pedestrian traffic is a maximum of 800 persons/hour. If the cost of traffic delays and conflict is high, traffic islands are relatively ineffective. For example, KRW 1,640 is the estimated cost for reducing the number of conflicts by 1 incidence, assuming the conflict is minor, and the time value of average traffic (both business and non-business) of passenger cars in the Seoul metropolitan area is KRW 13,094 per hour. Generalized costs have been calculated to compare financial and non-financial cost from traffic delays and conflict that changes according to vehicle and pedestrian traffic volume.

For analysis of the generalized costs at intersections with and without traffic islands, a scenario was set up where right-turning traffic increases up to 1,000 vehicles/hour from 20 vehicles/hour intervals while pedestrian traffic increases up to 2,500 people/hour from 100 people/hour intervals. Analysis of this simulation reveals that as long as there are 260 or more right-turning vehicles per hour and a maximum of 800 pedestrians crossing per hour, the generalized costs are low at intersections with a traffic island and the presence of a traffic island is effective.



[Note: Traffic islands are more effective for the darker area in the graph.]

[Figure 7] Comparison of Generalized Costs from Simulation Scenarios (With/Without Traffic Island)

Only 6 out of 48 traffic islands in Seoul CBD(Central Business District) are effective

It appears that the generalized cost of 6 traffic islands is lower than intersections without traffic islands. Onsite studies were conducted on the traffic of right-turning vehicles and pedestrians using a crossing. The number of conflicts were examined at all intersections with traffic islands in the CBD of Seoul to find out whether traffic islands are indeed effective. Analysis of the generalized costs of 48 traffic islands at 24 intersections showed that only 6 islands are effective (e.g., Hoehyeon Intersection, Toegyero-5-ga).

[Table 2] Effectiveness of Traffic Islands in Seoul City Centers

Intersection	Direction of Traffic Island	Vehicle Traffic/hour	Pedestrian Traffic/hour	Effective?
Hoehyeon Intersection	SW	361	174	Yes
	NE	770	1106	
	NW	649	824	
Toegyero Underground Road	SW	19	375	
Toegyero-5-ga	SW	888	393	Yes
	SE	92	388	
	NE	120	602	
	NW	154	234	
Gwanghee-Dong Intersection	SW	199	353	
	SE	94	599	
	NE	77	496	
Hanyang Technical High School	NW	131	399	
Dongdaemun History & Culture Park	SE	147	325	
Heunginjimun Intersection	SW	471	1377	
Changdeok Palace Intersection	SW	179	70	
	SE	206	117	
Anguk Station Intersection	SW	450	605	
Anguk-Dong Intersection	SW	526	1337	
	NE	20	1058	

Intersection	Direction of Traffic Island	Vehicle Traffic/hour	Pedestrian Traffic/hour	Effective?
Euljiro-5-ga	SW	373	282	Yes
	SE	199	257	
	NE	367	220	Yes
	NW	196	342	
Jongno-4-ga	SE	97	488	
Jongno-4-ga	NE	92	618	
Jongno-1-ga	SW	422	673	
	SE	340	1104	1104
	NE	399	645	645
Cheonggye-2-ga Intersection	SW	246	1677	
	SE	140	1789	
Myeong-Dong Cathedral Intersection	SE	61	654	
Euljiro-1-ga Intersection	SW	399	1077	
	NE	256	1070	
	NW	321	1180	
Sungnyemun Intersection	SE	263	1398	
	NE	194	1323	
City Hall Intersection	SW	109	1916	
Sejongdaero Intersection	SW	563	1737	
	SE	374	1697	
	NE	580	1529	
	NW	376	1342	
Dongnipmun Station Intersection	SW	499	655	
	SE	323	153	Yes
	NE	413	390	Yes
Yeomcheongyo Intersection	SE	56	348	
Seoul Station Intersection	SE	339	709	
Lower Seoul Station	NE	114	807	
Gyeongbokgung Station Intersection	NW	180	804	

Right-turn signals are effective when pedestrian traffic is at least 200 persons/hour

Analysis of the generalized cost of RTOR demonstrated that the cost of installing right-turn signals is lower than RTOR, and thus more effective when pedestrian traffic is at least 200 persons/hour. But in some cases, RTOR is more effective than right-turn signals, when pedestrian traffic is between 200 - 1,100 persons/hour and right-turning traffic is between 240 - 780 vehicles/hour. These results are from an analysis of a limited number of scenarios, and additional studies are needed if more general application is desired.



[Note: RTOR is more effective for the darker area in the graph.]

[Figure 8] Comparison of the Generalized Costs of Installing Right-turn Signals

Right-turn signals are recommended at 7 of 9 general intersections in Seoul CBD

Effectiveness of right-turn signals were tested at 9 general intersections in Seoul CBD and vicinity area. Over the course of three days, right-turning traffic, pedestrian traffic, and the number of conflicts were examined at 15-minute intervals, based on which a simulated analysis of the effectiveness of right-turn signals was carried out. Pedestrians were divided by crossing pattern into groups

and individuals. A conflict estimation model was developed based on the rate and hours of conflict. With generalized costs calculated based on costs related to conflict and delays from the model, a comparative analysis was conducted to identify the effectiveness of right-turn signals. It showed that right-turn signals are effective at 7 of the 9 intersections.

[Table 3] Effectiveness of Right-turn Signals in Seoul City Centers

Location	Vehicle Traffic (Vehicles/Hour)	Pedestrian Traffic (Persons/Hour)	Effective?
East, Ihwa Intersection	71	557	Yes
East, Jongno-2-ga Intersection	179	581	Yes
East, Jegi-Dong Station Intersection	21	456	Yes
East, Toegyero-4-ga Intersection	197	259	Yes
East, Seongbuk-Gu Office Intersection	407	252	
West, Jongno-2-ga Intersection	198	1176	Yes
East, Jongno-3-ga Intersection	237	364	Yes
West, Euljiro-2-ga Intersection	266	463	
North, Toegyero-2-ga Intersection	158	709	Yes

3. Conclusions & Policy Recommendations

Right-turn signals are recommended instead of traffic islands when pedestrian traffic is high.

This research argues that pedestrian safety is the most important factor at intersections with traffic islands or where RTOR is permitted. Traffic islands were found to be effective only when pedestrian traffic is a maximum of 800 persons per hour and right-turning traffic is no less than 260 vehicles per hour. It would be more efficient to avoid building new traffic islands at those intersections that do not meet

these conditions. If removing a traffic island is not financially plausible or is not viable due to local complaints, speed-reducing features should absolutely be introduced at right-turning lanes channelized by traffic islands for the safety of pedestrians.

In places where pedestrian traffic is high, right-turn signals should be installed. Since the right-turn signal is effective when pedestrian traffic exceeds 1,100 persons per hour, it can be used in CBD or areas with high walking populations such as Gangnam. At RTOR intersections, pedestrian crossings should be moved down the roadway or S-type crossings should be considered to improve pedestrian safety.

Traffic islands should be replaced by pedestrian spaces

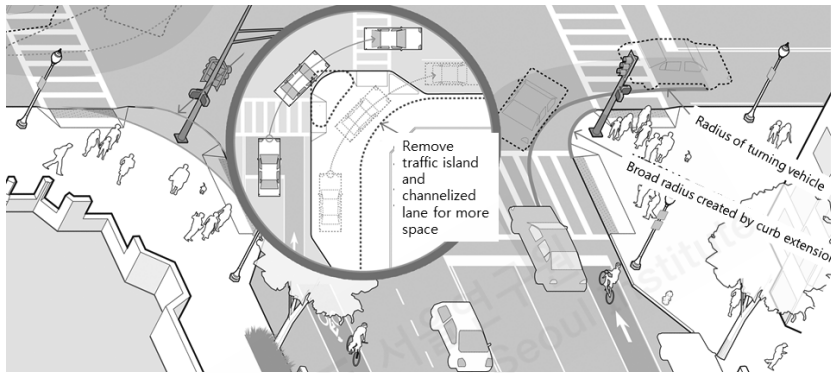
This study recommends that space remaining after traffic island removal to be used as a pedestrian square or parking area. If removing a traffic island is deemed more effective based on the vehicle/pedestrian traffic, the space may be recreated for pedestrian use. In San Francisco, it has been suggested that the former traffic island sites be used as sidewalks or small squares. When a traffic island is removed, the channelized right-turning lane is also removed for the maximum use of space.



Source: San Francisco, 2010, A Guide to Making Street Improvements in San Francisco

[Figure 9] Former Traffic Island Sites (San Francisco, USA)

Curb extensions refer to extending sidewalks into the roadways in order to improve visibility of pedestrians and reduce crossing distance. In Boston, curbs are extended at corners of intersections with traffic islands for a variety of purposes, one of which includes providing more parking space. Curb extensions also reduce the speed of turning vehicles and create space for stopping.

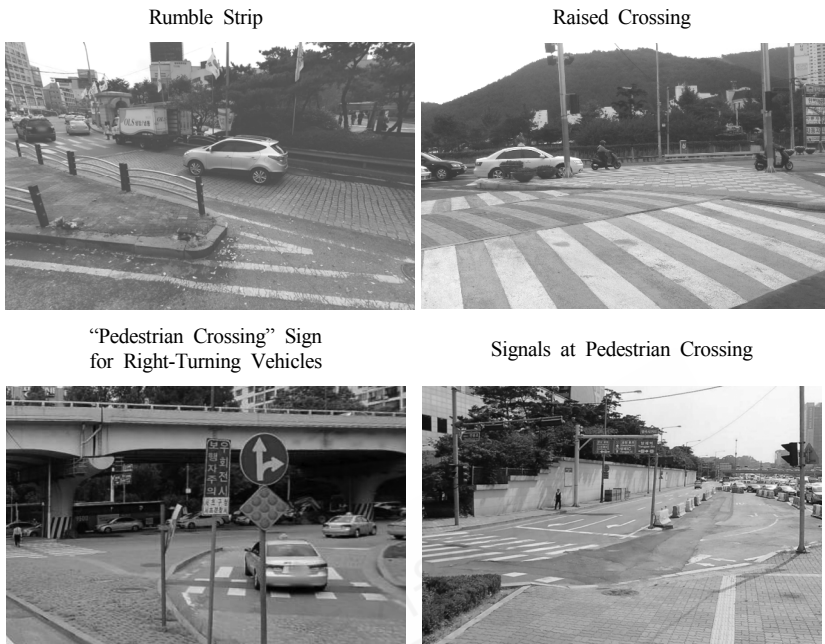


Source: Boston, 2013, Boston Complete Streets Design Guidelines.

[Figure 10] Benefits of Curb Extensions

Pedestrians at traffic islands are safer with slower speed

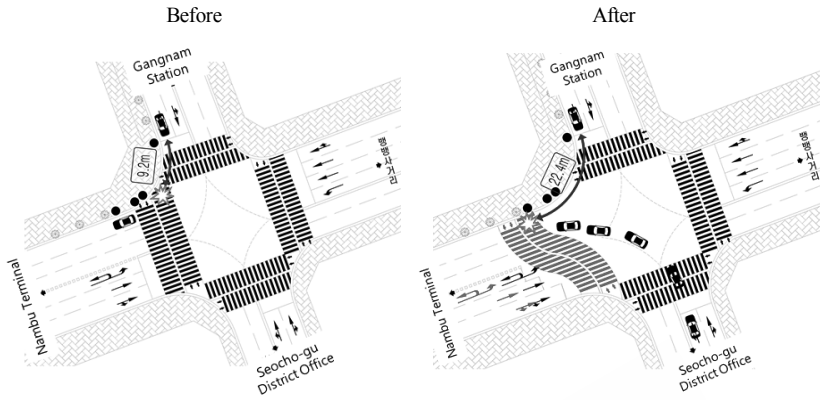
If there must be a traffic island for right-turning vehicles, installing features to ensure pedestrian safety is essential. Rumble strips, raised crossings, and varied pavement colors are some features that can be introduced to encourage vehicles to slow down. If pedestrian traffic is high, pedestrian signals may be installed at the crossings over lanes channelized by the traffic island. Warning signs may also be installed to remind right-turning vehicles of the presence of pedestrians.



[Figure 11] Speed-reducing Features at Intersections with Traffic Islands (Above)
Additional Pedestrian Safety Features (Below)

Pedestrians must come first, especially at RTOR intersections

It is also recommended to change pedestrian crossing location and introduce S-type crossings. It is also necessary to enhance motorist visibility to help them see what is ahead. Assuming the speed of right-turning vehicles is 10 km/h, drivers need 18m from recognizing pedestrians at a crossing and coming to a stop. However, the actual distance to the stop line is usually 10m. This can be increased by introducing S-type crossings, which can secure approximately 22m of sight distance, thereby reducing potential conflict between vehicles and people. In reality, it can be difficult to secure sufficient visibility of the roadway and surroundings due to street facilities such as subway exits, trees, and street stalls. Motorist visibility can be enhanced by moving pedestrian crossings down the roadway.



[Figure 12] S-type Pedestrian Crossing at Mujigae Apartment Intersection (Seocho--Gu, Seoul)

Raise public awareness on RTOR rules

Awareness of existing RTOR rules must be promoted to the general public as most motorists are not aware of these rules. This is crucial as it is directly related to pedestrian safety. While RTOR rules are rather ambiguous under the Road Traffic Act, recent court rulings clearly indicate that vehicles cannot make a right turn when the pedestrian signal is green. The Road Traffic Act should be revised as soon as possible to provide clear rules to motorists.

Control speeding vehicles on traffic islands and redesign crosswalks at intersections accepting RTOR

If traffic islands must be retained, SMG must reduce the driving speed. To do so, a right turn lane should be paved in a way to create rough surface. It can also integrate a crosswalk with a speed hump or, differentiate the color of road pavement. Such options should be considered to secure the safety of pedestrians. At intersections where RTOR is allowed, drivers must have a clear view before them.

However, their views are often distracted by numerous subway exits, roadside trees, and stalls. As a result, drivers are prone to fail to see pedestrians on the crosswalk. To tackle this problem, crosswalks should be relocated. Alternatively, S-shape crosswalks should be installed.



Improvement of Travel Survey and Statistical Indicators for Walk Trips

Kim, Soon-Gwan

Summary

There is a need to improve the statistical indicators of pedestrian traffic volume by utilizing a range of data collected by the Household Travel Survey, the Floating Population Survey, and the Global Positioning System (GPS).

1. Introduction

A lack of reliable statistical indicators of foot traffic volume makes it difficult to develop effective public policies for pedestrian mobility. Yet a problem is that there is no clear standard for such indicators.

Today, people increasingly choose walking over other means of transportation. This recent social trend has induced many governmental entities to introduce various public policies and programs for pedestrian mobility. The Seoul Metropolitan Government (SMG) also has been carrying out several policies on behalf of Seoul citizens seeking a more pedestrian-friendly environment. Yet a dearth of proper statistical indicators of foot traffic makes it difficult for the government to design and implement effective policies.

The Household Travel Survey and the Floating Population Survey are the two commonly used tools to investigate pedestrian travels. The former primarily aims to find out modal share of each means of transportation. Therefore, it is not specifically interested in every kind of pedestrian travels: It only counts a long-distance walk that takes at least ten minutes, although it considers all commutes whether they are short or long. The latter, on the other hand, measures the

volume of foot traffic in selected areas on a yearly basis. It has its own weakness in measuring the pedestrian volume: As the survey looks at different sites each year, it is impossible to compare its findings across years. In other words, it cannot detect change in the annual volume of pedestrian traffic.

Like this, the current statistical tools harnessed to measure pedestrian volume do not produce data that properly and accurately show such volume. On top of this, there is no clear definition nor standard for the indicator of foot traffic. SMG needs to come up with standard statistical indicators to objectively and efficiently gauge the efficacy of its pedestrian policy. Then, it should regularly update them. But before all, the government must first set what it intends to achieve with the policy. These must be done if SMG is to continue with developing and taking innovative approaches to improve pedestrian mobility and convenience.

[Table 1] Two Tools Used to Measure Pedestrian Traffic

Name	Feature
The Household Travel Survey	<ul style="list-style-type: none"> · Not considers every kind of pedestrian traffic · Measures the modal share of each means of transportation · Takes place in every five years
The Floating Population Survey	<ul style="list-style-type: none"> · Counts every kind of pedestrian traffic · Usage of its results is limited as it investigates different locations · Takes place annually

2. Main Findings

This paper first sets a standard for measuring pedestrian travels to secure reliable statistical indicators that can be renewed on a regular basis. Next, it outlines how SMG should investigate and analyze the data on pedestrian travels.

If SMG measures the floating population of every 282 areas in Seoul each year, it will be able to identify change in total volume of foot traffic across the city

Identifying change in the annual volume of pedestrian traffic is essential for

improving statistical indicators. One of the most commonly used tool to estimate pedestrian traffic is the Floating Population Survey. Its primary goal is not to measure the total volume of pedestrian traffic. Instead, it focuses on analyzing the characteristics of walking population in selected commercial areas. Since 2009, SMG has conducted the survey each year. But, out of total 10,000 areas selected for the survey, only 108 (which represents a mere 1 percent) have been investigated every year from 2012 to 2014. Most of those 108 places studied are reportedly urban areas holding large pedestrian volume. Given that, they are biased toward certain groups and therefore not suitable as a representative sample. In other words, it is inappropriate to regard the survey of those 108 places as a statistical indicator of how the total volume of pedestrian traffic in Seoul has changed.

Yet no survey other than the Floating Population Survey investigates foot traffic in various areas throughout Seoul. Besides, it is practically infeasible to undertake new research for the sole purpose of finding change in the annual volume of pedestrian traffic. Nor is it possible to secure the budget for such a project. Therefore, it is more realistic and practical for SMG to select a number of monitoring sites for the annual Floating Population to monitor change in pedestrian traffic volume. Assuming 10,000 places studied in 2009 represent the total population, this study has chosen 282 places for annual survey by applying the principles listed in [Table 2] below. If the Floating Population Survey studies every 282 monitoring sites, it will be able to identify change in the total volume of foot traffic in Seoul.

[Table 2] Principles for Monitoring Site Selection

1	Reflect the sample size of each special zone and region
2	Include 108 areas studied every year for 4 years
3	Reflect the absolute value of pedestrian traffic volume of each special zone and region
4	Select monitoring sites that demonstrate similar change in annual pedestrian traffic volume to that in the total population (2,000 areas/10,000 areas)
5	Select more than 30 areas constituting the minimum sample size of each region

Category	Housing Zone	Commercial Zone	Green Belt	Industrial Zone	Total
Downtown	18	25	1	0	44
Northeast	64	8	1	2	75
Northwest	40	8	1	0	49
Southwest	48	10	1	11	70
Southeast	36	7	1	0	44
Total	206	58	5	13	282



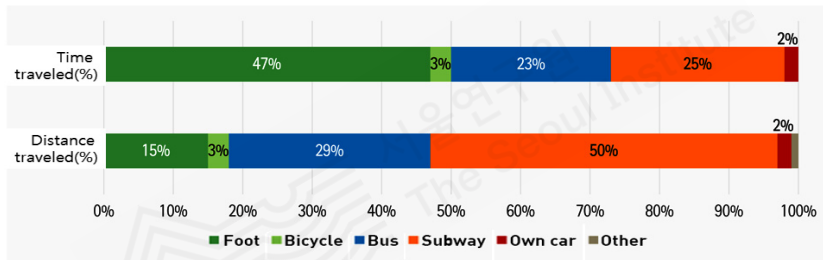
[Figure 1] Monitoring Sites for Special Zones in each Region (Draft)

The daily walking distance and time each accounts for 15 percent and 47 percent of total distance and time traveled

According to the road traffic data collected by the sample survey (size: 182 individuals) using the GPS, we find that people travel on average 16.2 km per day. They travel 8.0km and 4.8km by the subway and bus, respectively - each represents 50 percent and 29 percent of the total distance traveled. The daily walking distance is 2.4km. Meanwhile, the average daily travel time is 91 minutes, of which 42.5 minutes (that is, 47 percent of the total travel time) are consumed in traveling on foot. The rest of 21.1 minutes (23 percent) and 22.6 minutes (25 percent) are each spent in traveling by subway and bus. In terms of distance, foot travels account for a mere 15 percent of total distance traveled. However, it represents almost a half of total travel time. This clearly illustrates the significance of walking as a means of transportation. It also explains why there need policy actions for pedestrian mobility and convenience. Prior to initiating such actions, SMG must first obtain useful statistical data on pedestrian traffic.

[Table 3] Comparison of the Average Daily Travel Time and Distance between each Type of Travel

Means used for travel	Time (min)	Ratio(%)	Distance(km)	Ratio(%)
Total	91.0	100	16.2	100
Foot	42.5	47	2.4	15
Bicycle	2.7	3	0.5	3
Bus	21.1	23	4.8	29
Subway	22.6	25	8.0	50
Own car	1.7	2	0.4	2
Other	0.4	0	0.1	1

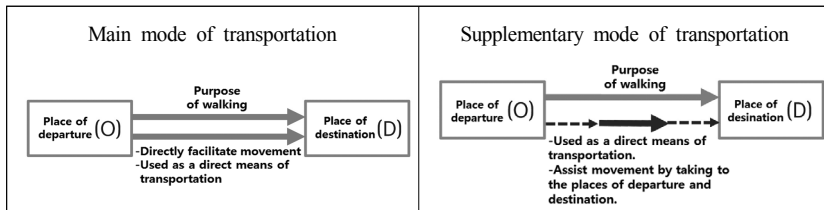


[Figure 2] Comparison of the Average Daily Travel Time and Distance between each Type of Travel (based on the sample of 182 persons)

Walking can be divided into two types: One that serves as main mode of transportation and other functioning as supplementary mode that takes individuals to other means of public transportation.

For the sake of research, this paper categorizes walking into two types by their functions: the main and supplementary modes of transportation. They both facilitate movement of individuals. However, the former directly takes people from one place to another. In other words, travel begins and ends with walking. The latter, on the other hand, transports individuals to other means of transportation such as private cars, taxis, and public transport modes. Say a person uses the metro

to commute. To get to the station from home or school, they walk. This is the case where a walk constitutes the supplementary mode of transportation.



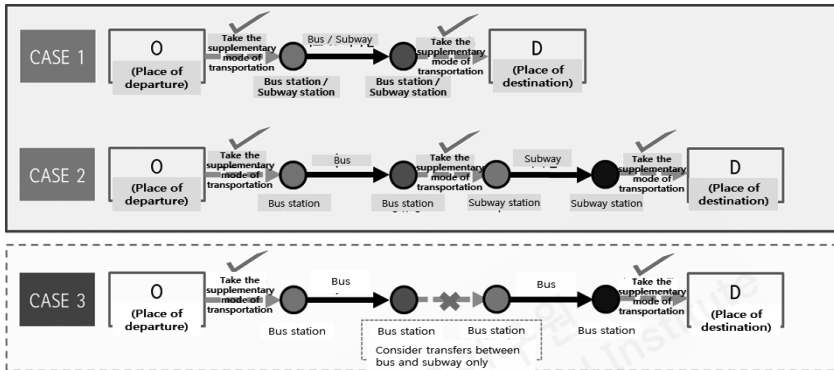
[Figure 3] Comparison between the Main and Supplementary Mode of Transportation

For walking as main mode of transportation, this paper applies the concept of “walking” defined in the Household Travel Survey. In other words, this research only studies pedestrians who commute on foot for over 10 minutes.

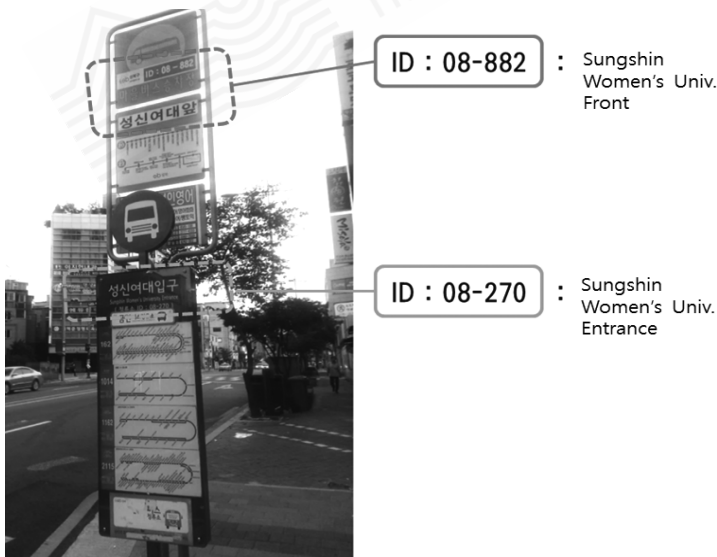
For walks serving as supplementary mode of transportation, this paper counts every walk that links individuals to their private cars, taxis, and public transport vehicles. The Household Travel Survey has discovered that most people do not have to walk when they drive their own cars or ride a taxi. This means that walks as supplementary mode of transportation are barely measured in times other than when individuals use mass transit services.

In this regard, this research only deals with walks that bridge people and other means of public transport, which qualify as the supplementary mode of transportation. When people transfer between buses or from bus to subway (vice versa), they take supplementary mode of transportation. The volume of pedestrian transfer between public transport systems can be measured from the data on public transportation card usage. However, there lies a pitfall of relying on such data. For instance, a pedestrian may find two bus stations in the same spot. Each has its own station ID (refer to [Figure 5]). Though there are two different stations in theory, they are recognized as one. Therefore, there arises no need for the supplementary mode of transportation. For this reason, the data on public transportation card usage cannot accurately indicate the volume of pedestrian transfer between buses.

Meanwhile, the pedestrian traffic data gathered by the GPS show that most transfers between buses take place between the same bus stations. Due to these issues, this paper limits walks functioning as supplementary mode of transportation to ones happening in transfer between bus and subway.



[Figure 4] Concept Map about Walks Serving as the Supplementary Mode of Transportation Linking Individuals to Public Transport Services



[Figure 5] Bus Station where Transfer between Buses is Possible without Taking the Supplementary Mode of Transportation

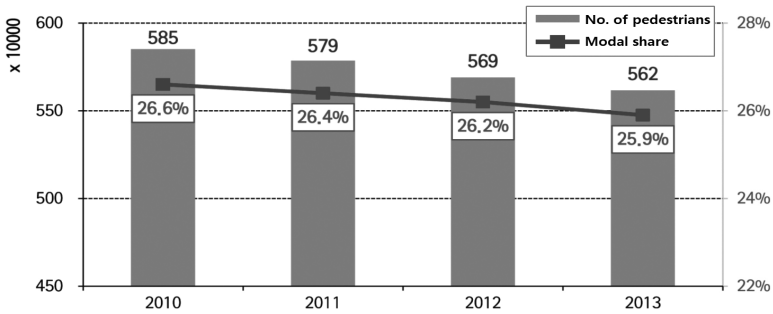
The volume of pedestrian traffic measured by the Household Travel Survey and the data from transportation card usage are used to identify the number of pedestrians taking main and supplementary mode of transportation, respectively. The former is 5.37 million and the latter is 22.03 million, making the total of 27.40 million people (note: only those traveling within Seoul are counted).

[Table 4] The Volume of Pedestrian Traffic in each Region

Category	No. of individuals traveling by the main mode of transportation (A)	No. of individuals traveling by the supplementary mode of transportation (B)	Total no. of individuals traveling on foot (A+B)
Downtown	353,458	3,226,163	3,579,621
Northeast	1,692,999	5,319,514	7,012,513
Northwest	592,577	2,371,414	2,963,991
Southwest	1,605,740	5,950,248	7,555,988
Southeast	1,121,432	5,168,657	6,290,089
Total	5,366,207	22,035,996	27,402,202

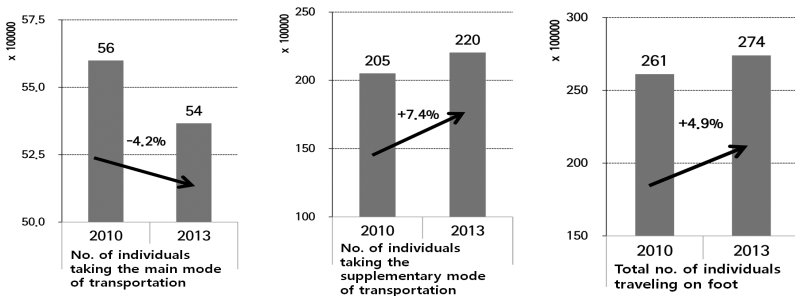
The population of pedestrians taking the main mode of transportation has gone down, whereas total volume of foot traffic is on the rise due to the increased number of pedestrians to access transit stations.

SMG estimates modal share of public transportation every year. According to the study, the number of people traveling by main mode of transportation has been decreasing in recent years. The same is also true of the modal share of foot travel. It is due to continuous fall in the population of students who mostly travel on foot. However, pedestrian mobility has decreased in spite of SMG's policy effort to improve pedestrian environment.



[Figure 6] Change in the No. of Pedestrians Taking the Main Mode of Transportation and the Modal Share of such Foot Travel (within Seoul)

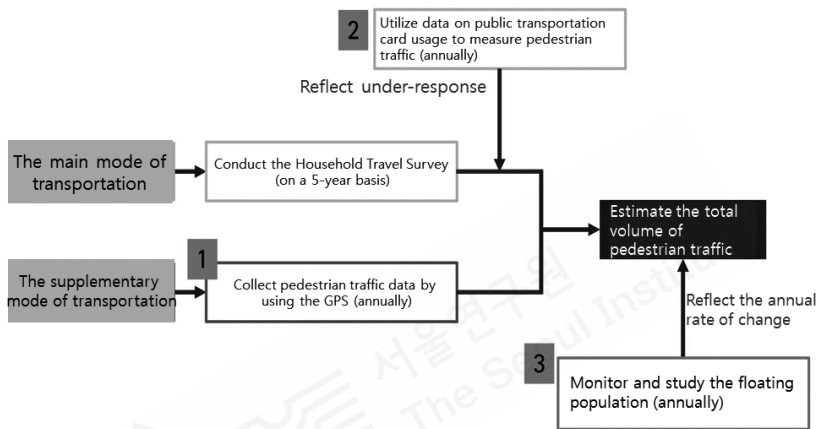
Besides the number of people taking the main mode of transportation, those walk as supplementary mode of transportation also have been studied to more reliably detect change in total pedestrian traffic volume. The Household Travel Survey has discovered 4.2 percent decrease in walking as main mode of transportation between 2010 and 2013. By contrast the number of individuals walking serving as supplementary mode of transportation has gone up by 7.4 percent, according to the data on public transportation card usage. This means that there has been a 4.9 percent increase in total volume of pedestrian traffic. However, modal share of pedestrian traffic volume measured by the Household Travel Survey only count walks serving as main mode of transportation. Therefore SMG cannot fully rely on them to support its policy decisions or assess the efficacy of current pedestrian policies.



[Figure 7] Change in Pedestrian Traffic Volume in Seoul

3. Conclusions & Policy Recommendations

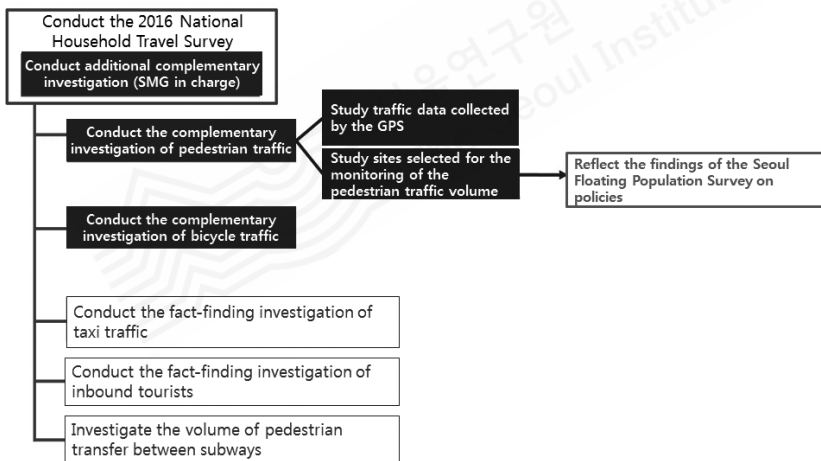
Use the Household Travel Survey and the data on public transportation card usage to measure the number of pedestrians traveling by main and supplementary mode of transportation, respectively.



[Figure 8] Outline of the Plan for the Improvement of Statistical Indicators of Pedestrian Traffic

Earlier, this paper has explained why the SMG cannot develop statistical indicators of pedestrian traffic with a single type of survey. This paper also has distinguished walks serving as main mode of transportation as supplementary mode of transportation. The total volume of pedestrian traffic can only be measured by using multiple survey results and data as demonstrated in [Figure 7]. The Household Travel Survey, which takes place in every five years, can obtain data related to main mode of transportation. The review of public transportation card usage (from which census data on pedestrian traffic can be collected almost every year) can provide information about supplementary mode of transportation. Yet the Household Travel Survey cannot identify annual changes, for it is conducted in every five years. Moreover, errors from under-response may arise from its methodology. To overcome these downfalls, pedestrian travel data should be

collected by GPS. However this kind of data also have its own problems: It can only be proceeded as a small-scale sample study due to limited budget and characteristics of investigation. Thus, it cannot fully detect changes in total volume of pedestrian traffic on its own. As a solution to this, the SMG may avail itself of the Floating Population Survey that observes and investigates pedestrian traffic volume on the road. This paper has suggested 282 monitoring sites as the representative places to indicate change in total pedestrian traffic volume in Seoul. Since the Floating Population Survey only looks at pedestrian traffic volume in certain areas, SMG should conduct additional surveys to investigate, say, the purpose of travel. In this way, it will be able to secure statistical data required for policy development.



[Figure 9] The Current Progress of Harnessing the Research Results for Policy Development (Research in use: The 2016 Study on the Volume of Air Traffic of each Type of Passenger Planes)

02 The Economy

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

Kim, Bum-Sik

Summary

The Seoul Metropolitan Government (SMG)'s policy efforts to increase the procurement of goods and services from the Hope Businesses have yielded the desired results: growth in the sales, employment and profitability of such companies.

1. Introduction

Hope Business refers to organizations which hire the socially and economically disadvantaged

Many organizations have become increasingly committed to corporate social responsibility. Some of them, in particular, vigorously strive to make contributions to society by providing social services and creating jobs for the disadvantaged while engaging in business activities. They are called social enterprises. Among them include manufacturing facilities operated by the severely handicapped, social businesses, rehabilitation organizations, co-operatives, businesses with community interests, and disability-owned businesses. Compared to other conventional companies in general, social enterprises produce goods and services that are less competitive in terms of price. On top of this, they experience a greater extent of difficulty in securing markets and customers. Besides social enterprises, small or independent companies who work on a small scale also encounter the same

challenges. All these businesses that suffer from social and economic disadvantages in the market are referred to as Hope Businesses. As a means to help them, the Seoul Metropolitan Government (SMG) uses its procurement system. Since 2012, the SMG has taken numerous actions to improve the system for the Hope Businesses. In detail, it has relaxed the performance requirement which a company must satisfy if it is to enter the contract with city government agencies. Besides, it has been extending preferential treatment (in the form of extra credits) to Hope Businesses in the procurement bid. Furthermore, the SMG has implemented a contract system specially designed for the benefit of the Hope Businesses. It is the first such attempt in Korea. It has introduced a restricted bidding process for social enterprises to make it more feasible for them to participate in government contracts. Furthermore, a greater emphasis is now placed on corporate social responsibility.

2. Main Findings

This research first examines the current status of Hope Businesses in Seoul. Next, it gives recommendations on how the SMG can better support them in the future.

As of 2013, 24.9 percent of 13,235 Hope Businesses in Seoul did business with the SMG

There were 13,235 Hope Businesses in Seoul as of 2013. It accounted for 1.7 percent in total number of small and medium sized enterprises in the city. The study has found that 3,293 (24.9 percent) of those Hope Businesses transacted business with SMG. The vast majority of them were small companies whose number stood at 2,724 (equivalent to 82.7 percent). The rest were 260 social businesses (7.9 percent), 102 disability-owned businesses (3.1 percent), 63 manufacturing facilities operated by the severely handicapped (1.9 percent), 63 co-operatives (1.9 percent), and 46 rehabilitation organizations (1.4 percent).

Seoul has procured commodities worth about 1.3 trillion Won from the Hope Businesses in 2014. The purchase amount has jumped by 46.6 percent from the previous year

In 2014, Seoul spent approximately 1.3 trillion Won on procuring goods and services from the Hope Businesses. The city's purchase amount has jumped by 46.6 billion Won from the previous year. From the perspective of the Hope Businesses, small companies earned the largest revenue (873.1 billion Won), followed by independent producers who work on a small scale (316.6 billion Won), social businesses (97.6 billion Won), and disability-owned businesses (22.7 billion Won). Meanwhile, autonomous district governments recorded the biggest purchase amount (530.2 billion Won). SMG and its affiliated organizations followed, each with the purchase amount of 392.2 billion Won and 387.5 billion Won, respectively. In 2014, Seoul purchased a greater amount of goods and services from the Hope Businesses than it had planned. More specifically, the purchase amount exceeded the target amount by 41.4 percent. Organizations funded or invested by the government, autonomous district governments, and the SMG each spent 84.5 percent, 138.2 percent, and 117.7 percent more, respectively, on acquiring goods and services from the Hope Businesses.

The study has discovered that small companies dominated 66.7 percent of the procurement transactions. Social enterprises except disability-owned businesses (i.e. social businesses, manufacturing facilities operated by the severely handicapped, rehabilitation organizations, co-operatives, and community interest companies) represented 7.5 percent of total transactions. The disability-owned businesses accounted for 1.7 percent. In product terms, garbage bags were the most frequently purchased item (149 transactions). Demand for disposable products such as printing, copying, and toilet paper was also relatively high. They are the ones that the SMG mostly purchases from the Hope Businesses. Yet, the city has been procuring an increasingly wider range of goods and services like security cameras, electric works, and outer wall construction since 2014.



Source: The internal data of SMG

[Figure 1] No. of Goods and Services that Seoul Procured in 2013 and 2014

Sales of the Hope Businesses have increased by more than 10 percent thanks to SMG’s procurement policy

SMG has been undertaking policy efforts to increase the procurement of goods and services from the Hope Businesses. In the study conducted to find out if such policy has yielded the desired outcomes, 33.8 percent of the Hope Businesses that were investigated believed that the policy is most contributory to sales growth; 25.3 percent considered that it most helped them tap into a new market; and 16.1 percent attributed increase in employment (which resulted from sales growth) to the policy. It has also found that the rate of sales growth has fallen by 7.8 percent point in 2015 compared to 2013. However, the rate at which price competitiveness and product quality improved has risen by 3.5 percent and 3.8 percent points, respectively. This

illustrates that not only does SMG's procurement policy contribute to growth in sales of the Hope Businesses, it also boosts their competitiveness.

In the meantime, 54.3 percent of the Hope Businesses that performed under contracts with the SMG in 2014 witnessed increase in transaction amount. The average transaction amount was 398 million Won, up by 14 million Won from 2013. Among items sold to SMG in a greater amount, products accounted for 32.3 percent. It represented the largest share, followed by labor services (12.4 percent), research and consultation (8.5 percent), and construction (6.8 percent). In the study, the Hope Businesses' sales figures and transaction amount also have been analyzed. According to the result, increase in the transaction amount has led to 10.5 percent growth in sales. For manufacturing facilities operated by the severely handicapped, social businesses and co-operatives, the contribution was particularly significant.



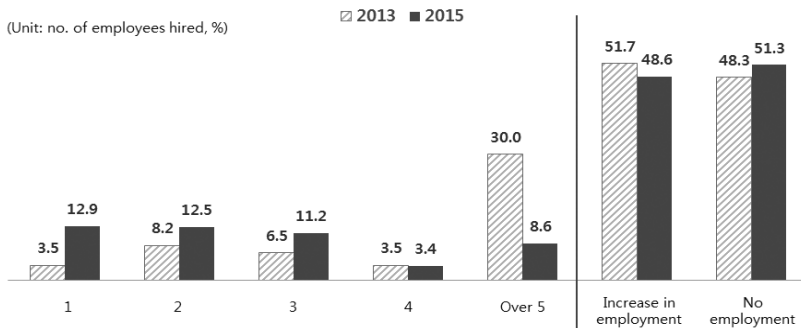
[Figure 2] Transaction Amount of Each Hope Business

As a result of SMG's procurement policy, it has been reported that 54.3 percent of the Hope Businesses had "increase in profitability" and 48.6 percent enjoyed "expansion in employment"

Many Hope Businesses reported that their sales went up thanks to SMG's procurement policy in 2014. 54.3 percent of them also enjoyed higher profitability.

More specifically, 15.1 percent found that their profitability has increased by less than 5 percent, whereas 15.5 percent saw the growth in somewhere between 5 percent and 10 percent. The rest 23.7 percent witnessed at least 10 percent rise in their profitability. However, the rate of profitability improvement has slightly dropped compared to 2013. This implicates that it has become more challenging for the Hope Businesses to secure net profits despite of sales growth resulted from the increased transactions. It may be due to the influence of external conditions.

SMG’s procurement policy also has borne expansion in employment among 48.6 percent of the Hope Businesses investigated. Social businesses and rehabilitation organizations, in particular, hired a large number of employees. Yet the rate of employment expansion has gone down by 3.1 percent point from 51.7 percent in 2013. It can be explained by a sharp fall in the number of Hope Businesses employing more than 5 workers. It countered the rise in small-scale employment. But a more fundamental problem is with the decreased rate of profitability. SMG’s procurement policy creates a cycle: First, it directly increases the public procurement of goods and services from the Hope Businesses. To meet increased demand, the companies expand their production and ultimately, their sales grow. As a result, their profitability goes up and this leads them to employ more people. Nonetheless, the rate at which the profitability of Hope Businesses rises has been weakened. Hence, less employment.



[Figure 3] Effect of SMG’s Procurement Policy to Increase the Purchase of Goods and Services from the Hope Business on Employment Expansion

The public procurement of goods and services from the Hope Businesses induces production worth 1.5 trillion Won and employment of 20,000 workers

The macroeconomic effect of procuring goods and services from the Hope Businesses has been estimated by using the 2013 Seoul Area Input-Output Table. The result shows that 1.3 trillion Won spent by SMG in 2014 on the procurement had the inducement effect on the areas of production (nearly 1.5 trillion), value addition (1.1 trillion), and employment (19,124 workers) in the Seoul regional economy.

[Table 1] Macroeconomic Effect of SMG's Procurement of Goods and Services from the Hope Businesses

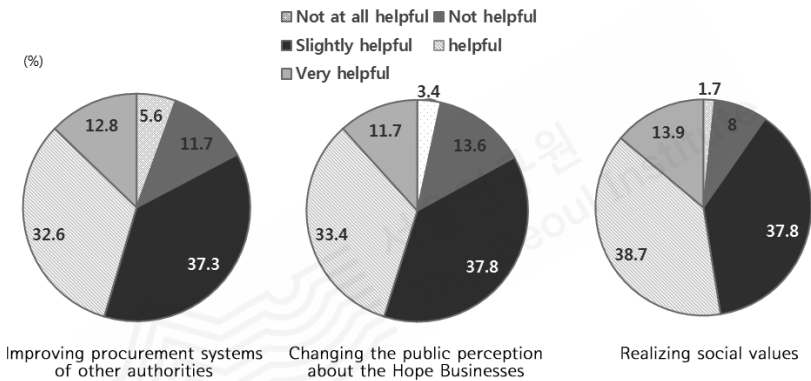
Category	Production Inducement Effect (100 million Won)	Value Addition Inducement Effect (100 million Won)	Employment Inducement Effect (No. of Workers)
Seoul	14,901	11,066	19,124
Nationwide	17,827	11,924	21,724

SMG's procurement policy for the purchase of goods and services from the Hope Businesses help change the public perception about such enterprises and realize social values

Besides economic contributions, SMG's procurement policy to increase the purchase of goods and services from the Hope Businesses has positive social effects. It serves as a model to other local governments and agencies. It also makes general public and government officials to become more favorably disposed to the Hope Businesses as well as their products. According to statistics, 45.4 percent of the Hope Businesses surveyed believed that SMG's policy would bring desirable changes to the procurement systems of other authorities. It greatly outnumbered those who responded otherwise (17.3 percent). To the question about whether they think the policy helps change the negative perception of some government officials and individuals about the Hope Businesses, 45.1 percent answered yes, up by 6.9

percent point from 2013.

Furthermore, the policy is reported to have played an important role in realizing social values. It encouraged the Hope Businesses to take part in converting temporary workers into the regular, employing disabled individuals, and other various kinds of social activities. According to the survey, 52.6 percent of the respondents were either already pursuing social missions or planning to. Given that, procuring more goods and services from the Hope Businesses may serve as a vehicle to stabilize and expand the employment of the vulnerable in society.



[Figure 4] Social Effect of SMG's Procurement Policy to Increase the Purchase of Goods and Services from the Hope Businesses

Companies certified by SMG as socially responsible businesses have the success rate of 62.5 percent in the city's procurement bid. However, not many businesses are aware of it

SMG gives extra credits to organizations that have been certified as socially responsible businesses when they enter the bid. The government has introduced such preferential treatment in 2014. Any enterprise can seek to be certified if they participate in: cultivating respectful and cooperative culture between labor and management; creating family-friendly working environment; addressing consumer complaints; promoting fair competition; and/or pursuing shared growth. Given

extra points, certified socially responsible businesses have a higher success rate in the procurement bid by SMG as well as its affiliated organizations and autonomous district governments. According to the study, 62.5 percent of government procurement transactions were made with certified socially responsible businesses. Meanwhile, 47.2 percent of enterprises got certified on the ground that they hired new employees (and so contributed to job creation). The rest were certified, for they hired disabled people (16.7 percent), converted non-regular workers into the regular (11.1 percent), and created new jobs for the handicapped (11.1 percent).

Without knowing that certified socially responsible businesses can enjoy such preferential treatment, some companies did not seek to be certified. In the survey, 41 percent of the companies responded that they intend to get certified. Given that, the positive effect of extending special treatment to certified socially responsible businesses is likely to spread. In the meantime, the large majority of respondents neither advocated nor opposed the idea of giving more extra points or introducing new evaluation criteria. They mentioned that the current scheme already gives enough extra credits.

The awareness of SMG’s procurement policy is low, with 67.7 percent of the Hope Businesses “unaware of such policy that gives benefits in contracts with government agencies”

In the survey, 67.7 percent of the Hope Businesses responded that they do not know about SMG’s procurement policy. This clearly illustrates that there needs a systematic approach to inform and promote the policy. This study has also discovered that some Hope Businesses had no transaction with SMG largely because they were not properly informed about the government’s procurement orders. According to the 2013 study, 41.3 percent of the Hope Businesses could not participate in the government contracts, for not having prepared goods on the order list. This, however, has dropped by 31.4 percent point to 9.9 percent in 2015. Unfortunately, a lack of information on the bid still remains as a dire problem. In

2013, 26.6 percent of the Hope Businesses picked it as the main reason why they failed to identify contract opportunities. The number has increased to 31.4 percent in 2015. Meanwhile, the Hope Businesses reported that they would welcome some improvements in the current procurement scheme. In detail, they requested the government to: expand private contracts, which would help their sales grow; give them more extra credits and if necessary, implement new criteria to facilitate the policy; and widen the range of products applicable to the restricted bidding process when social enterprises enter the contracts made public online.

3. Conclusions & Policy Recommendations

For the purpose of this research, SMG's procurement policy to increase the purchase of goods and services from the Hope Businesses has been examined. As explained earlier, the policy has yielded progress on both economic and social fronts. Based on the findings, we have drawn the following conclusions and policy recommendations.

Overall, SMG's procurement policy regarding the purchase of goods and services from the Hope Businesses has achieved desired outcomes in both economic and social terms

SMG has been relying on its procurement policy to increase the purchase of goods and services from the Hope Businesses as their main tool to support such enterprises. And it has made some progress on both economic and social fronts. First, the Hope Businesses have enjoyed growth in their sales and profitability, which has made them hire more workers. Meanwhile, the policy has facilitated the realization of social values. Yet its contribution to improving other public institutions' procurement systems is reported to be less significant. The same is also true of its effect on fixing the misapprehension of the Hope Businesses held by some government officials and individuals in general.

[Table 2] Economic Effect of SMG's Procurement Policy to Increase the Purchase of Goods and Services from the Hope Businesses

(Unit : %)

Category		Contribute to sales growth	Contribute to profitability improvement	Contribute to employment expansion
Total		10.5	54.3	48.7
Types of business	Social businesses	49.8	55.7	55.0
	Rehabilitation organizations	-176.8	66.7	61.9
	Manufacturing facilities operated by the severely handicapped	51.3	46.6	38.4
	Co-operatives	122.6	54.5	45.5
	Community interest companies	-796.5	50.0	12.5
	Others	34.8	37.5	25.0

[Note: Each category (from left to right) is measured in the contribution rate of increase in transactions on the sales figures; the proportion of business respondents that believed the policy has contributed to the improvement of profitability; the proportion of business respondents that believed the policy has contributed to the expansion of employment, respectively.]

[Table 3] Social Effect of the SMG's Procurement Policy to Increase the Purchase of Goods and Services from the Hope Businesses

(Unit : %)

Category		Contribute to the improvement of other authorities' procurement systems	Contribute to the improvement of the general public and government officials' attitudes towards the Hope Businesses	Contribute to the realization of social values
Total		45.4(3.35)	45.1(3.36)	52.5(3.55)
Types of business	Social businesses	45.5(3.35)	45.2(3.36)	52.9(3.58)
	Rehabilitation organizations	50.0(3.50)	58.3(3.62)	51.7(3.55)
	Manufacturing facilities operated by the severely handicapped	44.6(3.40)	43.4(3.37)	52.4(3.52)
	Co-operatives	38.1(3.05)	47.6(3.38)	52.4(3.40)
	Community interest companies	43.8(3.06)	25.0(2.94)	50.0(3.50)
	Others	42.1(3.29)	36.8(3.26)	42.1(3.39)

[Note: Each category is measured in the proportion of business respondents that answered positively to the questions about the policy's social contribution. Figures in the parenthesis represent the score (on a five-point scale) given by business respondents.]

Improve the policy's efficacy by adopting the following five suggestions, which include establishing the Center for Procurement Policy

In this study, we attempted to identify the Hope Businesses' demand for procurement policy and problems embodied in SMG's current scheme. Several issues have been addressed. Among them, the following two problems are reported particularly serious: One is the low awareness of the government's policy among the Hope Businesses; Another is a lack of information on the city's procurement bid. This research proposes herewith five solutions to such problems.

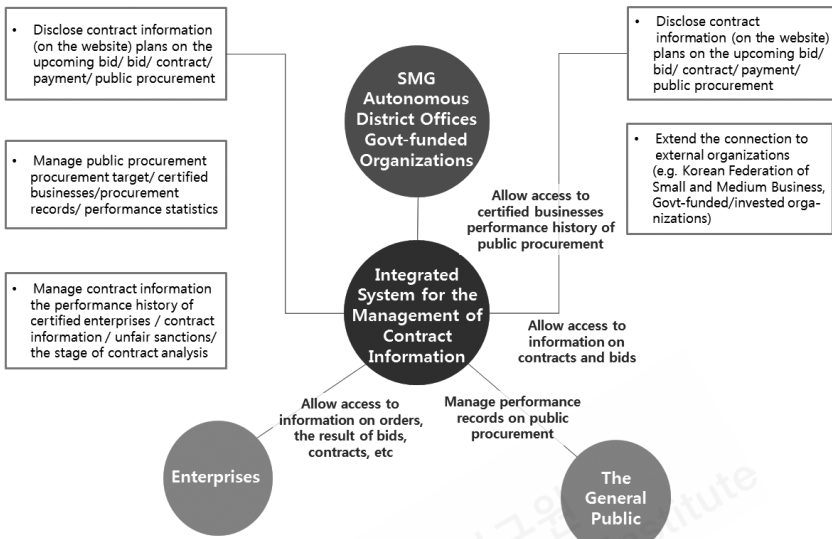
First, set up the Center for Procurement Policy to provide one-stop service for the Hope Businesses. At the moment, there is no organization in charge of dealing with complaints and problems reported by the Hope Businesses regarding the current procurement system. The Center for Procurement Policy should take the responsibility in bridging buyers and sellers. Its task should include the following: handling every procurement order and bid made by SMG, affiliated organizations, and autonomous district governments; overseeing business transaction between the two parties; and settling disputes if they arise. It would be cost effective to combine existing organizations or offices responsible for public procurement into one center than creating a whole new one.

Alternatively, the SMG can expand the role and work scope of the current Seoul Social Enterprise Promotion Agency to make it provide consultation services regarding the city's procurement policy. The agency then should be renamed, say, the Center for Procurement Policy. With the center at the heart of public procurement business, the SMG, autonomous district governments, and organizations funded or invested by the government ought to arrange workshops or set up an online platform where they can communicate with the Hope Businesses: Buyers can provide sellers with information about, for example, the expected quality of products or the types of goods and services in demand. On the other hand, sellers may propose suggestions (about the preferential treatment, for instance) or report problems they have spotted in the current procurement system. Whether it is an event or venue,

they all should be served as a channel, through which suppliers and demanders can share opinions and seek solutions together.

Second, implement more effective strategies to better inform the Hope Businesses about the city's public procurement bids. Over the past several years, the SMG has been exemplary to other local governments in vigorously taking policy efforts to support the socially and economically disadvantaged businesses. Unfortunately, the study shows that too few enterprises are aware of such policy. Not only that, some Hope Businesses missed out on the chance to work with government agencies. They mostly blamed lack of information on the procurement bid. If the SMG fails to find a way to raise the Hope Businesses' awareness of its procurement policy and provide them with sufficient information about the bids, it will end up undermining its policy effort to support the Hope Businesses.

Therefore, SMG must devise a strategy to provide sufficient information regarding its procurement plan to the Hope Businesses. On top of it, the government should seek a way to promote the merits of its procurement system. All of these can be accomplished if the SMG installs an integrated system to facilitate the management of procurement contracts online. After implementing it, SMG and its affiliated organizations as well as autonomous district governments must disclose the list of products that they intend to purchase, their plans and details about upcoming bid, and other relevant information. Hope Businesses, in turn, should give buyers access to, for instance, the list of their products, records on the procurement transactions they had in the past, and contact information. In this way, the system can serve as a bridge between suppliers and demanders. To facilitate such a function, the SMG, its affiliated organizations, autonomous district governments, and the Hope Businesses must all be granted access to the system.



[Figure 5] Strategies to Open and Promote the Procurement Bid on the Integrated System for the Management of Contract Information

Third, focus on the enrichment, not the expansion, of existing preferential treatment scheme for certified social businesses. It has not been long since the SMG has first introduced the scheme. Therefore, the SMG should concentrate on improving it rather than expanding it prematurely. Nearly a half of the Hope Businesses surveyed opposed the idea of giving more additional credits to certified socially responsible businesses as well as implementing new evaluation criteria. In particular, 58 percent of certified socially responsible businesses objected to the two aforesaid ideas. Besides, if the SMG introduces new evaluation requirements, they are likely to be filled with qualitative indicators. Needless to say, it is difficult to set up a clear, objective standard for qualitative criteria.

However, the SMG should consider the idea of giving more additional credits to a business for having employed new workers. It can work as a solution to the decreased rate of employment in Seoul. Besides, a large number of certified socially responsible businesses have been demanding for extra points for their social

contributions made by hiring new employees. By the objective evaluation criteria, certified socially responsible businesses can receive only up to two extra points for having employed new workers for the business of current year. Though the rule on additional credits stipulated in the contracts was amended in 2012, this part remained unchanged. Thus, there is a room for improvement.

Fourth, expand the range of products restricted for a bid among social enterprises. The large majority of Hope Businesses prefer to enter the private contract in pursuit of sales growth. Abiding by the law, the SMG procures goods and services from the Hope Businesses whenever the private contracts can be made. However, expanding the private contracts is challenging in practice. It is likely to trigger accusation that the government gives too many privileges to particular companies. As an alternative, the SMG may look for other ways to encourage competition among social enterprises in the procurement bid. For this, the SMG should expand the range of items applicable to the restricted bidding process. This is to be done by first collecting opinions from affiliated organizations, autonomous district governments, and public government agencies that procure commodities from the Hope Businesses more frequently than SMG.

Last but not least, SMG should design and implement a program that promotes shared growth of medium-sized enterprises and the Hope Businesses. In other words, it should establish a system in which medium-sized enterprises and Hope Businesses share responsibilities to supplement the capability of the Hope Businesses in preparing and submitting bids on their own. This places the right to “sell” in the hands of medium-sized enterprises. The Hope Businesses, on the other hand, will have the ownership. The Mentor-Protege Program adopted by the US Department of Energy and Small Business Administration (SBA) is a model example that the SMG can consider. It supports socially and economically disadvantaged companies in their journey to success. Under the program, both the mentor (the supporter) and the protege (the recipient of support) can achieve synergy.

A Study on Defining and Allocating the Safety Budget in Seoul

Won, Jong-Seok

Summary

Institutional grounds should be established for conducting prior consultation before drafting safety budget. It is also necessary to clarify the work of the Safety Budget Team in the Safety Management Authority that coordinates and oversees all the activities associated with disaster and safety control.

1. Introduction

While there has been ever-growing interest in the public safety budget since the Sewol ferry tragedy, difficulty remains in defining and systematically managing the budget

Since the Sewol ferry disaster, ensuring disasters preparedness and securing the safety budget have been the matter of utmost importance for the national government. Meanwhile, the role of local authorities has become increasingly important given their responsibility for civil protection. Therefore, it is necessary that the Seoul Metropolitan Government (SMG) discloses the criteria according to which it plans and allocates its safety budget. Not to mention, it must systematically manage such financial resources.

In general, the public safety budget is recognized as resources utilized for disasters preparedness and relief operation. However, it is currently used as the source of funds to many similar projects that seem to fall into the realm of disaster control and safety promotion. In addition, it is not easy to measure the actual effect of allocating the budget to those projects on the public safety enhancement. Due to

these reasons, it is difficult to deploy resources for disasters preparedness and safety enhancement in a timely manner.

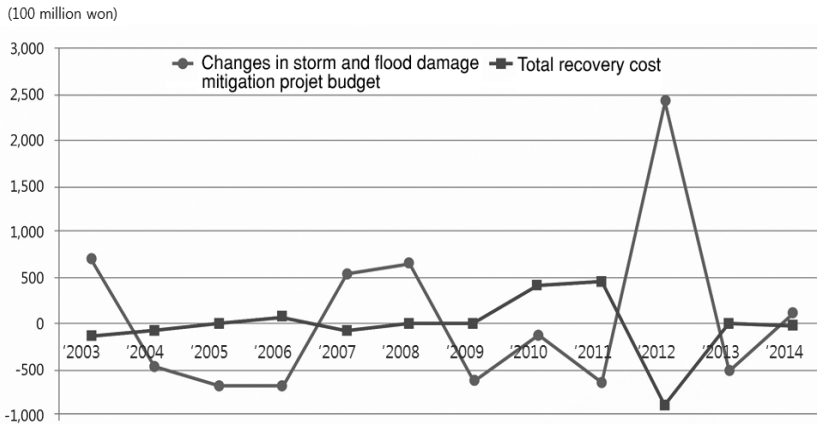
Seoul is the most densely populated city in Korea. In other words, the city is likely to suffer from huge loss and damage in the wake of disasters. To prevent and guard against such crises, the SMG should carry out a systematic organization of the safety budget. Until now, not much research on the safety budget has been conducted. Amid a lack of even basic data on the matter, this report suggests herewith the definition and classification scheme of the SMG's safety budget.

2. Main Findings

Discussion about the systematic organization of safety budget has covered various issues and made references to numbers of resources - previous studies of the safety budget, methods adopted by the national government and SMG in managing their safety budgets, and the features of other similar budgetary systems. For detailed analysis, we have conducted brainstorming, examined research papers, interviewed officials in charge of the safety budget management, and consulted experts.

It has been confirmed that the recovery cost increased even with the shortage of the safety budget, yet they could not identify total budget size.

Every year, SMG allocates its budget to projects for mitigating against and preparing for storm and flood. Researchers have compared the annual cost of (i.e. budget allotted to) such projects with the amount of change in total recovery cost. We have discovered that, roughly, budget cuts in disaster prevention, preparedness, response and recovery activities tend to result in a rise in the recovery cost.



[Figure1] Changes in Storm and Flood Damage Mitigation Project Budget and Total Recovery Cost

This study classified the SMG’s safety budget into 7 main and 21 sub categories by usage.

To define the safety budget and track its usage, we have come up with a new set of classification criteria for the SMG’s safety budget (refer to [Table 1]). In the process of determining such standards, we have looked at other reports on the matter, the national safety budget classification system and the emergency management process. We also have studied the characteristics of Seoul as a large city and how its budget has been allocated in previous years. Moreover, we consulted experts and officials in charge of the safety budget management.

[Table 1] Classification Criteria for SMG's Safety Budget

Classification by usage			
Main category	Sub-category		
1	Establishment and utilization of safety infrastructures	1-1	Implementing disasters and safety policies
		1-2	Developing, installing, and operating disaster and safety control systems
		1-3	Installing and deploying disaster and safety control equipment
		1-4	Strengthening disaster and safety management capacity
2	Enhancement of disasters mitigation capacity	2-1	Reinforcing the safety function of road infrastructures and facilities
		2-2	Strengthening the capacity of disaster management centers to manage crises
		2-3	Fixing hazardous or vulnerable facilities
3	Enhancement of social and daily safety management	3-1	Managing social safety
		3-2	Managing daily safety
		3-3	Managing safety in the arrival of a new or complex types of disasters
4	Education, training, and R&D	4-1	Increasing the public awareness of safety
		4-2	Cultivating crisis management capability
		4-3	Improving the work capacity of officials responsible for disaster and safety management
		4-4	Conducting R&D for disaster and safety control
5	Shoring up of safety enforcement	5-1	Establishing and operating disaster experience centers and memorial centers
		5-2	Supporting and certifying safety
		5-3	Managing safety and disaster preparedness
		5-4	Establishing the system network for disaster response and safety control
6	Expansion and management of facilities for disaster prevention and recovery	6-1	Establishing and maintaining new city facilities for disaster prevention
		6-2	Assigning facilities and raising fund for disaster management
7	Reserve fund	7-1	Responding to disasters and accidents

The new safety budget classification criteria have measured SMG's 2015 safety budget to be 1.6431 trillion KRW.

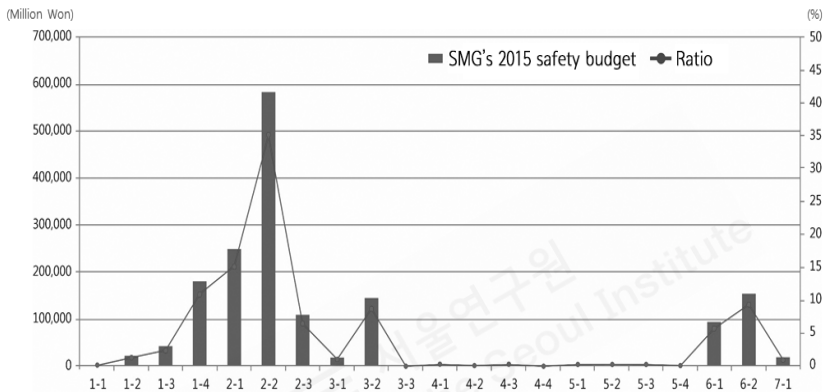
This study has applied the new safety budget classification criteria suggested earlier in this paper to measure SMG's 2015 safety budget. They also have checked if any projects funded by the safety budget are regarded as the program initiated by Seoul Safety Advisory Group. They have measured SMG's 2015 safety budget to be 1.6431 trillion KRW (Korean Won) and the number of safety projects to be 614 in total.

The second main category of usage, "Enhancement of disaster mitigation capacity", was allotted with the largest budget of approximately 940.6 billion KRW, which amounted to 57.25 percent of SMG's total safety budget (refer to [Table 2]).

[Table 2] SMG's 2015 Safety Budget Allocated to each Main Category of Usage

Main category		SMG's 2015 safety budget			
		Budget (in thousand KRW)	Ratio (%)	No. of projects	Ratio(%)
1	Establishment and utilization of safety infrastructures	247,805,642	15.08	127	20.68
2	Enhancement of disasters mitigation capacity	940,625,030	57.25	325	52.93
3	Enhancement of social and living safety management	162,015,584	9.86	70	11.40
4	Education, training, and R&D	10,557,945	0.64	29	4.72
5	Shoring up of safety enforcement	13,750,087	0.84	20	3.26
6	Expansion and management of facilities for disasters prevention and recovery	248,370,559	15.12	42	6.84
7	Reserve fund	20,000,000	1.22	1	0.16
Total		1,643,124,847	100	614	100

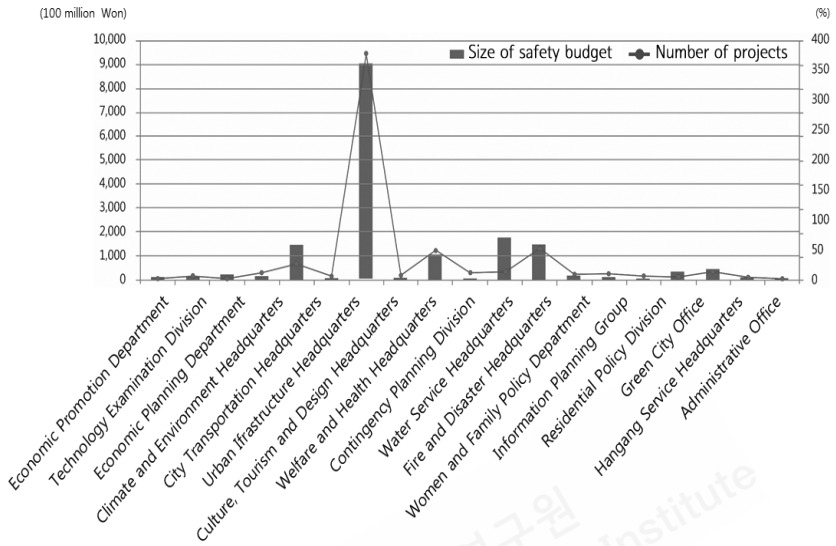
In detail, the sub-category 2-2, “Strengthening the capacity of disaster management centers to manage crises” (refer to [Table 1]) was allocated with 35.43 percent of the total safety budget. Meanwhile, the finances earmarked for the sub-category 3-2, “Managing living safety²”, accounted for 8.80 percent of the total safety budget.



[Figure 3] SMG's 2015 Safety Budget Allocated to each Sub-Category of Usage

SMG's 2015 safety budget was distributed to 19 different apparatuses. Among them, the Safety Management Authority was allotted with the largest budget of 900.4 billion KRW for total 376 projects. Within the office, the authority was responsible for 291 projects, which required total budget of 632.8 billion KRW. By contrast the Economy Promotion Division received the lowest budget of 900 million KRW, whereas the Office of Planning & Coordination had the least number of safety project (just one).

² Living safety includes the safety of vulnerable people in society as well as food and drug safety



[Figure 4] SMG's 2015 Safety Budget Allocated to each Apparatus

With current diagnosis indicators, it is difficult to pin down the effect of the safety budget allotted to the fifth, sixth and seventh main categories of usage. SMG should develop additional performance indicators.

This study has come up with the diagnosis indicators for the safety budget allocation in [Table 3]. These indicators are to be used for measuring the effect of the safety budget allotted to each category of usage. The 5th, 6th and 7th categories do not have enough indicators compared to other categories. Besides, most indicators only indicate the ratio of output relative to input. There should be developed additional performance indicators, based on which the actual effect of budget allocation can be determined.

[Table 3] Diagnosis Indicators for SMG's Safety Budget Allocation to each Sub-Category of Usage

Main Category	Categories of usage		Diagnosis indicators		
		Sub-category	No.	Ratio	Sub-total
1	1-1	Implementing disasters and safety policies	1	0.9	38.5
	1-2	Developing, installing, and operating disaster and safety control systems	4	3.4	
	1-3	Installing and deploying disaster and safety control equipment	3	2.6	
	1-4	Strengthening disaster and safety management capacity	37	31.6	
2	2-1	Reinforcing the safety function of road infrastructures and facilities	8	6.8	21.4
	2-2	Strengthening the capacity of disaster management centers to manage crises	12	10.3	
	2-3	Fixing hazardous or vulnerable facilities	5	4.3	
3	3-1	Managing social safety	21	17.9	20.5
	3-2	Managing living safety	3	2.6	
	3-3	Managing safety in the arrival of a new or complex types of disasters	0	0.0	
4	4-1	Increasing the public awareness of safety	6	5.1	13.7
	4-2	Cultivating crisis management capability	3	2.6	
	4-3	Improving the work capacity of officials responsible for disaster and safety management	7	6.0	
	4-4	Conducting R&D for disaster and safety control	0	0.0	
5	5-1	Establishing and operating disaster experience centers and memorial centers	2	1.7	6.0
	5-2	Supporting and certifying safety measure	4	3.4	
	5-3	Managing safety and disaster preparedness	1	0.9	
	5-4	Establishing the system network for disaster response and safety control	0	0.0	
6	6-1	Establishing and maintaining new city facilities for disaster prevention	0	0.0	0.0
	6-2	Assigning facilities and raising fund for disaster management	0	0.0	
7	7-1	Responding to disasters and accidents	0	0.0	0.0
Total			117	100.0	

SMG should weigh both advantages and disadvantages of allocating the safety budget to each main category of usage. Next, it ought to come up with supplementary strategies and directions for budget allotment

This report suggests herewith the strategies and directions that will help SMG more efficiently and effectively leverage its safety budget. To come up with the plan, we have analyzed both strengths and weaknesses of the SMG's safety budget allocation to each category of usage. In the process, it has made reference to the followings: the primary objectives of earmarking the safety budget to each category of usage; how the safety budget has been organized and executed in 2014 and 2015; the specifics of projects funded by the safety budget; SWOT analysis of SMG's safety projects; and diagnosis indicators.

[Table 4] Future Directions for SMG's Safety Budget Allocation

Type	Strategies	Detailed directions for budget allocation
Strength/ Opportunity	Harness the increased interest of Seoul citizens in safety	<ul style="list-style-type: none"> · Encourage the civil participation in safety projects · Raise the public awareness about safety through safety education
	Integrate ICT with safety measures	<ul style="list-style-type: none"> · Strengthen the capacity to monitor disasters and accidents · Establish advanced fire response systems
	Increase the efficiency of budget allocation	<ul style="list-style-type: none"> · The safety budget is currently being overly concentrated in the maintenance of storm and flood damage mitigation facilities. Though, increasingly more finances are being invested in establishing damage mitigation facilities, higher efficiency should be ensured in budget allocation and management
Weakness/ Opportunity	Strengthen the budget management capacity in the areas allotted with relatively small budget. Integrate with ICT	<ul style="list-style-type: none"> · At present, the safety budget for each category of usage is managed separately. Based on this management system, reinforce the budget management function and capacity of the areas that are allotted with a very small number of projects and not much budget · Enhance the R&D capacity related to disaster and safety preparedness by leveraging high technology

Type	Strategies	Detailed directions for budget allocation
	Objectively evaluate budget allocation	<ul style="list-style-type: none"> Develop various diagnosis indicators, which can serve as a reference point to determine the effect of earmarking the safety budget for each category of usage
Strength/ Threats	Find new countermeasure projects against disasters	<ul style="list-style-type: none"> Currently, the safety budget is concentrated in projects for the reconstruction of damaged structures. Address this imbalance by allocating more budget to projects for activities other than reconstructing damaged structures.
	Ensure preparedness for disasters that the citizens consider especially detrimental and happen increasingly frequently	<ul style="list-style-type: none"> Allocate more budget to the management of living and social safety to avert accidents associated with ³5 major crimes and ⁴4 social evils Shore up the education and training of the citizens about how to response to disasters in high-rise, large-scale, multi-use facilities.
	Introduce an effective response plan to the class or region that receives a little budgetary support	<ul style="list-style-type: none"> Develop a plan for how to deal with damages done to both constructions and other areas by disasters for groups or localities that are especially vulnerable to natural disasters
Weakness/ Threats	Increase the budget for R&D necessary to prepare for a new type of large-scale disasters that may strike Seoul	<ul style="list-style-type: none"> Earmark a larger budget for R&D projects in preparation for complex and new kinds of disasters Ward off disasters or accidents that may happen or aggravate due to the current urban conditions of Seoul (ground subsidence, facility deterioration, increasing use of multi-use facilities, rising population vulnerable to certain disasters) Eliminate safety hazards that might cause disasters or accidents in advance
	Promote the sense of safety in the entire process of urban planning	<ul style="list-style-type: none"> Raise the awareness of safety or conduct R&D for safety promotion throughout urban planning
	Prepare for increase in facility maintenance cost	<ul style="list-style-type: none"> Prioritize budget allocation to facility maintenance Improve sustainability and efficiency of safety budget projects to maintain the continuance of overall safety projects

³ 5 major crimes are namely, murder, burglary, rape, theft and assault

⁴ 4 social evils are namely, sexual assault, school violence, domestic violence, and distribution of substandard food products

3. Conclusions & Policy Recommendations

This report summarizes issues with SMG's safety budget management into (1) inadequate classification system, (2) vague definition of and criteria for the safety project, and (3) problems emerging in the system execution. By factoring in these three implications, this report recommends the improvement plan for SMG's safety budget management.

Solutions for sustainable and effective management of SMG's safety budget

1) Mandate the conducting of prior consultation regarding the safety budget by stipulating it in the Seoul Administrative Ordinance

The prior consultation system for safety budget management legally binds organizations responsible for disaster control to submit the plan, list of priorities, and budget requirement for their projects to the national government. Then, the apparatus overseeing all safety budget-related matters consults each Ministry about the budget. SMG does not have the authority to control every safety budget allotted to each of its department. Nevertheless, it recognizes the need to conduct the prior consultation about the safety budget with related departments and has been doing so. Unfortunately, such work has not been going smoothly, for some officials working at the department that has sought the safety budget are not fully committed to undertake the prior consultation. They tend to regard the required prior consultation as a one-time deal rather than regular, constant work. SMG needs to state the necessity of conducting prior consultation regarding the safety budget in the Seoul Administrative Ordinance.

2) Ensure that the Safety Budget Team of the Safety Management Authority fully devotes its efforts to handling every work related to the safety budget

Since the Sewol ferry disasters and the outbreak of MERS (Middle East Respiratory Syndrome), Seoul citizens have become increasingly concerned about

their safety. They have been showing ever-growing interests in the policy of the department responsible for disaster control. Recognizing the public concern, the SMG has undertaken the organizational reform to more methodically organize disaster management functions and enhance their capacities to deal with crises. The two central changes made in the organization are that: (1) the City Safety Management Office, which was formerly in charge of the safety budget management, has been reorganized into the Safety Management Authority, and (2) the Water Circulation Safety Bureau has been established.

Amid such organizational reform, there has arisen the need of a new direction for safety budget management. One significant characteristic of any organizations is that it evolves. Therefore, it takes a certain amount of time until an effective budget management system firmly settles in the organizations. In such a process, the system's dualistic structure may cause conflict and fail to achieve a clear delegation of responsibilities. SMG should address these problems while employing additional workers and increasing the work efficiency based on the strategy of "choose & Concentrate."

SMG needs to ensure that the Safety Budget Team is fully committed to overseeing all works related to the safety budget, including safety project planning. The government is expected to select tasks that it should focus its human resources. This would boost the efficiency of their work.

3) Further divide the main categories of the safety budget classification criteria into sub-categories. Continue to work on the details

Applying the current national safety budget classification system to SMG's safety budget categorization is not feasible provided that the former does not reflect the unique disaster and safety characteristics of Seoul. To avoid confusion between two systems, this research has introduced new classification criteria for SMG's safety budget.

Yet, there still exists the possibility that SMG's safety budget classification system has vulnerable areas. Moreover, it lacks evidence for its effectiveness as it is

in the early stage of implementation. Therefore there exist some limitations in applying the system to sort projects. We recommend that SMG improves the safety budget classification system in the following directions.

First of all, consider every stage of disaster and safety management activities (i.e. prevention, preparedness, response, and recovery) stipulated in the Seoul Administrative Ordinance.

Second, identify disasters or accidents that occur frequently in Seoul likely to inflict great damage and loss. Next, continue to improve and reflect them in the safety budget classification system with flexibility.

Third, educate and train all the officials in charge of the safety budget so they can classify the safety budget according to the same criteria. It is necessary given that every bureau and division within the government deals with the safety budget in some way.

Lastly, carefully consider various changes made in the city's capacity to manage disasters as well as the emerging issues regarding disaster and safety. Then, alter and supplement the safety budget classification system so that it can effectively explore and pursue new projects.

4) Develop new diagnosis indicators that can be used to determine the effect of the safety budget allocation

In the prior consultation regarding the budget, evidence must be provided to the related parties to decide the priorities and measure the outcome of allocating the budget. SMG shares the evidence called performance indicators with every bureau, division and department when planning the budget and performance management. However, such indicators lack scientific grounds to be applied to the safety budget. Nor is there enough proof to confirm the connection. Given that, SMG should make sure that it sorts the safety budget projects by project type. In addition, the SMG needs to develop new diagnosis indicators that can serve as a reference point to determine if the safety budget spent on the project has borne any fruit.

5) Efficiently manage and execute the safety budget in each step of disaster control - prevention, preparedness, response, recovery

Every stage of disaster control is important, yet priority must be set for efficient budget distribution. This report lists below what should be prioritized and emphasized in each stage.

Prevention stage: (1) Implement a control tool to avoid imprudent expenditure, (2) Utilize the existing resources, (3) Revise law and institution to induce the participation of various entities.

Preparedness stage: (1) Efficiently distribute the budget, (2) Identify and secure available resources, (3) Secure the budget for education and training.

Response stage: (1) Strengthen the capacity for early response, (2) Invest in the installation of information system prior to other areas, (3) Distinguish safety budget projects from those that are not, (4) Specify the safety budget categories necessary for the establishment of cooperative systems.

Recovery stage: (1) Organize a reserve fund and distribute the recovery budget in a timely manner, (2) Clarify the criteria for rescuing and compensating victims, (3) Forestall excessive budget expenditure in the process of rescue and relief operation, (4) Reinforce the tie with prevention measures

6) Ensure transparency in planning and executing the safety budget, and establish a communication channel

The foremost task in organizing and distributing the budget would be to ensure transparency. Budget allocation may be interpreted as the distribution of limited resources. Therefore efficient management is necessary. More importantly, transparent disclosure must be ensured to avoid any corruption. This is especially the case for the safety budget as it is directly related to the lives of people.

However, efficient budget allocation may not be as easy. It is largely because that the criteria and recipients of the budget are ambiguous, whereas disasters and accidents can hardly be anticipated with absolute certainty. To deal with such difficulty in the safety budget allocation, SMG should induce the participation of

various entities and reflect their opinions in the decision making process. They may provide the public sector with insights about circumstances that it could not have thought of on its own. Their participation would reduce the level of uncertainty and inefficiency involved in the safety budget management as well as disaster control.

SMG has made the information regarding how it governs Seoul open and accessible to the public. It also has been welcoming ideas, opinions and insights from the citizens in decision making. As for the budget management, SMG discloses its annual budget report. In addition, it runs the Civil Participatory Budget System, in which Seoul citizens can have a say in the budget organization.

However, the Civil Participatory Budget System has some limitations: First, it only allows the citizens to participate in the budget planning stage. Second, it handles a mere one percent of SMG's total budget. Third, not every information is disclosed.

In order to secure transparency in the safety budget management and induce public participation, SMG should improve the current institutional measures in the following directions.

First, SMG should transparently disclose its safety budget management and ensure that it takes accountability for the work. In the entire process of managing the safety budget, from planning to execution, every decision needs to be formed based on scientific evidence and various opinions. In addition, the decision making process should be documented and made public to the citizens.

Second, SMG needs to establish a discussion channel. At present, it is difficult to discuss a wide range of budget-related issues that require expertise. By disclosing the information and promoting social inclusion, SMG would be able to ensure transparency in its safety budget management. Not only that, the channel may pave the way to solve the problem of the absence of long-term budget plan. A political motive often plays in drafting the safety budget, which usually ends up becoming one-time expenditure. As a result, there is almost no long-term plan for the safety budget. SMG would be able to address this issue by establishing a discussion channel.

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

Bae, Jun-Sik

Summary

A national subsidy measurement standard should reflect the changes in local finances and the demand for welfare.

1. Introduction

Considering Korea's demographics, there is no doubt that the government spending on social and public welfare will continue to rise unabated.

Issues related to the state welfare programs such as the Basic Pension Program and the Free Education Scheme are widely discussed in Korean society today. It has aroused much controversy among politicians including the members of the National Assembly. Nevertheless, it is the plain truth that the state expenditure on public and social welfare will keep going up. It is the inevitable owing to the country's demographics and welfare policy directions.

With continuous increase in the national government's welfare expenditure, local authorities' welfare spending has been on the rise, too. In general, the National Subsidy Program is based on the Matching Fund Method - that is, both the nation and local governments defray the cost of investment in public welfare. Korea's National Welfare Subsidy Program is consisted of the five core programs: the Basic Pension Program, the Disability Pension Program, the Infant and Child Care Grant Program, the Child Home Care Allowance Program, and the National Basic Livelihood Security System. As prescribed by the law, the nation is obligated to carry out all these welfare programs. In turn, local governments are bound to pay their shares in welfare spending. Given that, the expansion of the National Subsidy

Program serves as the main culprit of decrease in discretionary spending of local governments. It also increases their dependency on the nation.

2. Main Findings

This paper examines the present status and problems of the National Welfare Subsidy Program. It also analyzes factors that may improve the national subsidy measurement method.

Spike in spending on social welfare and public health has imposed financial pressures on local governments

As of 2014, the total expenditure of local governments in Korea has increased by on average 4.6 percent each year. Meanwhile, spending on social welfare and public health has soared by on average 10.3 percent a year. This is true of most local authorities. In particular, Seoul and other municipalities are witnessing abrupt increases in their spending on the two aforesaid areas.

[Table 1] Expenditure of Seoul, Metropolitan Cities, and Province

(Unit : trillion won, %)

Category	2008	2009	2010	2011	2012	2013	2014	Annual increase rate
Provinces								
Total expenditure	125.0 (100.0)	137.5 (100.0)	139.9 (100.0)	141.0 (100.0)	151.1 (100.0)	156.8 (100.0)	163.6 (100.0)	4.6%
Social welfare:public health spending	23.6 (18.9)	26.1 (18.4)	28.8 (20.6)	30.4 (21.6)	33.0 (21.8)	37.3 (23.8)	42.5 (26.0)	10.3%
Seoul								
Total expenditure	21.1 (100.0)	22.7 (100.0)	22.9 (100.0)	22.7 (100.0)	23.7 (100.0)	23.5 (100.0)	24.5 (100.0)	2.5%
Social welfare:public health spending	4.5 (21.4)	4.7 (20.8)	5.1 (22.3)	5.3 (23.5)	6.1 (25.6)	6.9 (29.3)	7.6 (30.9)	9.0%
Metropolitan Cities								
Total expenditure	4.1 (100.0)	4.6 (100.0)	4.9 (100.0)	4.9 (100.0)	5.3 (100.0)	5.5 (100.0)	5.8 (100.0)	5.7%
Social welfare:public health spending	0.9 (21.3)	1.0 (21.2)	1.1 (22.9)	1.2 (25.0)	1.3 (25.3)	1.5 (27.1)	1.7 (29.6)	11.6%

Source: The Current Status of Local Finances, Local Finance Integrated Open System

For the National Welfare Subsidy Program, local governments must bear a certain cost prescribed in the law. It hurts their autonomy to manage their own finances

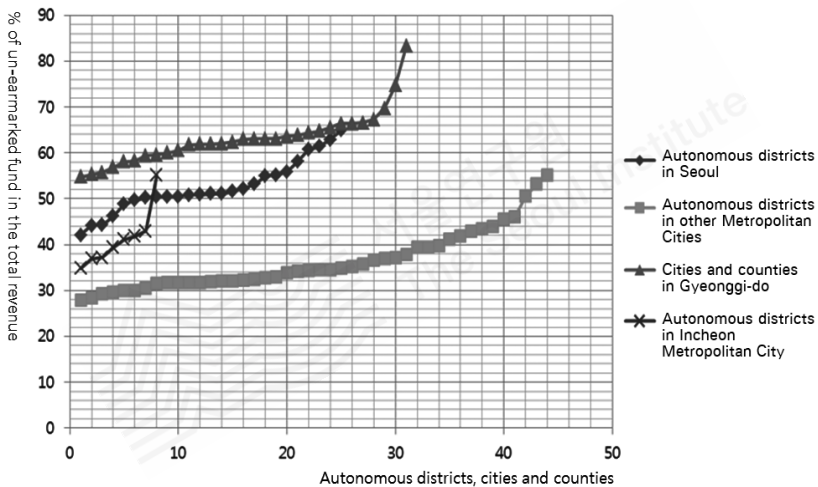
Local governments can plan and control, to a certain extent, their spending on the National Subsidy Program for areas besides welfare (e.g. roads, transportation, and other infrastructures). Thus, they are able to manage financial risk involved in such investment. Unfortunately, this is not the case with the National Welfare Subsidy Program. The law clearly stipulates that local governments are obligated to bear a certain portion of cost required for the program. This renders the risk management rather impossible. With the expansion of the National Welfare Subsidy Program, local governments become financially less able to run their own projects. Hence, a decrease in the size and number of autonomous programs executed at the local government level.

Oftentimes, local governments are asked to consume more of their financial resources, supporting the policy demand from the nation. This hinders their operation and management. As previously explained, the expansion of the National Subsidy Program increases the financial dependency of local governments on the nation. This could be criticized as a “new kind of financial control by the nation government.”

Changes in the demand for welfare are not reflected in the current subsidy rate. As a result, a financial gap between localities is widening

The amount of subsidy can be adjusted based on the law. The proportion of un-earmarked fund in total revenue of local government is used as the standard subsidy rate. In the case of Seoul, the un-earmarked fund constitutes the city’s local tax revenue combined with non-tax receipts. Since it accounts for large sum of total revenue, local governments in Seoul are eligible for only a small amount of national subsidy. Other cities, in contrast, are paid a considerably greater subsidies.

However, it does not necessarily imply that every autonomous district (Gu) government within Seoul is better off than ones in other areas. In fact, autonomous districts in Gyeonggi-Do (i.e. Gyeonggi province) and Incheon Metropolitan City are found to have larger financial resources. As seen in [Figure 1] below, financially weak districts in Seoul are receiving less subsidy than the wealthy districts in the two aforesaid localities. The former are in need for greater support, yet being provided little help just because they are “Seoul districts“. This disparity in the size of subsidies between Seoul and other regions raises a question about the fairness of the system.



[Figure 1] Proportion of Un-earmarked Fund Owned by Autonomous Districts in Seoul, Incheon and other Metropolitan Cities & Cities and Counties in Gyeonggi-Do (as of 2015)

[Table 2] below shows differentiated subsidy rates of the Infant and Child Care Grant Program applied to Seoul and other localities: Seoul is subsidized at the rate of 25 percent, for the un-earmarked fund takes more than 85 percent of the total revenue. A much higher rate of 65 percent or 75 percent is applied to other cities and regions. Like this, the subsidy rate of the National Subsidy Program is measured based on the proportion of un-earmarked fund in a local government’s total revenue.

Continuous expansion of the National Subsidy Program has culminated in some

changes in its beneficiary pool. Recently, the number of beneficiaries for the National Basic Livelihood Security System has been on the rise in Seoul. Most other cities and regions have been experiencing the opposite. The fixed subsidy measurement method of today does not reflect changing localities and people in need for welfare support. As a result, the unrealistically measured national subsidy is now further widening a gap in welfare finance among localities.

The basic subsidy rate for the National Subsidy Program is measured amid a lack of reasonable principles and transparency

[Table 2] Law related to Subsidy Rate and Programs Eligible for Basic Subsidy Rate

[Enforcement Decree of the Subsidy Management Act]

Article 4 (Scope of Programs Eligible for Subsidies and Basic Subsidy Rate) (1) The scope of local government's program eligible for subsidies under subparagraph 1 of Article 9 of the Act and the basic subsidy rate under subparagraph of the same Article (hereinafter referred to as "basic subsidy rate") shall be as set forth in attached Table 1: Provided that a local government's programs set forth in attached Table 2 shall be excluded from the eligibility.

<Appendix 1> Scope of Programs Eligible for Subsidies and Basic Subsidy Rate (related to section 1 of Article 4)

Project	Standard Subsidy Rate	Note
1. Issue a general passport	100	
2. Expand 119 rescue facilities	50	
3. Expand facilities and equipment placements for civil defense training	30	
4. Maintain safe conditions in calamity danger districts	50	
5. Maintain small rivers	50	
6-121. (...)		
122. Other programs that the national and local authorities have stakes in, and that require a subsidy	Subsidize at the fixed rate (100%, 80%, 70%, 50%, 40%, 30%, 20%) or pay the fixed amount based on the foundation, legislation, and characteristic of program	The title of eligible program and the basic subsidy rate shall be disclosed in the budget compilation guidance set by the Minister of Strategy and Finance or decided in the budget every year.

The National Subsidy Program prescribed in the law shall have a fairly and transparently measured subsidy rate. Yet it is impossible to ensure that the process follows a set of reasonable principles. It is because the nation does not disclose such principles by which it measures the rate. It merely has enumerated subsidy rate each project like in [Table 2] below. Today, local governments are encumbered with aggravated financial strains due to the enlarged National Subsidy Program. Under such a circumstance, it becomes more essential for the national government to make the subsidy measurement method public and, if necessary, adjust it.

The subsidy rate applied to each city government is determined based on the two values: One is the proportion of un-earmarked fund in total revenue of local government. Another is the value derived from dividing a social welfare budget by an expenditure budget. Neither of them truly mirrors the characteristics of the National Welfare Subsidy Program. For instance, the Infant and Child Care Grant Program is comprised of various sub-programs, which all pay a subsidy. The amount of subsidy for every sub-program is currently measured based on a single standard: the actual expense ratio relative to the size of social welfare budget. This method is simply inappropriate.

Various standards should be applied to better distribute the national subsidy

The present National Subsidy Program embodies several problems. To name a few, it burdens local governments with the obligation to allocate a certain portion of their financial resources to particular activities. Not only that, the unrealistic subsidy rate is not so much helpful as problematic. As explained earlier, the national government distributes the national subsidy without factoring in the financial conditions of local governments. When the national government first introduced the program, its aim was to efficiently promote welfare in the country by financially supporting local governments' endeavor. The current subsidy apportionment scheme is not conducive to serving this goal.

As mentioned, there are only two subsidy measurement standards that are set differently for each local government: One is the proportion of un-earmarked fund in total revenue of local government. Another is the size of welfare budget actually used. The national government cannot cope with the uniqueness of each city and region if it applies an uniform standard to the subsidy measurement for every local government. In this sense, other factors in addition to the two aforesaid standards should be adjusted to better reflect the reality. They are, for example, the number of beneficiaries of each welfare program, the expenditure budget per capita, and the feasibility of executing social welfare programs solely with the local tax revenue and non-tax receipts.

Demand for welfare in each locality is the common key variable for five major welfare subsidy programs

As shown in [Table 3] below, based on our analysis, factors that influence the amount of national welfare subsidy vary among local governments. However, the demand for welfare is found to be a common key variable. In measuring the amount of subsidies required, Metropolitan Cities and Provinces are more susceptible to factors that are directly related to finances (e.g. the proportion of un-earmarked fund in total revenue and revenue relative to financial demand). To most except for few, expenditure budget per capita is a significant variable affecting the size of national subsidy. If the national government weighs all these variables, it will be able to come up with a more accurate and objective national subsidy measurement model. Meanwhile, the national government needs to bear in mind that the demand for welfare is an important variable to every field of social welfare as well as every type of local authorities. For such a variable, the government therefore should consider the population of eligible beneficiaries rather than social welfare budget.

[Table 3] Factors Affecting the Size of National Welfare Subsidy for each Local Government

Type	1. Basic Pension Program	2. Disability Pension Program	3. Infant and Child Care Grant Program	4. Child Home Care Allowance Program	5. National Basic Livelihood Security System
Special City	① Proportion of un-earmarked fund in the total revenue		① Proportion of un-earmarked fund in the total revenue	① Proportion of un-earmarked fund in the total revenue	
	② Revenue relative to financial demand				
	③ Demand for welfare	③ Demand for welfare	③ Demand for welfare	③ Demand for welfare	③ Demand for welfare
	④ Budget expenditure per capita	④ Budget expenditure per capita	④ Budget expenditure per capita	④ Budget expenditure per capita	
Metropolitan City	① Proportion of un-earmarked fund in the total revenue	① Proportion of un-earmarked fund in the total revenue	① Proportion of un-earmarked fund in the total revenue	① Proportion of un-earmarked fund in the total revenue	① Proportion of un-earmarked fund in the total revenue
	② Revenue relative to financial demand	② Revenue relative to financial demand	② Revenue relative to financial demand	② Revenue relative to financial demand	② Revenue relative to financial demand
	③ Demand for welfare	③ Demand for welfare	③ Demand for welfare	③ Demand for welfare	③ Demand for welfare
		④ Budget expenditure per capita	④ Budget expenditure per capita	④ Budget expenditure per capita	
Province	① Proportion of un-earmarked fund in the total revenue	① Proportion of un-earmarked fund in the total revenue	① Proportion of un-earmarked fund in the total revenue	① Proportion of un-earmarked fund in the total revenue	① Proportion of un-earmarked fund in the total revenue
	② Revenue relative to financial demand	② Revenue relative to financial demand	② Revenue relative to financial demand	② Revenue relative to financial demand	
	③ Demand for welfare	③ Demand for welfare	③ Demand for welfare	③ Demand for welfare	③ Demand for welfare
	④ Budget expenditure per capita	④ Budget expenditure per capita	④ Budget expenditure per capita	④ Budget expenditure per capita	

Before all, a study should be conducted to identify the size of actual demand for welfare programs such as the number of beneficiaries from the National Basic Livelihood Security System

In general, welfare should be delivered universally to every member of society. In some cases, however, the national government targets a certain group of people in need (e.g. the handicapped, the recipients of living allowance) for selective benefits. The foremost task in the latter case is to find the actual demand for welfare programs. Unfortunately, it is practically impossible to pin down the number of eligible beneficiaries of the National Basic Livelihood Security System: Sometimes, people who are not supposed to receive the benefit do so, while others in dire economic hardship are rejected because they do not meet the eligibility criteria. In other occasions, some miss out on the benefit, for they are not aware of the program. To avoid such cases, research should be conducted so that eligible beneficiaries of welfare programs can be accurately identified.

3. Conclusions and Policy Recommendations

This report has discussed problems with the current National Welfare Subsidy Program. It also has identified factors that must be considered for the subsidy measurement based on the analysis of empirical data and regression model. At last, the following conclusions and policy recommendations have been drawn.

Devise a more reasonable national subsidy distribution method by weighing other types of financial assistance

The national government needs better apportion the national welfare subsidy to local governments. In order to do so, it should consider not only the national subsidy, but also other various kinds of finances. The national subsidy measurement factors

in revenue relative to financial demand and the proportion of un-earmarked fund in total revenue. The reason is that other sorts of finances managed by local governments are related to the national subsidy.

The national government considers various demands for social welfare when it pays local governments welfare subsidies that they may use autonomously. Problems occur when the demand that has already been factored in for local subsidy is considered again for the national subsidy. Simply put, demands overlap. Therefore, it is necessary to consider the national subsidy and other welfare subsidies that local governments are allowed to manage autonomously at the same time. Alternatively, the national government can adjust the demand estimate by applying a welfare budget or the number of beneficiaries.

Distribute social welfare tasks between the national and local governments for efficient execution of the national subsidy payment

In order to more reasonably and efficiently carry out the national welfare subsidy payment, the central and local governments should rearrange their roles in welfare services. In other words, projects that the national government takes responsibility in execution to meet national minimum standard⁵ need to be distinguished from ones that local governments are in charge. The former is fully funded by the nation. For the latter, the national government subsidizes local governments at a reasonable

⁵ National minimum is an indicator representing the lowest possible level of welfare of the citizenry of a country. It numerically indicates what should be accepted for the “lowest” or “standard” level of nutrition, housing, and living conditions relative to the economy and GNP per capita of a country. It was first introduced by the Sydney department of the UK, and later set forth as a specific policy agenda in the Beveridge Plan in 1942. Some use it as a normative concept, while other use it as a specific policy concept like in the Beveridge Plan. In the latter case, the necessary minimum living cost is instrumented to be determined, yet the value changes with the time.

rate measured by allowing for their financial conditions. Through these efforts, the national government can alleviate the financial burden of local governments, while pursuing welfare policy.



A Policy for Spread of Living Wage in Private Sectors

Choi, Bong

Summary

The Seoul Metropolitan Government (SMG) has implemented the living wage program for its ⁶direct employees and the workers of its affiliated organizations funded or invested by the city. Taking a step further, the SMG has extended the program to its indirect, contracted-out employees.

1. Introduction

Living wage means the amount of wage required for a person to obtain basic necessities as well as to sustain one's life at beyond a certain level of standard by working for 40 hours a week. The living wage is significant in that it stands for the appropriate value of wage practically needed to secure a decent life, weighing various costs (e.g. costs of living, education, transportation, and cultural activities) that the living wage can fully cover.

While the living wage has been adopted by many public entities, there is no such case found in the private sector yet. Unlike Korea, the United Kingdom (UK) has succeeded in propagating the living wage in the private sector. Thanks to the devotion of the British Government and other stakeholders to the Living Wage Campaign, not only those in the public sector, but also workers in the private sector

⁶ A direct employee (also called a directly-hired worker) refers to those who are directly involved in the government administration and work associated with the provision of public service to Seoul citizens. An indirect employee (also called an indirectly-hired worker), on the other hand, refers to those hired through a third party (e.g. agency) to provide contracted-out services.

are now enjoying the benefits of the living wage. This study investigates how to learn from the UK case about how to prompt private employers to support and institute the living wage program.

2. Main Findings

Living wage is being widely implemented in the public sector

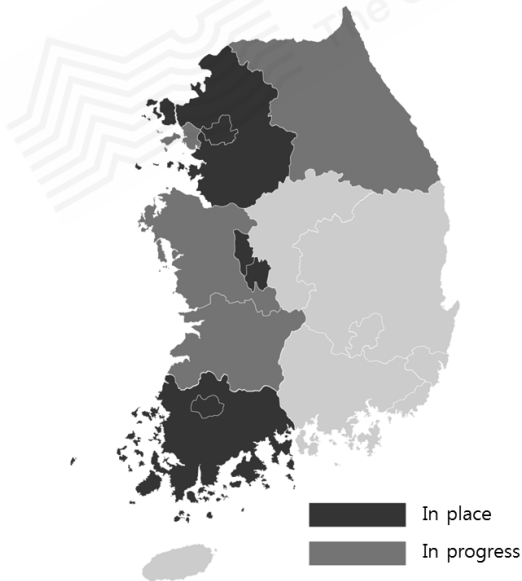
Among total 15 local governments in Korea, six have instituted living wage program (as of June, 2016) and four are planning to do so in near future. In 2015, Seoul has implemented living wage program for the first time among local governments. Participating in the quest for living wage, Gyeonggi-Do and Gwangju Metropolitan City have adopted the living wage program in 2015, whereas Sejong Metropolitan Autonomous City, Daejeon Metropolitan City, and Jeollanam-Do have done it in 2016.

It is expected that more and more local governments will implement the living wage program by 2017. For instance, Gangwon-Do has enacted the Living Wage Ordinance in 2015 and is working on the plan to institute the living wage program by 2017. In Jeollabuk-Do, the living wage program will be initiated from January, 2017. Incheon Metropolitan City also intended to adopt the living wage program from July 1st, 2016. Its plan, however, has to be postponed, for the government could not secure the budget due to its financial difficulty. In the case of Chungcheongnam-Do, the Living Wage Ordinance has been prescribed in 2015, but the ordinance does not state the specific timetable for the implementation of the living wage program.

The calculation and application criteria of living wage vary among local governments (as of 2016)

Since each local government uses their own measurement method for living wage, the amount of living wage differs across them. For example, Gwangju Metropolitan City sets the living wage at 130 percent of the minimum wage. As a result, it pays the largest living wage among all the local governments in Korea - 7,839 Won per hour (as of 2016). In contrast, Gyeonggi-Do, which takes a different approach to measure the living wage, has the smallest living wage of 7,030 Won each hour.

Seoul uses its Three-member Household Expenditure Model to determine the value of living wage. As of 2016, its living wage stands at 7,145 Won an hour. It is higher than those of Gyeonggi-Do (7,030 Won) and Daejeon Metropolitan City (7,055 Won), yet lower than Gwangju Metropolitan City (7,839 Won), Jeollanam-Do (7,248 Won), and Sejong Metropolitan Autonomous City (7,170 Won).



[Figure 1] The Current Status of Living Wage Implementation across Local Governments

Twenty three autonomous district governments in Seoul advocate the living wage

In Seoul, not only the SMG, but also the majority of autonomous district governments countenance the living wage. As of 2016, 20 out of the total 25 autonomous district governments have instituted the Living Wage program, and 23 (which excludes the ones in Gangnam-Gu and Jungnang-Gu) have or are planning to lay down the Living Wage Ordinance. Jung-Gu and Songpa-Gu offices are not currently enforcing the living wage, but they are expected to implement the program in near future provided that they have already established the Living Wage Ordinance.

The implementation of living wage by SMG has triggered the living wage campaign among its affiliated authorities, including the autonomous district governments.

Even before SMG has introduced the living wage, the autonomous district governments of Nowon-Gu and Seongbuk-Gu already have been enforcing the living wage. They were the pioneers in the development and implementation of living wage. Since the institution of the living wage by the SMG in 2015, autonomous district governments in the city have increasingly prepared themselves for the implementation of living wage by 2016, enacting the Living Wage Ordinance.

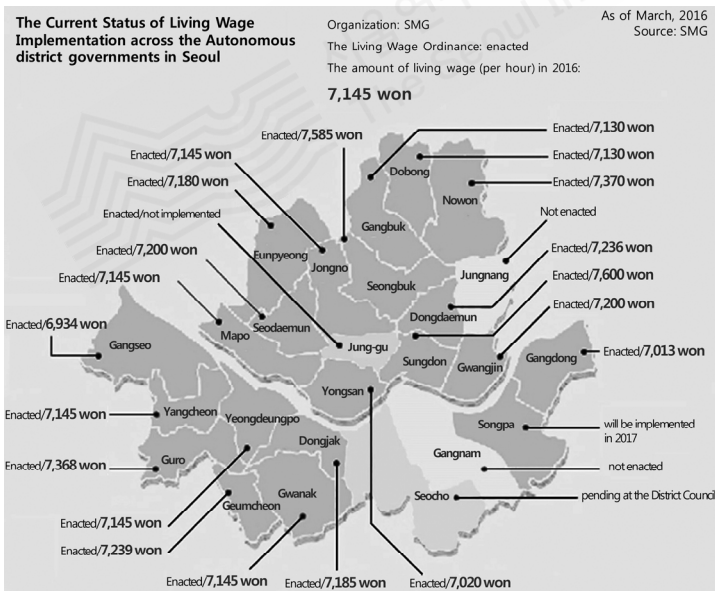
The amount of living wage paid by the autonomous district governments in Seoul vary, from the lowest 6,934 Won to the highest 7,600 Won per hour (as of 2016)

The amount of living wage is determined by weighing multiple factors. In particular, the financial status of autonomous district government, the commitment of the district chief to the living wage, and the opinions of the Living Wage Deliberation Committee are major determinants of living wage. There exist no standardized criteria as to deciding the amount of living wage. And each

autonomous district government may place emphasis on different factors in the process. For these two reasons, the amount of living wage varies among the autonomous district governments.

The vast majority of autonomous district governments in Seoul pay more than 7,000 won for the hourly living wage (as of 2016)

Nineteen of the 20 autonomous district that are currently carrying out the living wage program have their hourly living wage standing at higher than 7,000 Won. The only exception is Gangseo-Gu, which pays 6,934 Won an hour. Sungdong-Gu sits at the top, with the hourly living wage of 7,600 Won. It is followed by the Seongbuk-Gu (7,585 Won) and Nowon-Gu (7,370 Won), respectively.



Source: “The Minimum Wage is Not Enough, Increasing Trend Toward Living Wage”, Hankyoreh Newspaper (Seoul&), May 6th, 2016; edited

[Figure 2] The Current Status of Living Wage Implementation across the Autonomous district governments in Seoul

Most autonomous district governments calculate the living wage based on the Seoul's Three-member Household Expenditure Model

SMG applies the Seoul's Three-Member Household Expenditure Model to determine the amount of living wage. The autonomous district governments of Jongno-Gu, Mapo-Gu, Yangcheon-Gu, Yeongdeungpo-Gu and Gwanak-Gu also apply the same model to calculate living wage. Eleven autonomous district governments avail themselves of the model's basic framework while altering some figures to come up with their own appropriate amount of living wage. The autonomous district governments of Nowon-Gu and Seongbuk-Gu measure the living wage by referring to the wage paid to their full-time, regular employees. Those of Dongdaemun-Gu and Gangseo-Gu, on the other hand, add the amount of certain ratio to the minimum wage and pay the sum for living wage.

[Table 1] The Living Wage of each Autonomous district government

Measurement method	The same method used by SMG	The measurement based on altered Seoul's Three-member Household Model	The method used by Nowon-Gu and Seongbuk-Gu	Other
Autonomous district government (amount in won)	Jongno-Gu Mapo-Gu Yangcheon-Gu Yeongdeungpo-Gu Gwanak-Gu (all 7,145)	Yongsan-Gu (7,020) Seongdong-Gu (7,600) Gwangjin-Gu (7,200) Gangbuk-Gu (7,130) Dobong-Gu (7,130) Eunpyeong-Gu (7,180) Seodaemun-Gu (7,200) Guro-Gu (7,368) Geumcheon-Gu (7,239) Dongjak-Gu (7,185) Gangdong-Gu (7,013)	Nowon-Gu (7,370) Seongbuk-Gu (7,858)	Dongdaemun-Gu (7,236: 120% of the minimum wage) Gangseo-Gu (6,934: 115% of the minimum wage)

The public sector has been striving to prompt private employers to institute the living wage

SMG ought to first promote the living wage program in the public sector, and then gradually induce the private sector to participate in the quest for living wage. SMG has taken various approaches to encourage the private sector to adopt the living wage. For instance, it has added the article in the Seoul Living Wage Ordinance, stipulating that companies enforcing the living wage program will be given preference. Moreover, the SMG has made a wider range of workers to receive the living wage. The initial recipients of the living wage were only the direct employees of the SMG. Later in July 2016, the government has extended the program to its indirect workers and those of the organizations funded or invested by the city. SMG aims to gradually apply the living wage to 1,480 indirect, contracted-out employees by January 2017. It also strives to develop various plans and strategies to promote the living wage in the private sector through consulting the Seoul Living Wage Deliberation Committee and other experts.

The autonomous district government of Seongbuk-Gu, in particular, is committed to promote the living wage in the private sector. It has mandated the implementation of the living wage in its Living Wage Ordinance. Moreover, the office has signed the Memorandum of Understanding (MOU) regarding the living wage with Sungshin Women's University and Hansung University, which are both located in Seongbuk-Gu. The two universities have instituted the living wage programs for their workers in charge of cleaning and building security.

SMG has been working with the Seoul Metropolitan Council, Seoul Metropolitan Office of Education, and autonomous district governments to propagate the living wage in the private sector.

SMG, the Seoul Metropolitan Council, Seoul Metropolitan Office of Education,

and autonomous district governments have signed the Living Wage Agreement to make a concerted effort to promote the living wage among private employers. On October 8th, 2015, the mayor of Seoul, the chairman of the Seoul Metropolitan Council, the Superintendent of Seoul Metropolitan Office of Education, and district chiefs discussed about the ways to further develop and promote the living wage program. They also have agreed to cooperate mainly in the following areas: (1) ensure that each organization pays their employees living wage, (2) develop plans and strategies to propagate the living wage in the private sector, and (3) jointly conduct the living wage campaign.

The aforesaid agreement is expected to yield desired outcomes. It will serve as an opportunity for SMG to pass the living wage to not only the autonomous district governments, but also to other public organizations. Moreover, the agreement will have a significant influence given that the heads of each authority themselves have announced their commitment to implement living wage.

There exist limitations in propagating the living wage from the private sector

The public sector has been continuously mustering efforts to promote living wage in the private sector. Nevertheless, no private employer has implemented living wage yet. The private sector still seems neglected to adopt the program. Meanwhile, some experts argue that it is premature to expect the private sector to institute the living wage as most companies sensitively respond to increase in the minimum wage. Firms regard that living wage, which raises the amount of wage that they have to pay their employees, hurts their profitability. Not to mention, still many employers in the private sector violate minimum wage regulation today.

Besides, it is infeasible for the government to force the private sector to implement living wage. It is neither easy to admonish companies in business relationship with the public sector, such as contracted-out firms, to institute living wage. At present, the government can only add the article allowing public entities to force private organizations to adopt the living wage in the Living Wage Ordinance.

In other words, the public sector has no better option than waiting for the private sector to voluntarily take part in the quest for living wage.

There are in effect no means to force the private sector to implement the living wage. Yet, the public sector can establish necessary legal and institutional systems to extend their living wage programs to contracted-out workers. However, this way does not work with the pure private sector. Employers are likely to oppose the government forcing living wage, arguing that it would impinge on the market order. Besides, there may arise a problem if a public entity includes a compulsory provision for the living wage implementation when entering into a contract with a private organization, according to the Act on Contracts to which a local government is a party.

Still, there is potential for private employers' voluntary institution of the living wage program

A multinational company that designs and sells furniture appliances called IKEA has set up their business in Korea in December 2014. It pays its staffs at the store the hourly wage of 9,200 Won, which is higher than the present living wage set by district governments as well as city and provincial governments. It is 1,010 Won greater than 8,190 Won of living wage paid by the district government of Gwangsan-Gu in Gwangju Metropolitan City, which reportedly pays the largest living wage among local authorities (as of 2016).

Outside Korea, there are many cases in which the propagation of living wage has been successfully achieved with concerted efforts of both public and private sectors. Globally, more and more countries are implementing living wage. For instance, the UK Living Wage Campaign started off as a civil movement in London, but soon the British government took the lead. Today, an increasing number of companies are voluntarily implementing living wage program for their employees in the UK.

Korea can learn a lot from the UK case, where the living wage campaign was first initiated by members of London citizens and then widely propagated in the private sector. Besides the UK, states under the Commonwealth of Nations, such as Canada and New Zealand, have also instituted living wage in the private sector as well as the public sector. In those countries, companies that have adopted living wage actively play their roles in promoting the program to other firms. For instance, they provide financial support and engage in marketing activities.

The Korean government should develop effective policies for the propagation of living wage in the private sector by studying other countries that have successfully induced private organizations to implement living wage. The UK case will be especially useful.

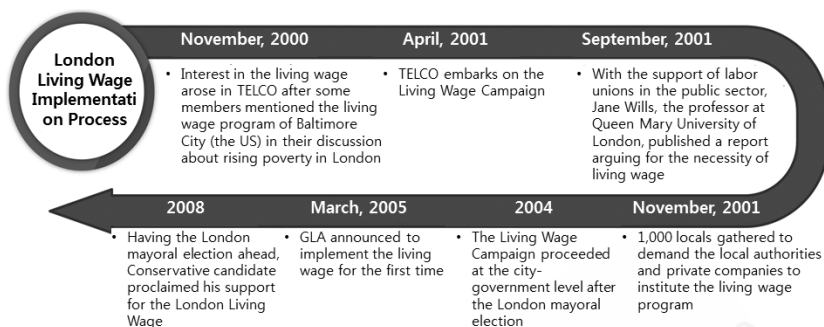
The UK Living Wage Campaign was launched by London citizens

The citizens of London initiated the UK Living Wage Campaign in 2001. Later it has grown into a national movement. Faith groups, schools, labor unions and local communities in London formed a civil group called East London Communities Organization (TELCO), through which they embarked upon the campaign. They suggested living wage as a solution to address the continuously increasing number of people suffering from poverty in the city. TELCO conducted the Living Wage Campaign and urged local communities to participate in the movement.

The 2004 London mayoral election ignited the spread of the Living Wage Campaign across the city. Ken Livingstone, who was then a mayoral candidate for the Labor Party, publicly supported living wage and then was elected as the mayor. In early 2005, the Greater London Authority (GLA)⁷ established the Living Wage Unit to calculate the London Living Wage every year. In 2008, the conservative

⁷ The Greater London Authority (GLA) is a top-tier administrative body for Greater London, England. It consists of a directly elected executive Mayor of London and an elected 25-member London Assembly with scrutiny powers.

candidate for the London mayoral election, Boris Johnson, made a public announcement that he advocates the London Living Wage. During his term as mayor, he kept the living wage system.



[Figure 3] London Living Wage Implementation Process

The UK is enforcing the living wage at the national level

The British government distinguishes London from other cities and regions and carries out the living wage program separately for the two areas. It considered various factors, including the price level and standard of living in each place, when instituting the living wage. Measurement method, persons in charge of management, and enforcement organization vary across localities. As of 2016, London pays 9.4 pound (approx. 11.70 dollar) per hour for living wage, whereas other areas pay the amount of 8.25 pound (approx. 10.30 dollar).

The UK is committed to institute living wage at the national level

In 2015, David Cameron, who was then the prime minister, proclaimed that the UK Living Wage will replace legal minimum wage by April, 2016. The UK Living Wage that the British government adopted at the national level is different in terms of application method from previously discussed programs. With the UK Living

Wage, the government planned to raise minimum wage of employees over 25 years old to 7.2 pound (about 8.95 dollar) from April, 2016, and to 9 pound (about 11.20 dollar) by 2020. It is expected that six million workers will benefit from the UK Living Wage provided that it successfully settles in. The British government also declared that it will levy a fine twice larger than on employers who violate the national living wage program and that they will be disqualified from representing their businesses for 15 years.

There are some criticisms that the UK Living Wage is just another type of minimum wage. For instance, civil groups censure that the living wage set by the British government is no more than an arbitrary figure and has not factored in the actual living conditions. Others contend that the UK Living Wage may discriminate people based on age as it only applies to those older than 25. Another criticism is that the program may seem to advocate the idea of paying less to younger workers.

Concerted efforts of related authorities are the key to the successful propagation of living wage in the private sector

Had it not been for the cooperation of the Greater London Authority (GLA), research institutes and the Living Wage Foundation, the London Living Wage Campaign would not have been successful.

The Living Wage Unit of GLA calculates the living wage every year and announces it to the citizens of London. GLA has set the propagation of living wage as one of the major objectives in its “London 2020 Vision” and has done lots of promotion activities. It also has urged the construction companies working on the business contract with GLA to adopt the living wage program. Furthermore, the mayor is devoted to teach the necessity of living wage to corporate employers and personally writes letters to more than 100 firms every year in pursuit of prompting them to adopt the living wage. Not only that, he stands before the citizens of London to declare the coming year’s living wage on the Living Wage Week in November every year.



Source: Penrose Care, Living Wage Week - Penrose Care raises home care worker wages

[Figure 4] London Mayor Announcing 2015 Living Wage

Research institutes, on the other hand, are responsible for laying down the theoretical foundation for living wage and conducting performance analysis. They have proved the essence of instituting the living wage program and established the theoretical grounds by engaging in various studies, including developing the living wage measurement model and analyzing the outcomes of the program. In particular, Queen Mary University of London has been supporting the London Living Wage Campaign from the beginning and implemented the living wage program for campus workers.

The Living Wage Foundation is the central player in the Living Wage Campaign. It was founded in 2011 based on the cooperative relationship with a civil group called Citizens UK, which has led the Living Wage Campaign, and private companies. Ever since its establishment, the foundation has continued to work with corporate employers who have taken the initiative to adopt the living wage program, the coalition of the Scottish Living Wage campaigners, and GLA. It also offers accreditation to employers that pay living wage by awarding the Living Wage Employer Mark. Furthermore, the foundation provides companies paying living wage with various types of support and consulting services, such as the living

wage implementation guidelines and legal advices. It also shares successful stories of other employers enforcing living wage. In addition, the foundation provides a Living Wage Forum for leading employers to publicly support the program and organizes the Living Wage Week events on the first week of November every year.



[Figure 5] The Figure of the UK Living Wage Foundation Office

3. Conclusions & Policy Recommendations

Take the lead in implementing living wage, and develop strategies to propagate the program in the private sector

The public sector should lead the implementation of living wage and induce private organizations to voluntarily pay living wage to their employees. Most citizens perceive that the works of contracted-out employees and workers on the government contract belong to the public sector in general. At present, the SMG has expanded the scope of beneficiaries receiving the living wage beyond its employees to workers of its affiliated organizations and contracted-out companies. It strives to ensure that service contractors can also enjoy the benefit. Furthermore, the SMG is committed to come up with a way to implement the living wage program in the

Matching Projects⁸ of SMG and autonomous district governments.

Needless to say, the very first step that the SMG should take before transmitting the living wage to the private sector is to institute a program in every area of employment in the public sector. This requires the government to continue to explore where the public sector can implement the living wage. As explained earlier, SMG, the Seoul Metropolitan Council, Seoul Metropolitan Office of Education, and autonomous district governments have signed the Living Wage Agreement to make a concerted effort to promote living wage among private employers. With the agreement, the SMG may urge, for example, schools affiliated with the Seoul Metropolitan Office of Education to pay living wage to their temporary workers.

It should also help social welfare foundations, civil groups and non-profit organizations operating under the jurisdiction of autonomous district governments adopt the living wage. Meanwhile, the SMG ought to focus on private entities whose business natures are especially public, such as legal firms, hospitals, pharmaceutical companies, and colleges.

Some private companies utilize the public resources such as national land for their business. SMG should strongly push them to pay the living wage. It should include a mandatory article in the business contract to make the counterpart company pay the living wage to its employees, providing that there is no legal issue with doing so.

Take gradual approaches to induce the voluntary participation of private employers in the implementation of living wage

The government should not force private employers to institute the living wage program. The successful propagation of living wage in the private sector builds

⁸ Matching Projects refer to the business project that the central and local governments each bears the certain ratio of cost. A large-scale construction project and welfare related project are the common examples.

upon voluntary participation of companies. Therefore, the government should persuade employers and other stakeholders to pay the living wage. For more effective persuasion, the SMG should share with them the cases of other countries in which living wage has benefited not only employees, but also employers. There is an empirical study showing that living wage has a positive effect on employees' psychological well-being and increases their quality of lives⁹. Another study has found that living wage barely affects the budget of local governments, while employers that have instituted the living wage enjoy decrease in labor cost and increase in profitability¹⁰. The living wage has more merits: Employers have reported that their contract costs went down, whereas the performance of their employees and service quality rose after they adopted the living wage¹¹. According to the research about living wage policies at the San Francisco Airport, the turnover ratio of airport security employees was previously 95 percent, but has gone down dramatically to 19 percent since implementing living wage¹².

SMG is recommended to focus on large corporations and pioneer companies of the industry that have considerable influences on other businesses. If subsidiaries of chaebol¹³ groups and leading companies of each industry institute living wage, other firms are likely to follow them, accelerating the propagation of living wage in the private sector. SMG should first target major corporations in the country that are

⁹ Flint, E., Cummins, S. and Wills, J., 2013, "Investigating the Effect of the London Living Wage on the Psychological Wellbeing of Low-wage Service Sector Employees: A Feasibility Study", *Journal of Public Health*, 5: 1~7.

¹⁰ Thompson, J. and Chapman, J., 2006, "The Economic Impact of Local Living Wages", *The Economic Policy Institute Briefing Paper*, 170.

¹¹ Wills, J. and Linneker, B., 2012, "The Costs and Benefits of the London Living Wage", *Trust for London*.

¹² Reich, M., Hall, P. and Jacobs, K., 2005, "Living Wage Policies at the San Francisco Airport", *Industrial Relations*, 44(1): 106~38.

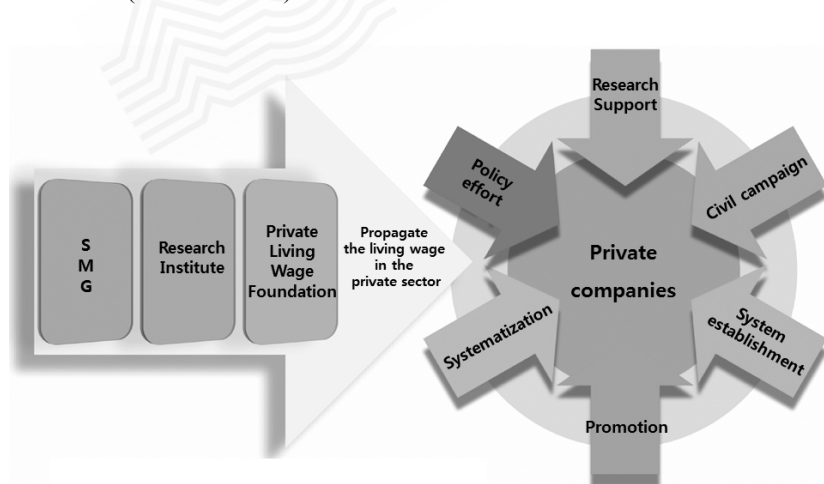
¹³ A *chaebol* refers to a South Korean form of business conglomerate, typically a family-owned one. They are generally global multinationals and own numerous international enterprises (e.g. Samsung Group, Hyundai Group).

in a close relationship with public entities, such as construction companies working for public projects.

At the same time, the SMG should induce multinational companies doing business in Korea to implement the living wage. Some of them are already paying living wage to their employees. Multinational companies would find instituting living wage less difficult than Korean firms. Not to mention, living wage would help them establish good public relation and positive brand image.

Establish an organizational system for the efficient propagation of living wage in the private sector

There exist many obstacles and limitations for the public sector to force the private sector to institute living wage. Therefore, it is appropriate to select a certain organization to assign the role and responsibility of leading the living wage campaign. Like the Living Wage Foundation in the UK, the Private Living Wage Foundation (tentative name) should be established.

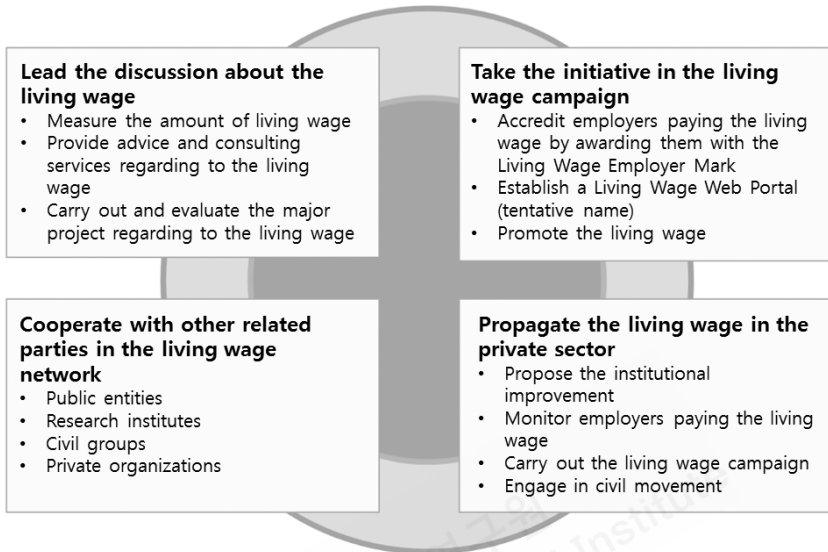


[Figure 6] The Concept Map of the Propagation of Living Wage in the Private Sector

The SMG needs to arrange the system of organic cooperation among stakeholders while assigning appropriate roles to each. SMG should focus on providing other related parties with practical and administrative support required for propagating the living wage in the private sector. Such support includes amending the related law and system, offering financial assistance, promoting the living wage to local companies, and carrying out campaigns. Surely, the SMG should organically work with related parties in other areas too. The mayor, in particular, needs to be committed to inducing private employers to institute living wage, actively participating in the endeavor of the SMG and publicly showing his interest in and devotion to the matter.

Meanwhile, research institutes should continue to carry out research about the living wage, especially its necessity, validity and effect. Moreover, they need to monitor and study the performance of companies that have instituted the living wage for their employees. This can be later used by the government when it persuades private firms to those of which have not yet adopted the living wage. Lastly, researchers ought to investigate how to advance the living wage agenda.

The Private Living Wage Foundation (tentative name) is to be established to serve the backbone of the living wage campaign. It should be in charge of managing and operating every work related to the living wage while being at the center of the network of all the related parties. In this regard, SMG ought to establish a system in which every related party can effectively work in coalition with each other. Then, it should ensure that the system operates smoothly. Furthermore, the SMG is to run the accreditation system that certifies employers paying living wage. It should also gather and keep the information regarding the living wage in a database.



[Figure 7] The roles of the Private Living Wage Foundation

03 Culture & Tourism

Characteristics and Prospects of South Korea's Inbound Tourism Markets

Keum, Kiyong

Summary

Korea needs to prepare a customized strategy for each of its Asian target market in anticipation of increasing international tourist arrivals.

1. Introduction

There needs a comprehensive mid-to-long-term analysis of trends in Korea's inbound tourism markets

Korea recorded over 12 million international tourist arrivals in 2013. Over a year, the number grew by a record high growth rate of 17 percent. It reached 14.2 million in 2014. Amid such a boom in tourism, Korea has witnessed positive changes in its major inbound tourism markets. For starters, the number of Japanese traveling to Korea has plummeted since 2012 - Japan used to be Korea's largest inbound tourism market. In the meantime, the population of tourists from China has soared by on average 34 percent a year since 2010. In 2014, Japan and China each sent 2.28 million and 6.13 million to Korea, respectively. Meanwhile, the Southeast Asia has emerged as a new market to Korea. At the moment, it is small compared to two aforesaid markets. Yet it has been growing steadily.

At present, there is no comprehensive long-term analysis of trends in Korea's inbound tourism markets. It is necessary to take anticipatory measures to cope with

any sudden or long-lasting changes that might happen in those markets. In this context, this research first examines patterns in global and regional tourism markets. Next it studies trends in Korea's main inbound tourism markets. The study then closely looks at the characteristics of changes found in international tourism demand for Korea. Lastly it derives conclusions and policy recommendations from those analyses.

2. Main Findings

The analysis of international arrivals in Korea shows that the characteristics of visitors vary by region, country, and the purpose of visit. The following also includes the forecast of international tourism demand for Korea.

The Asian tourism market is clearly on an upward trajectory with the East and Southeast Asian markets growing by leaps and bounds

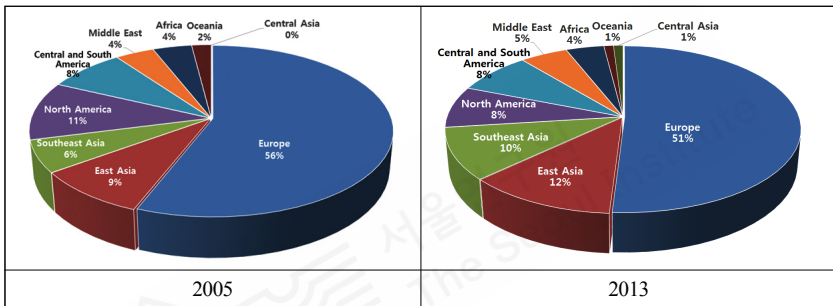
In Korea, tourism is one of the fast-growing economic sectors. The number of international tourists worldwide exceeded 1.1 billion in 2013. It was a result of steady growth at the average annual rate of 4 percent from 1995 to 2013. Since 2013, the figure has been growing faster by on average 4.7% per year.

For long, Europe has been the most-visited destination in the world. From 1995 till 2013, the number of international arrivals in the region increased at the average annual growth rate of 3.7 percent. This has given Europe the largest share of international arrivals among other nation. The second runner-up is Asia. The number of inbound tourists to East and Southeast Asia grew each by on average 7.6 percent and 6.8 percent a year, respectively. Owing to this trend, Europe experienced a decline in its share of international tourism market: from 56 percent in 2005 to 51 percent in 2013. Meanwhile, East and Southeast Asia enjoyed increase in their shares - each rose by 3 percent point and 4 percent point, respectively.

[Table 1] International Arrivals by Region of Origin

(Unit: million, %)

Region / Year	No. of int'l tourist arrival					Annual growth rate			
	1995	2000	2005	2010	2013	1990s	2000s	2010s	'95~'13
World	550	706	837	980	1,123	4.4	3.0	4.7	4.0
Europe	284	370	447	486	546	4.8	2.7	3.9	3.7
East Asia	34	58	87	111	127	11.2	5.9	4.4	7.6
Southeast Asia	32	41	55	80	105	3.1	6.3	9.6	6.8



[Figure 1] Each Region's Share of Total International Arrivals

Inbound and outbound tourists in each country have been studied. It has been discovered that the majority of international travels takes place within travelers' own regions. Their choices of destinations are largely based on the advantage of traveling to neighboring countries - that is, it is relatively cheaper and less time-consuming. This finding suggests that China and developing nations in East and Southeast Asia are the main sources of increased number of tourists to Korea. Thanks to strong economic growth, tourists from those countries can now afford and demand overseas travel.

According to this study, people tend to travel to culturally familiar places even it takes long to get there. For instance, Britons and Americans often choose one another's country for their travel destinations. Drawn to cultural similarity, French are inclined to make a trip to Canada.

The study also shows that political or diplomatic conflict between countries do not hamper the flow of tourists. Oftentimes, there exists conflict of interests among nations close to borders or territorial waters. The same is true of countries in Asia. In particular, there has been relentless strife between Korea and Japan; the Philippines and China; and Japan and China. Yet, they all have welcomed visitors from each other. This is also the case with Korea and Taiwan: Many Taiwanese hold anti-Korea sentiment. The animosity was set on fire, for a referee made unfair calls against a Taiwanese player in Taekwondo competition at the 1988 Seoul Olympic Games. Though Korean pop culture has swept the country, the feeling still prevails. Nevertheless, the number of Taiwanese making a trip to Korea is increasing every year.

Korea reported 14 million international tourist arrivals in 2014, with a record high growth rate since the Seoul Olympic Games

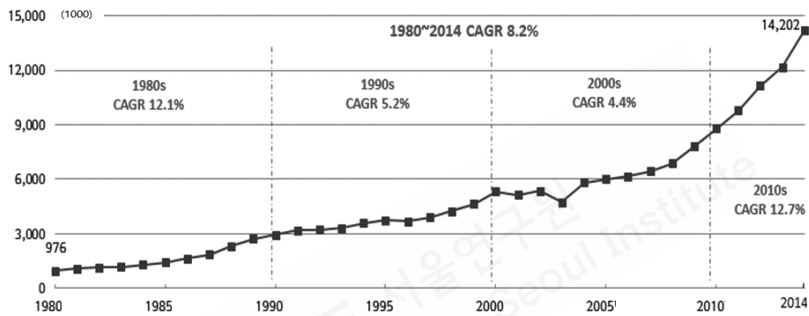
The number of international visitors in Korea has been on the rise for the past 25 years. In 1980, the country had slightly less than one million arrivals. The number kept increasing by on average 8.2 percent a year. Finally, it surpassed 10 million in 2012 and then reached 14.2 million in 2014. In the 1980s, the average annual growth rate was as high as 12%. However, it diminished to 5.2 percent in the 1990s and further to 4.4 percent in the 2000s. Fortunately, the fall ceased in 2010. From then till 2014, the number of international arrivals went up by on average 13 percent annually.

The Korean tourism economy has proved resilient. It has experienced a few declines in the number of international arrivals - namely, in 1996, 2001 and 2003. Each fall was, however, offset by increased flow of inbound visitors in the following year. The international tourism market suffered severely from the global financial crisis and the outbreak of H1N1 in 2009. Yet the Korean tourism sector was not as badly affected by them: The number of incoming tourists continued to increase unabated. As a result, Korea reported over 14 million inbound tourists in

2014. It was a 17 percent increase from the previous year. Not only that, it marked the highest growth rate since the 1988 Olympic Games.

[Table 2] Total Number of International Arrivals in Korea

Total number(1,000)					Annual growth rate(%)				
1980	1990	2000	2010	2014	1980s	1990s	2000s	2010s	'80-'14
976	2,959	5,324	8,798	14,202	12.1	5.2	4.4	12.7	8.2



Source : Tourism Knowledge Information System

[Figure 2] Total Number of International Arrivals in Korea

Eight of Korea’s top ten inbound tourism markets are in either East or Southeast Asia

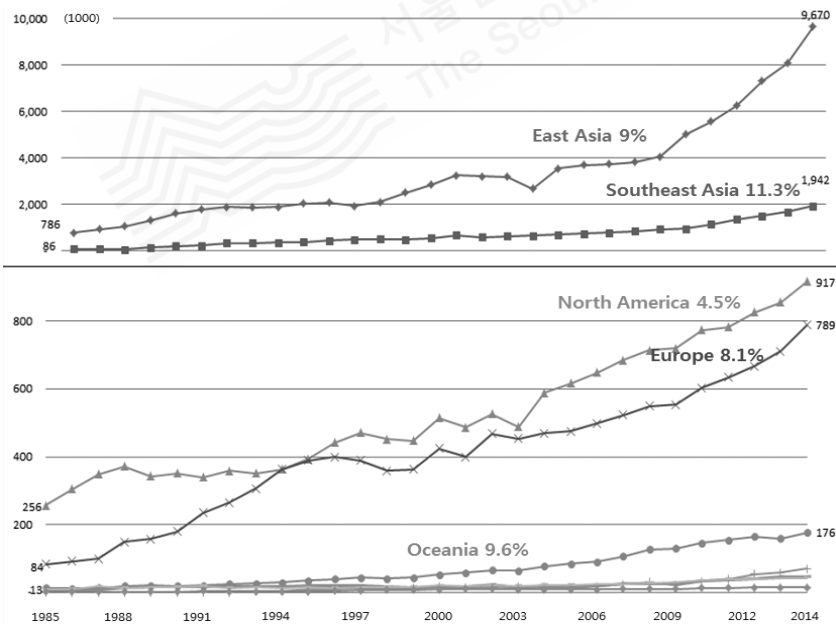
East Asia represents the largest source region of international visitors to Korea. Next is Southeast Asia, followed by North America. Among Korea’s top ten inbound tourism markets, eight are located in either East or Southeast Asia - the rest are each in North America (the U.S.) and Europe (Russia). Since 2010, the number of international arrivals from East Asia and Southeast Asia has grown fast by each on average 15 percent and 14 percent a year, respectively.

At the country level, China and Japan were the largest inbound tourism markets to Korea as of 2014. That represents 60 percent of total market share. However, the number of Japanese travelers has dropped drastically since 2012. Meanwhile

tourists from other major Asian nations has grown at a faster rate: China at 45 percent; Taiwan at 12%; Hong Kong at 25 percent; Thailand at 16 percent; the Philippines at 10 percent; Malaysia at 21 percent; and Indonesia at 22 percent. Like this, Korea has emerged as a popular travel destination. It largely owes to the Korean wave, so-called “Han Ryu”.

[Table 3] The Number of Visitors from Korea’s Top Ten Inbound Tourism Markets
(Unit: 1,000, %)

Rank	Country	No. of int'l arrivals	Annual Growth	Rank	Country	No. of int'l arrivals	Annual Growth
		2014	'00~'14			2014	'00~'14
1	China	6,127	20.6%	6	Thailand	467	12.7%
2	Japan	2,280	-0.6%	7	The Philippines	435	4.1%
3	The U.S.	770	3.8%	8	Malaysia	245	10.6%
4	Taiwan	644	12.3%	9	Russia	214	2.3%
5	Hong Kong	558	7.6%	10	Indonesia	208	9.4%



Source : Tourism Knowledge Information System

[Figure 3] Number of Visitors by Region of Origin

Visitors have different purposes of travel, but most comes for leisure, and recreation

As of 2014, the majority of international visitors in Korea was consisted of tourists. The second largest group is those whose purpose of visit is “other.” Next is professional businessmen, followed by students and public officials. Service attendants at airlines and cruise lines usually report their purposes of travel as “other.” And their number is on the increase. This is fundamentally why “other” ranked the second.

Visitors’ trip purposes are found to vary by region. As of 2014, travelers from North America were mostly public officials. They outnumber students and businessmen. Meanwhile, visitors from Central and South America are not so much as business people as students. Unlike them, those from the Middle East are mostly businessmen. Their number surpassed that of people reporting their purposes of visits as “other.” Since 2008, less and less international visitors have traveled to Korea for business. One plausible explanation is that the global economy has not fully recovered from the 2008 crisis. Alternatively, it may be simply a result of businessmen ticking the box besides “leisure, recreation and holidays” on the disembarkation form - they often do so as they plan to spend some time in sightseeing after serving their professional purposes.

[Table 4] Inbound Tourism by Purpose of Visit

Purpose of visit	No. of visitors(1,000)			Annual growth rate(%)		
	2005	2010	2014	'05-'09	'10-'14	'05-'14
Leisure, recreation and holidays	4,304	6,293	10,778	6.9	14.4	10.7
Business and Professional	258	269	259	0.8	-0.9	0.1
Government Mission	38	30	40	-3.4	6.9	0.4
Education	35	135	157	36.2	3.9	18.1
Other	1,033	1,627	2,432	8.5	10.6	10.0

Income is the most influential determinant of tourism demand, while cost plays an insignificant role

China, Japan, the U.S., Taiwan, and Hong Kong are the top five inbound tourism markets to Korea. In order to identify what affects tourism demand in each market, regression analysis has been conducted. For each income, cost, a real GDP per capita, exchange rate, and SARS has been used, respectively. According to the analysis, tourism demand in all the five markets is influenced by income. In the case of Japan and the U.S., their demand is found to be also susceptible to other two variables.

[Table 5] Regression Analysis of Korea's Top Five Inbound Tourism Market

	China	Japan	The U.S.	Taiwan	Hong Kong
GDP per capita	3.58***	1.998***	5.541***	3.044***	7.797***
Exchange rate for a foreign currency to won	-1.146	0.597***	0.98***	-5.99	1.283
SARS	Refer to the note below	-0.248**	-0.157**	0.0452	Refer to the note below

* p<0.10 ** p<0.05 *** p<0.01

(Note: SARS is not applicable to China and Hong Kong, for each is analyzed for the period since 2008 and 2007, respectively)

The number of international arrivals in Korea is expected to reach 20 million by 2018, while Seoul will take another two years to attain the same score

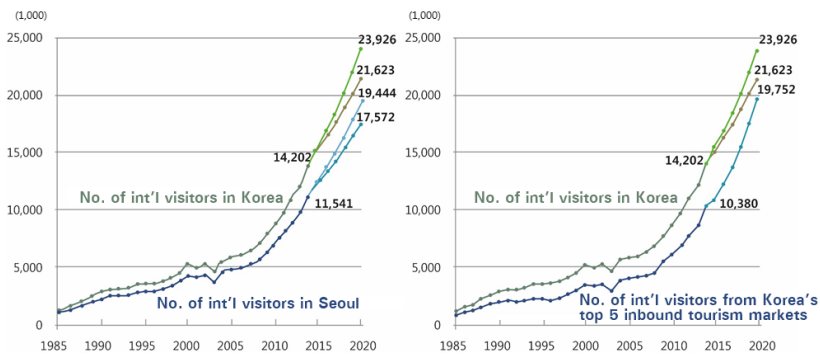
A curve fitting model has been used to forecast international tourism demand for Korea. The trend function for the model has been calculated with a least square method. In the forecast, the inbound flow of Japanese shows a linear function. In contrast, total inbound traffic of international visitors demonstrates an exponential function. It is also the case with the sum of visitors from China, the U.S., Hong Kong, and Taiwan.

[Table 6] Trend Function of International Visitors to Korea

Nationality	Trend Function	
Total no. of international visitors in Korea	Optimistic forecast	$f(x) = 3607643e^{0.09x} + 3$
	Conservative forecast	$f(x) = 1521886e^{0.07x} + 3$
Visitors from the top five inbound tourism markets	$f(x) = 155e^{0.13x} + 1606111$	

The forecast of Korea’s inbound tourism demand based on the trend function estimates that the demand would grow at a rate of 7-9 percent each year. The estimate is rather conservative, being lower than the current annual growth rate. According to the forecast, the number of international tourists in Korea would reach 16.4-17 million by 2016. It would then increase further, arriving at 18.9-20.2 million by 2018. Not stopping there, it would keep rising and reach 21.6-24 million by 2020. On the assumption that the annual growth rate stays high at 12-15 percent like now, this forecast will be realized a year earlier.

The number of inbound tourists in Seoul has been predicted by applying the average Seoul visit rate between 2012 and 2014. The result shows that the number would reach 12.3-13.8 million by 2016. Then, Seoul would record 20 million international tourists by 2020. Again, the city will attain those numbers a year earlier if the demand continues to grow at two digit rate.



[Figure 4] Forecast of International Visitors in Korea and Seoul from Korea’s Top Five Inbound Tourism Markets

The Chinese market is forecasted to grow at the most rapid rate. Meanwhile, the number of Japanese visiting the country would continue to rise, maintaining its title as Korea's second biggest inbound tourism market. The forecast also shows that there would be more visitors from Taiwan than America. In the meantime, the number of visitors from Hong Kong would go up by on average 6.9~26 percent every year. It may well emerge as the second fastest-growing market behind China. Yet, it is premature to make such a conclusion, for the margin of forecast is large.

[Table 7] Forecast of International Visitors in Korea
(Unit : 1,000, %)

	2016	2018	2020	Annual growth rate
No. of int'l visitors in Korea	16,353-16,962	18,804-20,145	21,623-23,926	9.0-7.2
No. of int'l visitors in Seoul	13,289- 13,785	15,281-16,371	17,572-19,444	9.0-7.2
Total no. of visitors from Korea's top five inbound tourism markets	12,293	15,531	19,752	12.6
China	8,847-9,739	12,183-16,611	17,656-28,334	18.9-30.6
Japan	2,684-3,257	2,757-3,409	2,856-3,562	1.6-2.3
The U.S.	843-1,093	928-1,316	1,024-1,547	5.0-9.1
Taiwan	755-776	913-981	1,104-1,272	10.0-13.1
Hong Kong	639-764	730-1,151	835-1,943	6.9-26.3

3. Conclusions and Policy Recommendations

The following conclusions and policy recommendations have been derived from the analysis of trends in Korea's inbound tourism markets.

Entice visitors from a wider range of countries besides China and Japan

China and developing countries in Southeast Asia have great potential as inbound tourism markets to Korea: First, they are geographically close to the country.

Second, their economies are booming. Their development progress did not stop even during the global economic crisis. As a result, their fast-growing middle class are demanding for overseas travel more than ever. Korea needs to be geared up for this.

International visitors travel to Korea for different reasons: business, education, government work, and others. They often engage in leisure activities while serving those purposes. In fact, a recent coinage “bleisure (business combined with leisure)” reflects this trend. Korea should map out a plan to deal with this new change. Other countries already have taken actions. For instance, Southeast Asian countries such as Thailand and Singapore have launched marketing programs in accordance with the rising popularity of the so-called “MICE (meeting, incentives, convention, and events) trip.” Another example is New Zealand. It has long been investing its resources in promoting tourism to international visitors, whose main purpose of visit is to study. Like these countries, Korea ought to come up with a strategy to attract and satisfy international visitors with various purposes of trip. Certainly, Seoul should participate in the endeavor.

In the past, the Korean tourism economy heavily depended on the Japanese market. Now, it does so on the Chinese market. Consequently, the economy always has been dependent to the conditions of those two markets. In order to overcome this problem, Korea must put more efforts into attracting a wider range of international visitors besides Chinese and Japanese. This asks for a tailored strategy for each target group. This, in turn, requires a careful study of historical, cultural, political and economic backgrounds of other countries. For example, China and Taiwan both belong to the Greater China region. Yet they use different languages: The former uses traditional Chinese while the latter uses the simplified version. On top of this, Taiwanese culture is considerably different from the mainland. It is largely due to their long exposure to Japanese media contents. Given that, a strategy found effective with China may not work with Taiwan. Another example is ASEAN member states. Though Southeast Asian nations can be grouped as one, they all have different political systems, economies, and cultures. Thus, a customized strategy must be devised for each nation.

There have been some changes in the characteristics of tourism demand in a number of countries. In the case of Japan, it is one of the most rapidly aging countries worldwide. A recent study has estimated that people older than 60 would represent 60 percent of total population of Japanese tourists. Meanwhile, less and less Japanese in their 20s would travel overseas. The number is forecasted to be lower than in 2000. Korea Tourism Organization recently has released a report on the marketing survey of Japanese tourists. It shows that they consider cost the foremost factor in deciding where to travel. In particular, young generations in 10s and 20s prioritize cost above all. By contrast, older groups regard other factors like convenience equally important. Under such circumstances, Korea should consider shifting the focus of its current tourism marketing strategy from affordability to quality experience.

Continue to target the Chinese and Taiwanese markets, while implementing a new strategy for the Japanese market

As mentioned earlier, there has been precipitous increase in tourist traffic from China. Inevitably, Korea's tourism policy focuses on the Chinese market. This report suggests the country also attends to the growth of other markets in East and Southeast Asia.

China has established itself as the biggest inbound tourism market to Korea. Its GDP per capita is expected to continue to rise. Its tourism demand for Korea is also likely to maintain high for a while. Therefore, Korea should keep its eyes on this market. Taiwan is another market that requires attention.

Korea had once severed its diplomatic relation with Taiwan. Consequently, there had been a very little inflow of visitors from Taiwan. However, Taiwanese tourism demand for Korea picked up in 2000. Since then, it has been growing steadily. Nevertheless, Taiwanese still much prefer traveling to Japan and Hong Kong. Korea ought to find a way to attract Taiwanese tourists. A specially tailored

marketing strategy is to be implemented. Then, Korea may be able to welcome at least one million Taiwanese visitors in a short time.

Many experts blame the exchange rate for decrease in the number of Japanese tourists. Yet, it doesn't explain the increased flow of Japanese tourists to other countries. A new strategy needs to be planned out for the Japanese market.

Finally, the number of tourists from Hong Kong has been growing fast since mid-2000. It would rise further in a short time if Korea pours more efforts into enticing them.

Monitoring and Evaluation of Seoul's Basic Tourism Environment

Keum, Kiyong

Summary

In order to provide international tourists with greater levels of satisfaction, Korea must first make its tourism infrastructure more convenient and tourist-friendly.

1. Introduction

Plans for improving the overall attraction of a destination should be based on detailed information about the current status of tourism infrastructure. Data previously gathered by the national and regional surveys are insufficient

The Seoul Metropolitan Government (SMG) has set the goal of enticing 20 million international tourists. It initially aimed to attain it by 2020, but later has changed it to by 2018. In order to make this happen, the SMG must maintain a high growth rate of inbound tourists. This requires attracting first-time visitors as well as those who already have visited the city. In this regard, the government has carried out various tourism promotion policies such as one endorsing tourism content development. While continuing the current endeavor, the SMG should thoroughly investigate what international tourists find inconvenient and unsatisfied. Then, it should plan out a strategy to effectively address problems.

Since 2010, the number of international tourist arrivals in Korea has been increasing by on average 10 percent a year. Surely, it mirrors the rising popularity of the country among travelers. Unfortunately, many complaints are also being reported today. As an effort to unravel the problem, the national government and the SMG each conduct a survey of inbound tourists every year. Korea Tourism Organization (KTO) also collects and manages complaints from international

tourists through Tourist Complaint Center. Yet it is difficult to identify specific causes of inconvenience experienced by tourists. This is partly because two aforesaid surveys are ineffective in that they use the same set of closed-ended questions. Besides, the majority of international travelers do not know where and how to report complaints. Even if they have such knowledge, they tend to leave the country without taking any action.

This research monitored the conditions of Seoul's tourism facilities by engaging in comprehensive research

As mentioned earlier, the current surveys with closed-ended questionnaires fail to pin down the culprit of tourists' inconvenience. For this research, a group of researchers created a new system of monitoring tourism infrastructure in Seoul. First, they designed a simulation of travel experience in the city. The simulation reproduced a travel journey from entering the country to departure. It could identify specifically when, who and what gives tourists inconvenience or discomfort. Next, the researchers organized a field study: in-depth interviews of inbound tourists at various tourism sites.

Besides Korean nationals, 150 foreigners from different countries participated in the study as investigators. For starters, they played the role of tourists in the simulation. Their main task was to identify problems with physical and aesthetic aspects of Seoul's tourism infrastructure. Next, they interviewed 300 international tourists. While they carried out the interviews, they checked whether interviewees also experienced the same inconveniences as they did.

[Table 1] Basic Components of a Tourism Destination

Basic physical components					
Airport	Transport	Accommodations	Shopping Facility	Restaurant	Tourist Site
Basic aesthetic components					
Hygiene	Service	Design	Street Condition	Travel Convenience	

2. Main Findings

The analysis of complaints reported to the Tourist Complaint Center (operated by KTO) and the survey of inbound tourists to Korea (conducted by the Ministry of Culture, Sports and Tourism) show that the overall status of tourism infrastructure is as below.

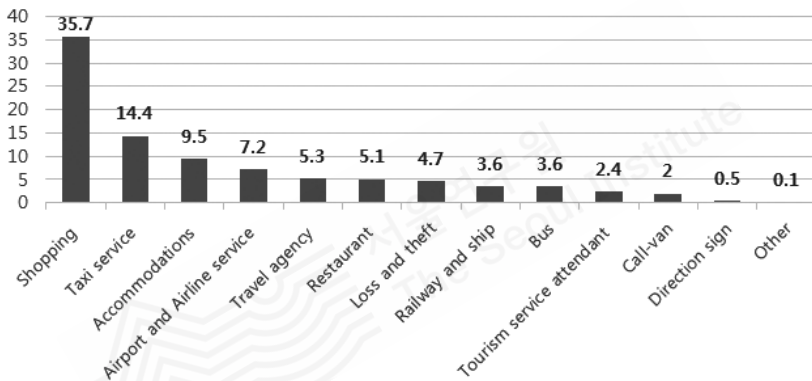
Shopping, taxi service and accommodations are top three categories for complaints

Since 1977, KTO has been operating the Tourist Complaint Center. The center is responsible for identifying what causes inconvenience and discomfort to inbound tourists. Its task extends to finding a solution to reported problems. Any tourist can file a complaint by calling 1330 (without a telephone exchange number), faxing, e-mailing, sending a letter, or visiting the official website or the office. Once the center receives a complaint, it either transfers it to responsible organizations or handles it by itself.

Every year, the center analyzes reported complaints. Based on the analysis, it tells what issues must be addressed. The center publishes a comprehensive analysis report on the matter every year. It is used by the national government as supporting data for laying down tourism policies, planning R&D, and improving services in such a field.

In 2014, the Tourist Complaint Center received 1,154 complaints in total: 1,060 (91 percent) of them were about inconvenience, of which 888 (84 percent) were from international tourists. In fact, 977 (85 percent) of total number of complaints were from international tourists: 61 percent from Chinese, Taiwanese and Hong Kong citizens; 24 percent from Japanese; 7 percent from other Asians and Oceanians; 6 percent from Americans; and 2 percent from Europeans. This order correlates with the order of countries that send the largest number of tourists to Korea in the same year.

The reported complaints (save those cannot be categorized by cause) have been classified into 12 items (refer to Figure 1). Three hundred and seventeen complaints belonged to shopping. It represented the greatest share (36 percent) in total number of complaints. It was followed by complaints placed under the categories of taxi service (128; 14 percent) and accommodations (84; 10 percent). Those fell under the item of other accounted for about 10 percent - comprised of complaints about computer glitches on tourism information websites, a lack of amenities such as restrooms at tourism sites, and errors in card payment.



Source: Comprehensive Analysis Report on Tourist Complaints in 2014, KTO(2015)

[Figure 1] Complaints from International Tourists for each Category

International tourists regard difficulty of communication, high traveling expenses, and low quality food as top three dissatisfactory factors.

The Ministry of Culture, Sports and Tourism first carried out a survey of inbound tourists in 1974. Every year since then, it has surveyed international visitors. Through this effort, the nation has evaluated how satisfied tourists are with its tourism infrastructure. It also has studied the consumption trend of inbound travelers. Furthermore, yearly comparison of findings has been conducted. Overall,

the study serves the purpose of providing basic data for improving condition of tourism infrastructure. Ultimately, it will be used in planning out policies to entice international tourists.

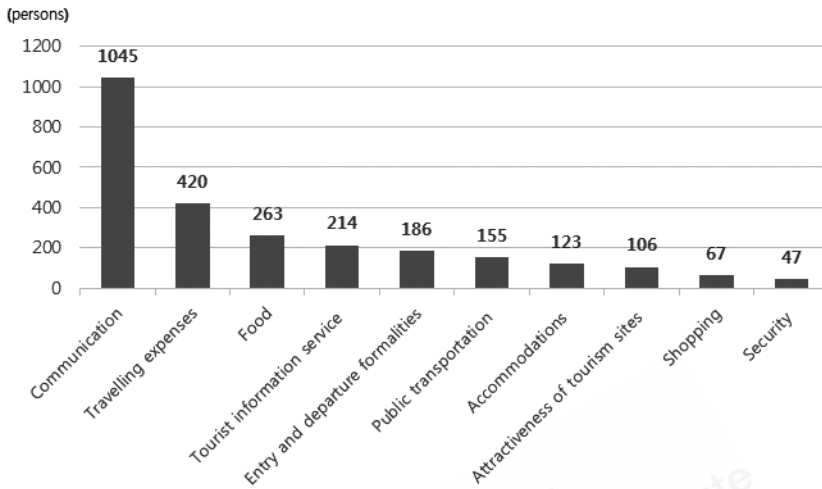
The survey involves international tourists only. It has narrowed down the samples further by only including those who satisfy the following criteria: older than 14 and staying in the country for minimum one day and maximum one year. Obviously, visitors staying only in airports have been excluded. In 2014, the sample size was 12,024. The investigation period was seven days per month from January to December of that year.

A questionnaire asking tourists for their satisfaction in Korea are consisted of ten items: transport, shopping, accommodations, and so forth. Each question is designed in the Likert scale: a one-to-five, with one being very dissatisfactory and five being very satisfactory. In the survey, the largest group of respondents (1,045) gave the lowest mark to communication. In other words, they found difficulty of communication most dissatisfactory. High travelling expenses, low quality food, and inadequate tourist information service followed behind.

[Table 2] Items in the Survey of Inbound Tourists in Korea

1. Entry and departure formalities (entry procedure, visa issuance)
2. Public transportation (convenience, service)
3. Accommodations (convenience, service)
4. Food (taste, service)
5. Shopping (convenience, facilities, service)
6. Attractiveness of tourism sites (cultural heritages, natural scenery, night tour)
7. Tourist information service (Tourist Information Centers/tourist information, tour guides, direction signs)
8. Communication
9. Travelling expenses (prices of souvenirs and at tourism sites)
10. Security (safety)

Source: Field Study of Inbound Tourists in Korea 2014, the Ministry of Culture, Sports and Tourism (2015)



[Figure 2] Dissatisfactory Factors Reported by Inbound Tourists in Korea

Difficulty of communication was selected as the most dissatisfactory factor

82.5 percent of total inbound tourists in Korea visit Seoul. Indeed, Seoul is the most-loved travel destination in the country. SMG annually conducts a field study of international tourists visiting the city. It identifies and analyzes actual conditions of the city's tourism infrastructure. The government does so to lay down appropriate tourism policies. For this study, a sample of 3,000 tourists has been surveyed in the period between May and October in 2014.

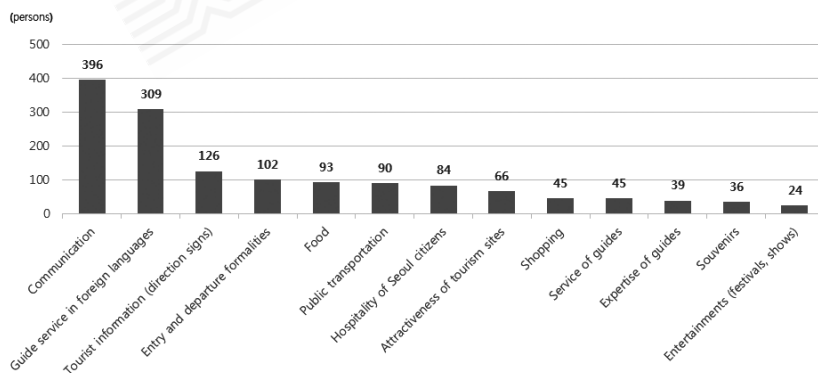
As previously mentioned, the Ministry of Culture, Sports and Tourism has conducted the poll involving about 12,000 international tourists in 2014. Likewise the SMG has carried out a similar survey on its own. It has availed itself of a questionnaire inquiring how satisfied international travelers are. The survey is comprised of 13 items in total: transport, shopping and other tourism-related items except accommodations. Again, each question is designed in a one-to-five scale from very dissatisfactory (one) to very satisfactory (five).

[Table 3] Items in the Survey of Inbound Tourists in Seoul

1. Entry and departure formalities	8. Communication
2. Shopping	9. Attractiveness of tourism sites
3. Food	10. Hospitality of Seoul citizens
4. Entertainments (festivals, shows)	11. Souvenirs
5. Public transportation	12. Expertise of guides
6. Tourist information (direction signs)	13. Service of guides
7. Guide service in foreign languages	

Source: *Field Study of Inbound Tourists in Seoul 2014*, SMG (2015)

The survey has discovered that 396 respondents gave the lowest mark to communication. A lack of guide service in foreign languages took the second place from the bottom. This is particularly dire as it may lower the level of tourist satisfaction with communication further. Besides these two, 126 inbound tourists answered that they are not pleased with tourism information. Meanwhile, entry and departure formalities, food and public transportation were each selected as dissatisfactory factors by 102, 93 and 90 respondents, respectively.



Source: *Field Study of Inbound Tourists in Seoul 2014*, SMG (2015)

[Figure 3] Dissatisfactory Factors Reported by Inbound Tourists in Seoul

Difficulty in communication is chosen as the most dissatisfactory factor by respondents in both studies

The Ministry of Culture, Sports and Tour and the SMG have six common items in their surveys. And it has been found that international tourists participated in each survey picked difficulty of communication as the most dissatisfactory factor. Respondents who took part in the Ministry's survey responded that entry and departure formalities are the second most dissatisfactory factor. The third was food. The opposite is the case with participants of the SMG's. As mentioned earlier, over 80 percent of inbound tourists visit Seoul. This implicates that the quality of food and restaurant services are especially poor in Seoul compared to other cities in the country. Meantime, both groups chose the same items for the remaining 4th, 5th and 6th places.

[Table 4] Dissatisfactory Factors Each Chosen by Inbound Tourists in Korea and Seoul

Rank	Korea	Seoul
1	Difficulty of communication	Difficulty of communication
2	Entry and departure formalities	Food
3	Food	Entry and departure formalities
4	Public transportation	Public transportation
5	Attractiveness of tourism sites	Attractiveness of tourism sites
6	Shopping	Shopping

3. Conclusions & Policy Recommendations

After monitoring the overall conditions of tourism infrastructure in Seoul, following conclusions and policy recommendations are formed.

Make the current direction signs at Incheon Airport more tourist-friendly, while improving the quality of materials provided at Tourist Information Centers

According to the field study, direction signs at Incheon International Airport, in general, better incorporate foreign languages today than before. Much of information is provided in not only English, but also in Chinese and Japanese. In particular, English and Japanese are found on small signs as well. However, Chinese is still omitted in a number of signs.

There are two Tourist Information Centers inside the airport. Each is located in the east and west corner on the first floor. It would not be difficult for incoming tourists to find the place. But the problem is with information provided there. For instance, leaflets about accommodations are only filled with high-end luxurious hotels. There is no information on affordable places to stay. Contents must be improved.

Wrongful acts of taxi drivers prevail, whereas public transportation fails to provide information in foreign languages.

The research shows that scores of taxi drivers still engage in wrongful acts. Some drivers intentionally made a detour from the airport to downtowns so they could charge tourists double or triple the actual cost. Most foreigners are unfamiliar with directions in a new place. So they often rely on local drivers. And some unscrupulous drivers exploit this. For most of the time, international tourists do not realize whether they are being deceived. Given that, the actual number of wrongful acts committed by taxi drivers would be higher than what has been reported. Needless to say, this wrongdoing hurts the image of Seoul and its citizenry. Not only that, it hampers the development of tourism industry. Thus, a solution must be sought.

Legions of international tourists are also discovered to experience inconvenience while using public transportation (e.g. airport limousines, airport express, city buses, metros). It is largely due to a lack of information provided in their languages.

Airport limousine bus and express take international visitors from Incheon International Airport to Seoul downtown. They are the very first public transportation that incoming foreigners use. Yet, some direction signs still neglect Chinese, while some announcement is made in Korean only.



[Figure 4] Airport Express Line Map

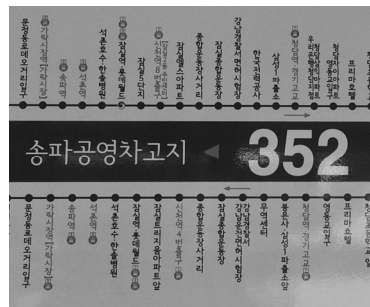


[Figure 5] Screen of Self-ticketing Device

According to the study, international tourists use subway more than buses in Seoul. It largely owes to the fact that foreigners cannot obtain information about bus stops in their languages. Chinese and Japanese can hardly hear announcements in their words at bus stations.

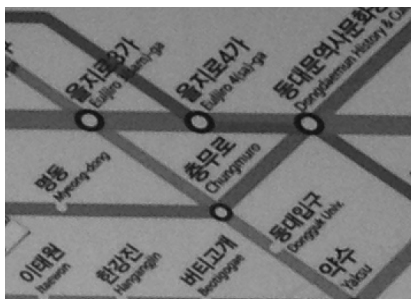


[Picture 6] Bus Route Map at the Station



[Figure 7] Bus Route Map inside the Bus

The condition of subway is better than buses. Still, there have been some complaints about a lack of information on behalf of foreigners. Words on some subway line maps inside the train are written in English and Japanese. However, most are written in English only if not only Korean. Tourists may resort to a leaflet specially prepared for them. But the problem with that material is that it is written in only foreign languages. The study has discovered that some tourists encountered difficulty when seeking helps from citizens by showing them the leaflet.



[Figure 8] Metro Line Map inside the Subway



[Figure 9] Direction Sign at the Subway Station

A problem also arises from a difference in the pronunciation of Chinese characters: Koreans and Chinese pronounce Chinese characters differently. Some Chinese tourists complain about such confusion. Yet, the names of local places or constructions are deemed as proper nouns. By the international standard, they should be written in how citizens pronounce them. This is necessary to avoid a bigger problem that may arise - that is, neither citizens nor international tourists understand each other.

Bolster the tourist guide system and the identity of theme places at tourism sites.

For the purpose of investigation, tourism sites are classified into shopping areas, theme streets, traditional palaces, museums, and natural landscapes. The study shows that the direction signs are poorly installed in the last three places. Tourists often consider historical sites and museums as must-visit destinations. Nevertheless, there is no explanation or description about the places or exhibits written in foreign languages.

Natural landscapes such as Hangang River, Namsan Mountain, and Cheonggye Stream are insufficiently equipped with direction signs for tourists. Foreigners find it difficult to get there from bus or subway stations. In the case of Cheonggye Stream, tourists often miss it, for there is no sign at the entrance.

Meanwhile, the identity of Insa-Dong Antique Street is damaged by flooding commercial stores. It is one of the most famous theme streets in Seoul. Cultural and traditional features have long been loved by international tourists. However, a plurality of commercial stores and franchises recently have nested in the area. As a result, the place has been reduced to another common commercial place in Seoul.



[Figure 10] Directions Sign with only English and Korean

Improve the attitude and service of merchants and establish a fixed-price system in Special Tourism Zones

In general, international tourists are content with the current service provided by Korean merchants at major tourism sites like Special Tourism Zones. But some reported that they often feel uncomfortable with a few tradesmen soliciting at shopping areas like Myeong-Dong and Dongdaemun Fashion Town. They also said that some shop owners suddenly became hostile when they decided not to purchase goods. There needs a campaign to improve the attitude of servicemen and heighten the quality of their service.

Number of tourists reported frustration that they felt while talking to local merchants. For a simple transaction, communication is not an issue: The two parties can just look at a number on the calculator. But in other cases, tourists experience much inconvenience. They complained about the absence of price tag on products. They also said the same product is charged differently at different stores. Product descriptions must be provided in foreign languages. And every product should have a price tag. At the same time, a fixed-price system should be implemented.

Increase the number of bins and toilets on the road, while better manage hygiene of facilities

The field study shows that most complaints regarding to street condition were due to the followings: a lack of public restrooms and rubbish bins, messy signboards, stalls hampering pedestrian movement, and unclean environments. In regard to the stalls and road cleanness, some international tourists gave positive opinions. Some told otherwise. But they all said that a lack and ill management of bins and public restrooms are problems.

In general, the larger the walking population, the less clean the places are. Areas like Myeong-Dong, Dongdaemun, Namdaemun, and Itaewon are examples. This

may be due to the insufficient quantity of bins. Given that, the government should revisit the current policy endorsing the elimination of bins on the street. Problems will be solved to a certain extent if the government admonishes building owners to let the public use toilets on the first floor of their buildings. On top of this, it ought to clean up the mess in alleyways made by untidy signboards.



[Figure 11] Public Toilet in Myeong-Dong



[Figure 12] Trash on Myeong-Dong Street

Prioritize the policy supporting the improvement of tourism infrastructure

The monitoring of tourism infrastructure in Seoul shows that many of problems identified in 2008 have been found again in 2015. Physical components have been improved significantly with increase in the number of international tourists. Yet aesthetic components have not. In order to provide international tourists with a greater level of satisfaction, the SMG needs to sort out problems associated with dirty public restrooms, a disturbing look of trash bins on the street, and excessive solicitation of merchants.

Each city (or region) has tourism attractions that have incomparable values. Cultural heritages and natural landscapes are the examples. Comparing them for the sake of establishing the degree of each area's competitiveness in attracting

international tourists is inappropriate. Instead the overall status of tourism infrastructure can work as an objective indicator. For instance, a city with inadequate tourism infrastructure can be regarded as relatively uncompetitive in enticing and maintaining the flow of international tourists. In this sense, improving the condition of such infrastructure is the basic and foremost agenda that must be taken into serious consideration for policy making.



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

Baik, Seonhae

Summary

Amid a steady increase in the amount of cultural resources, market domination of corporations with large capital has become increasingly prevalent. There arises the need to support artists in their pursuit of art. Meanwhile, continuous effort should be devoted to establish more cultural facilities at the community level.

1. Introduction

The Seoul Metropolitan Government needs to produce and accumulate comprehensive data about the cultural state and condition of Seoul

Today, a large number of Seoul citizens enjoy a higher standard of living and seek a way to further improve the quality of their lives. As a result, citizens of Seoul have become increasingly interested in various kinds of cultural programs and activities. Earlier in the 1990s, the national government saw cultural policy as a branch of social welfare service. From this point of view, it concentrated on expanding access to cultural programs for the socially or economically marginalized. However, the focus has shifted to new direction. Since 2000, the public demand for a wider range of cultural programs and the expansion of related facilities has soared. As a result, the Seoul Foundation for Arts and Culture has been established. Moreover, the Seoul Metropolitan Government (SMG) has expedited the process of setting up cultural facilities and supported the development of various cultural industries. It has done so, recognizing the undeniable role of culture in economic development. At present, SMG's cultural policy aims to erect a symbolic cultural facility that can represent the unique and rich cultures of Seoul. It also labors to

carve Seoul citizens' daily environment into a cultural zone.

Yet the SMG is confronted with difficulty arisen from a lack of data required for developing an effective cultural policy. There is currently no system that systematically tracks and analyzes changes in the cultural state and condition of Seoul as a whole. At the moment, the nation, the SMG, autonomous district governments, and other governmental entities collect statistical or administrative data for themselves according to their own needs. This has resulted in scattered data. Until now, SMG has never undertaken a thorough study on the cultural resources of Seoul. However, such investigation is necessary if the government wishes to design and implement effective policies on behalf of its citizens who are looking for more diverse and satisfying cultural experience.

A fact-finding investigation on the city's cultural resources is required to obtain basic data, which in turn can be utilized to assess and increase the efficacy of cultural policy

Besides Korea, numerous other countries around the world also have an inadequate system that fails to systematically produce comprehensive data on cultural resources. A plausible excuse would be that the definition of culture is too wide and rapidly evolving: Culture can be defined in several different ways, for it encompasses a variety of elements from artistic activities to, in a wider sense, lifestyles and values. In the meantime, technological advancement has created a new kind of deformed art and the fusion of different artistic genres. This has widened the scope of investigation, rendering the process more time consuming and costly. Despite such challenge, it is essential that the government produces reliable information, based on which it can properly analyze and assess the efficacy of its cultural policy. Without this being done, policy makers cannot form an evidence-based policy to make cultural progress by expanding the public's cultural capacity.

City of Seoul needs to obtain data related to the cultural state and conditions of Seoul from a fact-finding investigation on the city's cultural resources

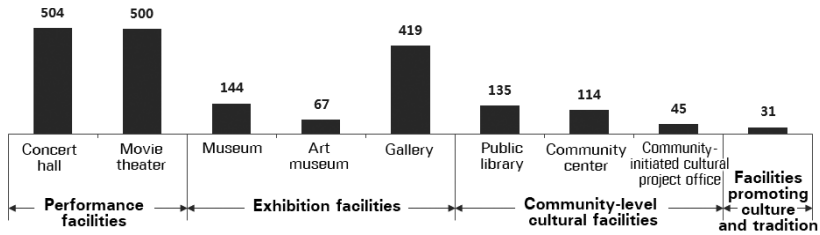
Before all, the SMG must gather and secure data about Seoul's cultural resources. It is the very first step for ensuring that the government carries out its cultural policy in the right direction. As explained earlier, data produced in the previous studies are outdated to be used as relevant references of current cultural activities. Given that, this report investigates the current condition of cultural resources and facilities in Seoul to determine the city's actual cultural state. It looks at every aspect of cultural activities taking place in Seoul from creation to consumption in pursuit of finding how cultural resources are interrelated. In addition, this report compares its findings with those of the previous studies to first see what changes have been made in the cultural state of Seoul and then to anticipate coming changes. This study is expected to serve as a reference for the SMG to decide in which direction it will pursue its cultural policy.

2. Main Findings

This paper divides Seoul's cultural resources into historic, artistic, visual, and community-level resources. Then, it analyzes the current state and trend of each.

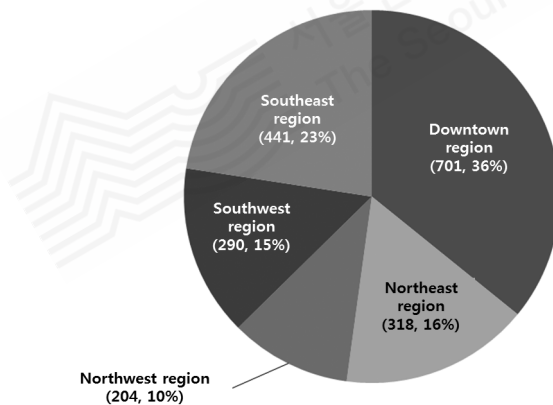
There are total 1,959 cultural facilities based in Seoul. Concert halls and public libraries have been instrumental in the growth of cultural resources

The amount of cultural resources has been on a rising trend since 2000. The growth has been witnessed in every area related to culture including employment in the culture contents industry. In particular, the number of art facilities like concert halls, movie theaters, and museums including ones particularly built for art exhibition has shown stark increase. As of June 2015, Seoul had total 1,959 cultural facilities, of which the overwhelming majority are performance facilities.



[Figure 1] Cultural Facilities in Seoul

Concert halls and public libraries have been the major driving forces of the increase in the number of cultural facilities. Since 2007, each has grown by 218 and 69. However, the rate at which the number of cultural facilities rises has plummeted significantly: from the average growth rate of 83.7 percent between 2002 and 2007 to 27.3 percent between 2007 and 2015.



[Figure 2] Current Distribution Status of Cultural Resources among the Five Regions in Seoul (No. of resources & share)

Today, cultural resources are still concentrated in the Downtown and Southeast region of Seoul. They are especially clustered in the former area, resulting in imbalance among the regions. For instance, Jongno, Gangnam, and congested urban areas near Hongik University still remain as the most popular nesting sites for

cultural resources. However, according to the comparative study of cultural resources in the five regions of Seoul, the concentration of cultural resources in Downtown has been slightly weakened since 2007. In particular, palpable change has been afoot in Jongno-Gu. Meanwhile, Northeast and Northwest regions have come increasingly into possession of cultural resources.

SMG has made notable change in its cultural policy, preserving a wider range of historic resources such as cultural assets and harnessing them for a variety of social purposes

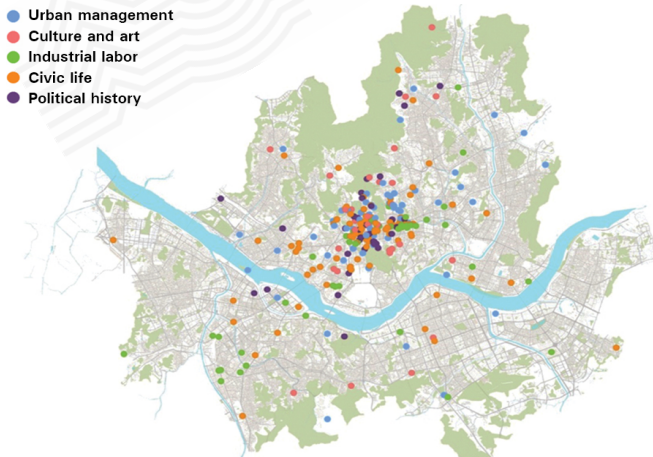
Among hundreds of the state-designated heritages in Seoul, 326 are consisted of immovable and intangible cultural assets. They are not preserved nor exhibited at the museum, but found in certain places in the forms of buildings, sites, and monuments. More than the majority of them (173, which represents 53.1 percent) are concentrated in the Downtown region. The rest are located across the four regions: 73 in Northeast (22.4 percent); 30 in Southwest (9.2 percent); 26 in Northwest (8.3 percent); and 24 in Southeast (7.4 percent).

[Table 1] Number of Immovable and Intangible Cultural Resources in Seoul (as of 2007 and 2015)

Category	National treasure		Treasure		Historic site		Scenic site		National intangible cultural heritage		Important folklore cultural heritage		Total	
	2007	2015	2007	2015	2007	2015	2007	2015	2007	2015	2007	2015	2007	2015
Entire city	6	8	23	47	67	67	0	3	39	55	131	146	266	326
Downtown	6	8	23	38	35	35	0	1	24	27	60	64	148	173
Northeast	0	0	0	5	14	14	0	2	9	19	28	33	51	73
Northwest	0	0	0	3	7	7	0	0	4	5	11	11	22	26
Southwest	0	0	0	0	4	4	0	0	2	3	22	23	28	30
Southeast	0	0	0	1	7	7	0	0	0	1	10	15	17	24

Under the guidance of its past cultural policy, SMG used to merely focus on preserving historic artifacts. In recent years, it has taken the initiative in expanding a range of historic heritages and cultural resources for preservation and utilizing them for various purposes. The government has been preparing to apply for UNESCO World Heritage Site status for the Han Yang Fortress Wall. In addition, it plans to excavate and seek the UNESCO recognition for Pungnapdoseong, the putative site where a royal palace was erected in the era of Hanseong Baekje.

SMG has expanded the definition of historic and cultural resources from relics and historic sites inherited from past generations to modern and contemporary cultural assets in Seoul. Then, it has designated these new cultural resources “heritages for future generations” and been using them for the benefit of the public. For example, it has transformed a water intake station located in Guui-Dong¹⁴ into a cultural art space; the house where Mr. Geukyeong Yun, the renowned writer of numerous children’s songs, lived into a child education center; and the residence in which non-violent human rights activist, Mr. Seokheon Ham, lived into a place for teaching Korean history.



[Figure 3] Current Distribution Status of “Heritages for Future Generations” in Seoul

¹⁴ ‘Dong’ is an area unit that refers to a smaller sub-area within ‘Gu (i.e. district)’

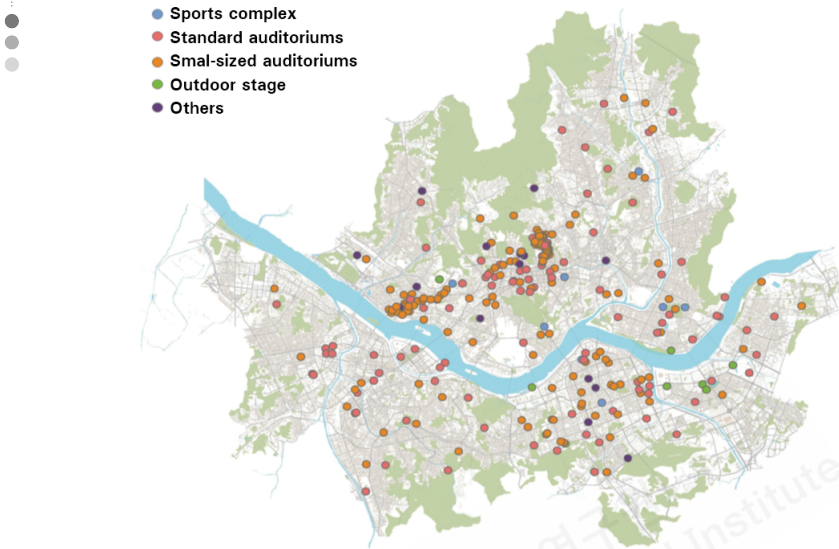
Museums are important in that they collect, preserve and exhibit historic and cultural resources. In Seoul, the number of museums has gone up by 29.7 percent to 144 from 2007. A particularly noticeable increase has been made in the number of national and public museums. They form the biggest cluster in Downtown region: It comprises of 66 museums, representing 45.8 percent of the total number of museums based in Seoul. Northeast and Southeast regions have the second and third largest number of museums, respectively.

Public entities should keep a balanced number of cultural resources among regions amid the growing investment of the private sector

Concert halls provide a venue for artists to perform and interact with audiences. There are total 504 concert halls in Seoul, of which only 122 are operated by public entities. The rest of 382 are in hands of private enterprises. Overall, concert halls funded and managed by the private sector are equipped with many more seats.

Unlike other areas in Korea, Seoul has most of its concert halls dominated by private organizations. Meanwhile, almost a half of concert halls in Seoul are concentrated in Downtown region (48.6 percent). Jongno-Gu has the greatest number of concert halls in the region: Of 504 concert halls in the city, 199 (39.5 percent) are located in Jongno-Gu. Other districts such as Mapo-Gu, Gangnam-Gu, and Seocho-Gu each has 43, 37, and 35 concert halls, respectively.

Recognizing the rapidly growing popularity of culture among citizens, many corporations are now taking part in culture business. Among 382 concert halls in possession of private entities, corporations own 55 places, increased by 129.2 percent from 2007. Along with large corporations, medium-sized companies are also showing their interests in the business. Another noteworthy trend is that an increasing number of corporations are outsourcing the work of operating and managing their concert halls. Meanwhile, a rising number of concert halls are being designed or redesigned to serve audiences with shows of particular genres such as musicals, concerts and K-pop performances.

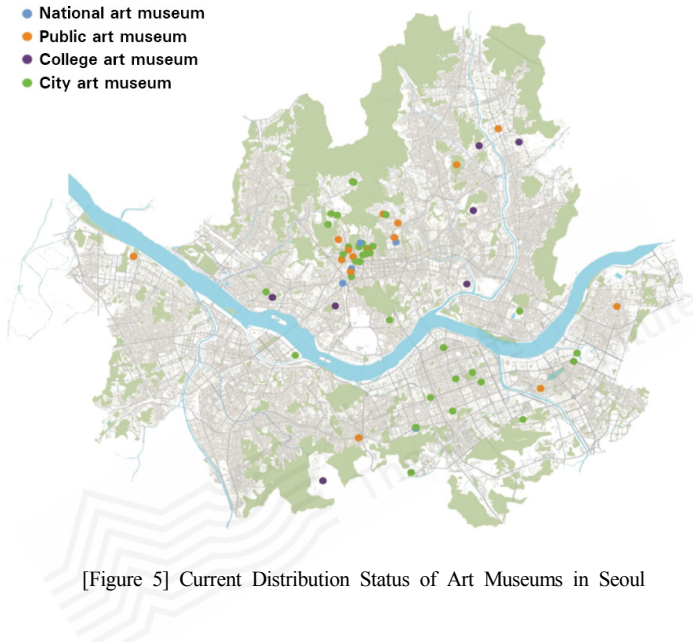


[Figure 4] Current Distribution Status of Concert Halls in Seoul

Art museums and galleries are where people find paintings, sculptures, crafts and other sorts of visual arts. Art museums, in particular, are used as a venue to exhibit and preserve artworks. Compared to 2007, the number of art museums in the city has soared by 42.6 percent to 67. The most welcoming news would be that the number of public art museums has more than doubled from 7 to 15, of which 4 have been established in the Northeast region. It is the culmination of the government's relentless effort to foster a culture-friendly environment for residents in this area, which has long been deemed as a region with scant cultural resources. Downtown region has 34 art museums, meaning that 50.7 percent of art museums in Seoul are clustered there. Southeast region records the second largest number of art museums (16). Meanwhile, more than the majority of art museums are operated by private organizations (38, representing 56.7 percent).

Galleries, on the other hand, serve as the venue for the distribution and sales of artworks. Their number currently stands at 419, of which 92.8 percent are private.

They are concentrated in Downtown (225, 53.7 percent) and Southeast (136, 32.5 percent) regions. In particular, they form large clusters in Jongno-Gu (46.1 percent) and Gangnam-Gu (24.6 percent).



[Figure 5] Current Distribution Status of Art Museums in Seoul

Publishing companies and bookstores are the places where printed materials such as books and magazines are produced and sold. There are 3,513 publishers and 881 bookstores based in Seoul. Their numbers have been on the rise. In particular, the number of chain bookstores has more than doubled from 22 to 47. In increasingly fierce competition against those large chain bookstores and emerging online bookstores, small local bookstores have struggled for survival. Instead of giving up, some of them have taken various innovative approaches to remain in the market. For example, they have established co-operatives and evolved from mere bookstores into space where customers interact with each other and promote community culture.

There are total 83 movie theaters in Seoul. They are being reorganized into giant multiplex cinemas under the lead of conglomerates

Movie theaters provide the public with arts that rely on moving figures in a visual and audio medium. Seoul citizens most often go for a movie in their leisure. There are total 83 movie theaters and 500 screens in Seoul. Twenty three movie theaters have nested in the Downtown area, making the region most populated by movie theaters. However, 119 and 112 screens (which account for nearly a half of total number of screens in Seoul) are found in Southwest and Southeast regions, respectively. In particular, there is a concentration of movie theaters in Jung-Gu, Jongno-Gu and Gangnam-Gu. Dobong-Gu, which is located in Northeast region, is the only district without a movie theater. In terms of screen number, 16 movie theaters have a single screen, whereas 55 movie theaters are equipped with more than five screens. The greatest number of screens owned by a single movie theater is 21.

Among 83 movie theaters in Seoul, 61 are operated by cinema chains (73.5 percent). Cinema chains have 453 screens in total, representing 91.2 percent of total number of screens in Seoul. This clearly illustrates that the film distribution market is dominated by big companies. Compared to 2007, the number of multiplex cinemas has escalated by 74.3 percent, accompanying 90.3 percent surge in the number of screens. Medium-sized multiplex operators have exited the market, leaving only three giant cinema chains.

[Table 2] Current Status of Cinema Chain Operation in Seoul

Category	No. of theaters	No. of screens	No. of seats
CGV	26	202	33,421
Lotte Cinema	22	161	29,181
Megabox	13	90	15,156
Total	61	453	77,758

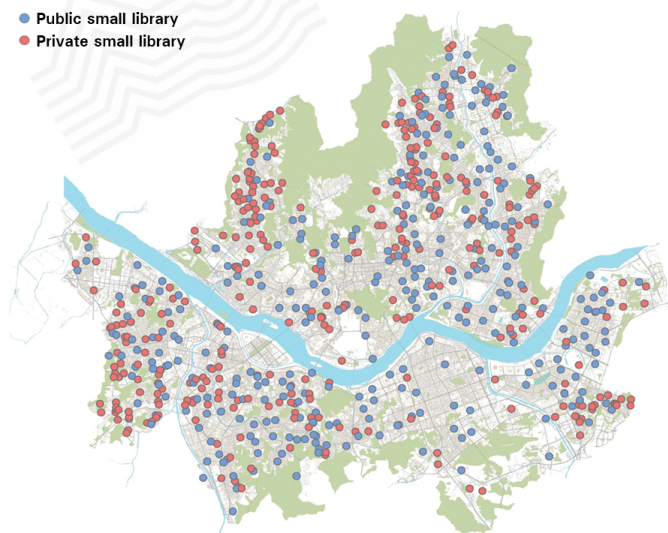
The number of Seoul-based film production companies stands at 1,228, increased by 69.8 percent from 2007. They are concentrated in Southeast region, especially in Gangnam-Gu (36.1 percent). Among those located in Gangnam-Gu, 47.2 percent are found in Nonhyeon-Dong. Clusters of film production companies are also seen in Mapo-Gu (12.6 percent) and Seocho-Gu (8.9 percent). There are total 544 broadcast program production companies, whose number has surged by 49.8 percent from 2007. They are concentrated in Southwest region, particularly in Yeongdeungpo-Gu: 37.3 percent of broadcast program production companies are based in this district, of which 30.5 percent are found in Yeouido-Dong. Others have nested in Mapo-Gu (19.1 percent) and Gangnam-Gu (14.9 percent). Both film production companies and broadcast program production companies are manifesting the most rapid growth in Southeast region.

More and more cultural spaces are being created at the community-level for residents to have easy access to cultural programs and engage in various activities.

There are total 135 public libraries in Seoul. Compared to 2007, the number has spiked by 104.5 percent. More than a half of public libraries in the city have nested in Southwest (31.9 percent) and Northeast (29.7 percent) regions. The rest are found in Southeast (20.7 percent), Downtown (10.4 percent), and Northwest (7.4 percent). It draws a stark contrast with the distribution of facilities for art and historic resources, which are mostly concentrated in Gangnam region below Han river. With more libraries in their communities, people are prompted to visit libraries more often and borrow more books. In this sense, the government can achieve desired outcomes.

Public libraries are managed by both public and private organizations: They are each in charge of 131 and 4 libraries. The most notable public library would be the Seoul Metropolitan Library. The building used to be the city hall. Later in 2012, the SMG has remodeled and opened it to the public. It is recognized as a landmark of Seoul.

Recently, “Small Libraries” have been increasingly erected throughout Seoul. “Small Libraries” refer to those equipped with more than 1,000 books and at least ten seats in a space of minimum 33 square meter. They can be located in various places from a church, kindergarten, community center, village hall, apartment complex, correctional facility, probation office, military camp, company building to social and political campaign offices. Their number had jumped from 383 in 2007 to 857 as of 2015. They are found in every region of Seoul, with the largest number (277, representing 32.3 percent of the total) occupying in Southwest region. Northeast, Southeast, Northwest and Downtown regions have 254, 135, 129 and 62 Small Libraries, respectively. Among districts, Eunpyeong-Gu has most Small Libraries(73). Some Small Libraries located in an area with a modicum of cultural resources serve as the venue where people interact with one another. There people create and participate in cultural activities for themselves. It is premature to conclude that every Small Library serves such a positive role. Still it is noteworthy that Small Libraries have potential to ignite cultural development of communities.



[Figure 6] Current Distribution Status of Small Libraries in Seoul

Meanwhile, the number of the House of Culture (the place that the government has introduced for residents to get easy access to cultural programs) has plunged by more than 50 percent. Only eight are in operation. It is largely due to budget cut amid increase in the number of other cultural facilities.

Community Center for Art Creation is another community cultural facility. It is built at the community level and residents take the initiative in establishing and running the center. Seoul Community Service Center provides necessary support. Unlike other cultural facilities, which are mostly for professional artists, the Community Center for Art Creation is open for the general public. The center is built nearby residential area and offer various cultural programs at an affordable price, meaning residents can participate in cultural activities without taking a long trip to see expensive performances. There are total 32 centers operating throughout Seoul. They have their own management schemes and run different cultural programs. Yet, they all have firmly established themselves as a valuable place for residents to interact with one another in everyday life. It seems that the public will continue to demand this kind of venues.

3. Conclusions & Policy Recommendations

This report has drawn conclusions and policy recommendations as below.

With increasing influence of corporate capital in the culture and art market, there arises the need to support the growth of artists with unstable livelihood sources

Recent surge in the number of cultural facilities has entailed growth in the culture and art market. According to the fact-checking investigation held in 2014, the number of performances and audiences have gone up by 18 percent and 40 percent between 2007 and 2013. Centralization of capital is behind this growth: Increasing number of corporations have been investing or taking part in the operation of concert halls; Chain cinemas and bookstores have been monopolizing the

distribution of films and publications; Art performances have become dominated by large-scale original and licensed musicals. The influence of big capital is growing more than ever.

Under these circumstances, the market of fine art is shrinking. In ¹⁵Daehangno, owners of small private theaters fear that they might have to close down their businesses one by one like unstoppable dominoes. The market for performing arts seems to keep growing at least on surface. However, it is glaring that the visual arts market is withering. This would inevitably exacerbate the conditions for artists to pursue art.

Support should be provided to those in the field of fine arts. SMG should foster an environment in which artists can continue their pursuit of art. It should secure a workplace for rising artists and work together with private organizations to explore and assist creative artists.

SMG should establish more small-sized cultural spaces in people's daily environment, while supporting culture groups formed by citizens

As seen from the case of Small Libraries and the Community Center for Art Creation, numerous cultural spaces have emerged in people's daily environment. Once a venue where residents can gather is available, cultural activities are naturally created. This in turn helps bolster the tie among people and gives a sense of solidarity to the whole community. Given that, the government should labor to cultivate more cultural spaces in people's daily lives.

In general, Seoul citizens have a greater cultural capacity and demand for more quality cultural programs. In other words, they are inclined to refuse the homogeneous collection of cultural programs that the government and other public entities offer. Given that, the public sector should let residents to manage cultural

¹⁵ A neighborhood in Seoul (within Jongno-Gu and Seodaemun-Gu) known as the home to small theaters and degenerated cultural space for the youth

facilities and organize cultural programs on their own. And then, it should provide them with necessary support in regard to the space management of cultural facilities. At the same time, the government needs to look for culture groups formed by citizens (e.g. local culture communities, hobby clubs comprised of workers) and support their activities.

04 Social Issues

Planning for future Seoul with Citizen Participation

Byun, Miree

Summary

Citizens of Seoul are facing increasing uncertainty in the future. To predict and plan for the future of Seoul, the SI researchers carefully listened to citizens and the public officials in the Seoul Metropolitan Government.

1. Introduction

Urbanization is afoot around the world. Urban population is growing faster than ever, and the United Nations projects that, by 2050, almost three-quarters of the global population will call urban areas home. Indeed the 21st century is the “Century of the City.” In such a time, one of the significant phenomena happening in the cities worldwide is increasing uncertainty. Globalization has rendered it difficult to anticipate how a country or a city would change in the future. Meanwhile, the whole world is suffering from drastic climate change, whereas the instability of energy and food supply put the lives of people at risk. These all indicate rising uncertainty. In the Century of the City, where cities face growing uncertainty and global competition is becoming more fierce, large cities around the world have to deal with the matter of survival. Seoul, a metropolis with the population of 10 million, also encounters the same problem. What should Seoul do in order to survive 10, 20, and 30 years from now?

This research starts from this question. The demographic change happening in Seoul combined with changes in urban environment, technological advances, and

other social factors are likely to set entirely different social conditions for next generations. In this regard, this report suggests how Seoul should prepare for the future. The question is what kind of city Seoul should be in next 10 and 30 years. The series of reports titled, “Citizen Participatory Creation of Future Seoul” presents investigative perspectives on this question, and this study “Seoul Future Report 2045” is its first volume.

The future is not given, but citizens create it

Seoul Future Report 2045 is not a study on macroeconomic prospect or trends. Instead it suggests what Seoul should prepare now for the future. Future Seoul ought to be built upon shared goals and values of citizens living in the city where various changes continue to emerge. The citizens of Seoul here refer to general people dwelling in the city, groups of experts with insight on policies introduced by the Seoul Metropolitan Government (SMG), and the SMG officials who respect collected opinions of the citizens and implement policies accordingly. They are a part of so-called social constructive process for building the future of Seoul, involving an open governance system. The future of Seoul is not to be determined by a single person. Instead, it is to be created in concerted effort, pursuing common values and goals. Today, what is considered the most important in studying the future is to provide people with an opportunity to carefully think about the future and enhance their capacity to cope with new changes.

This report, which constitutes the first chapter of Seoul Future Report 2045, addresses this very issue. It first presents the general analysis of the methodology and the summary of global research trends. It then renders what Seoul citizens think and expect about Seoul in the future. In the survey of two sample citizen groups designed to represent the whole population (one is consisted of adults over 20, and another comprises teenagers), we studied both positive and negative answers of the respondents regarding to what kind of concerns they have today and their

expectation about future Seoul and their lives in next 10, 20, and 30 years. This research also shares the forecast of future Seoul made by experts and policy makers. In particular, it presents the findings of in-depth interviews with policy makers at the SMG with regard to the future prospect for Seoul, core values that Seoul should seek in the future, and policies that the city government needs to prioritize in order to realize such values. High-level policy makers who participated in the interviews shared their serious thoughts on the matters, and some of them engaged in discussion during the interview.

2. Main Findings

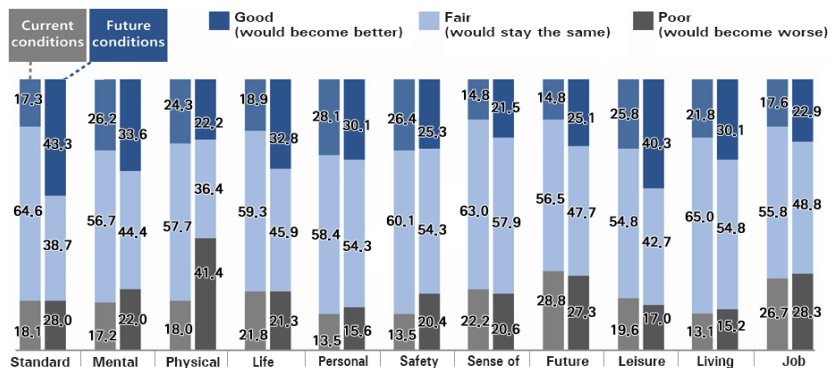
First, this research investigates opinions from citizens and teenagers living in Seoul. The investigation of general Seoul citizens used the sample of 1,200 adults over 20 years old residing in the city. It had a sampling error of plus or minus three percentage point. The survey took place in November 2015. The investigation of future generations in Seoul, on the other hand, selected teenagers between 15 and 19 who live in the city. The online survey was conducted to samples of 500 teenagers.

The investigation comprised the following four research areas: (1) the perception of the future, (2) adaptability to the future, (3) the future image of Seoul, and (4) the future image of Korean society. Each group of participants was given various questions regarding to the four areas throughout the survey. In detail, the group of 1,200 adults was asked about, for instance, what they think of the future, how they evaluate the current status of each realm of their lives, whether they believe the current living conditions would improve or worsen in the future, and how content they are with their living conditions at present. By asking these questions, the investigation could identify whether grown-ups in Seoul have positive or negative prospect for the future. In the survey, the respondents were also inquired as to how much they think individuals and the entire city should prepare for the future and their inclination to develop their capacity to cope with the future. Furthermore, they were questioned about their thoughts on the ongoing social changes in Seoul, the

influence of each change on the future of Seoul, and what kind of city Seoul should strive to become in the future. Meanwhile, the group of selected teenagers representing the future generations of Seoul citizens were asked about what kind of family they expect to have 30 years from now and where they would like to live in the future. They were also given questions like “what sort of job do you want when you grow up?” and “what do you think your happiness level would be in the future?” Furthermore, the survey inquired the teenage respondents about how they expect Seoul and Korea would change in the future.

More than 60 percent of Seoul citizens had thought about the future of Seoul at least once. Seoul citizens expect that the future would be better than now

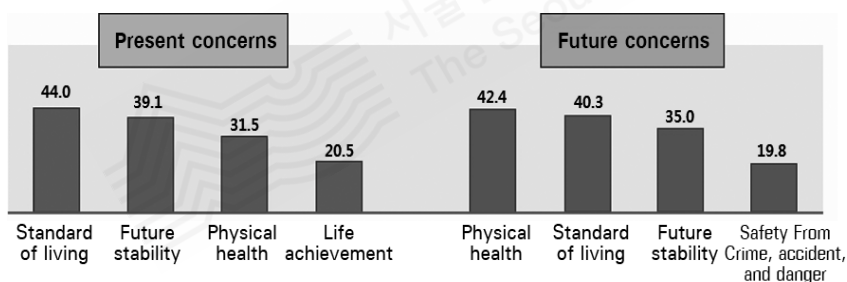
Most respondents had positive expectation about the future. They believed that Seoul would become a better city 20-30 years from now. They also evaluated the status of their personal lives and some gave positive responses regarding such areas as personal relationship (28.1 percent), safety from crime, accident, and danger (26.4 percent), and mental health (26.2 percent). There were also some areas that the participants felt are in relatively poor condition, including the future stability (28.8 percent), job satisfaction (26.7 percent), a sense of belonging to the local community (22.2 percent).



[Figure 1] Responses of Grownups to the Evaluation of Current and Future Conditions of Their Life

At present, Seoul citizens were concerned about their standard of living and the future stability. For the future, they were worried as to whether their current status of physical health and the standard of living would become better

According to an investigation, Seoul citizens were most concerned about their standard of living (44 percent) for the present. They were also anxious about their future stability (39.1 percent), physical health (31.5 percent), and life achievement (20.5 percent). For the future, their worry lied in their physical health (42.4 percent), standard of living (40.3 percent), future stability (35 percent), and safety from crime, accident, and danger (19.8 percent). Younger generations picked their standard of living, future stability, mental health, and personal relationship as the most concerning areas. In the case of grown-ups, they tended to become more worried about their physical health as they aged.

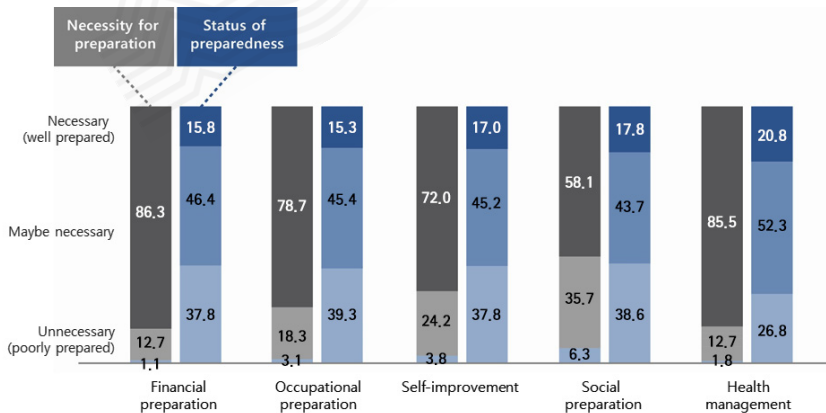


[Figure 2] Concerns of Seoul Citizens about the Present and the Future

While most of Seoul citizens anticipated that their lives would stay the same in the future, there were more people who had a positive outlook on the future than those who did not. A large majority of the respondents anticipated that their lives after 20-30 years would stay mostly the same as now. Still people with an optimistic outlook on the future (31.1 percent) outnumbered those with a pessimistic outlook (24.1 percent). Compared to males, females had more positive views about the future. Meanwhile, the respondents in 20s and over 50s had a relatively high

proportion of people with negative prospect for the future: 26.7 percent and 26.8 percent, respectively.

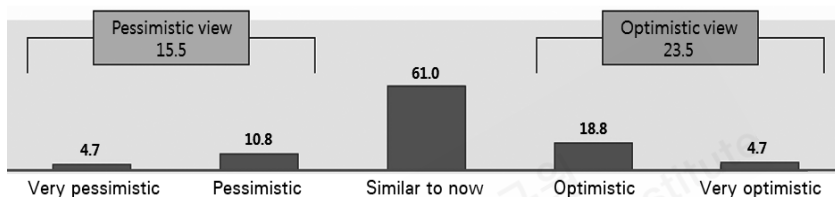
Seoul citizens recognize the need to prepare for the future, yet feeling unprepared. In the survey, the Seoul citizens were presented with the following five areas of future preparation: financial preparation, occupational preparation, self-improvement, social preparation, and health management. Then they were asked as to how much they think it is necessary to prepare each area for the future, and how well they are prepared at present. In general, the respondents recognized the need to prepare every five areas, yet felt not prepared enough. In particular, the largest number of the participants (86.3 percent) felt that they need to prepare for the future financially, with the means of savings, long-term deposits, insurances, and real estate investments. However, a mere 15.8 percent considered themselves adequately prepared. In fact, the gap was widest between the perceived necessity to ensure financial preparedness for the future and the current status of preparedness. In other words, Seoul citizens were most interested in and, at the same time, worried about financial preparation for the future.



[Figure 3] Responses of Seoul Citizens to Perceived Necessity to Prepare for the Future and Current Status of Preparedness

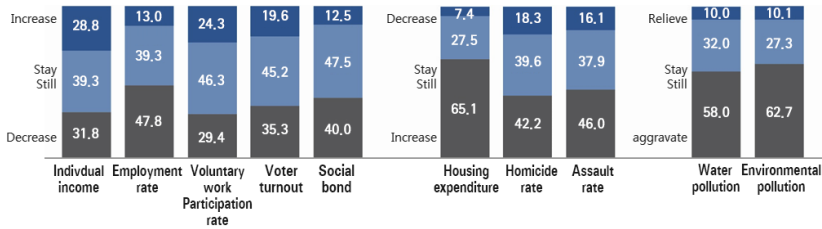
Most of Seoul citizens anticipated that Seoul would be no different from now in the future

Over 60 percent of the Seoul citizens who participated in the survey expected that Seoul would stay mostly the same as now in 2045. Meanwhile, 23.5 percent of the respondents had a positive outlook on the future, whereas 15.5 percent stood in the opposite side.



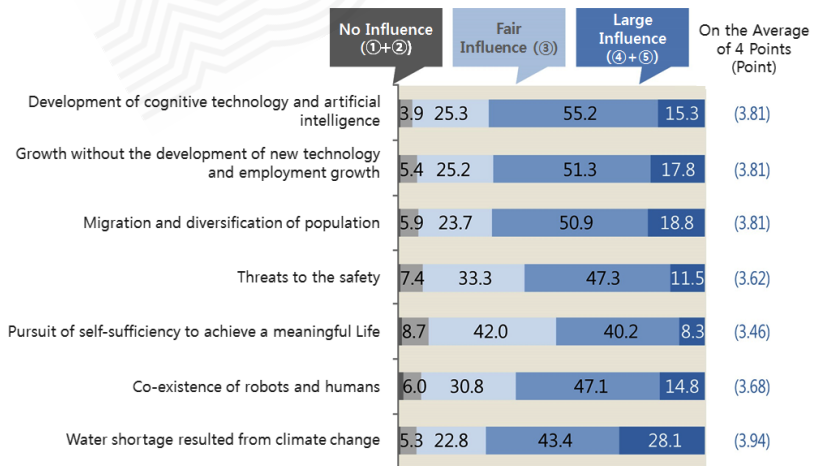
[Figure 4] Outlook of Seoul Citizens on the Future of Seoul

To the respondents, the survey presented 10 main social, economic, and environmental areas of Seoul and inquired them about what they think would happen to these areas in the future. The majority of the citizens anticipated that they would remain the same or become worse. In particular, 65.1 percent responded that housing expenditure would rise, while 62.7 percent said that the environmental pollution would become more serious. Similarly, 58 percent showed their concern about aggravating water pollution. Meanwhile, 47.8 percent expected that the employment rate would fall. There were, however, some optimistic future outlooks. For the areas in which individuals can take a part to adjust the conditions, the citizens had positive prospects. For instance, 28.8 percent anticipated that individual income would rise, whereas 24.3 percent responded that more people would engage in voluntary work. Also, 19.6 percent expected that the voter turnout would increase.



[Figure 5] Outlook of Seoul Citizens on Future Changes in the Social, Economic, and Environmental Areas of Seoul

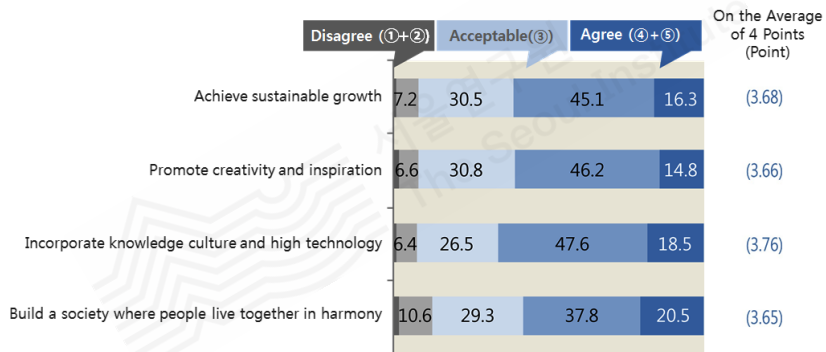
In the survey, the respondents were also asked about what kind of technological advances and global trends they think would affect the future of Seoul. “Water shortage resulted from climate change” was chosen by the most citizens (71.5 percent) followed by “development of cognitive technology and artificial intelligence (70.5 percent)” and “migration and diversification of population (69.8 percent).” Meanwhile, the respondents considered that “pursuit of self-sufficiency to achieve a meaningful life” and “threats to the safety” are less influential — each was selected by 48.4 percent and 58.5 percent of the participants, respectively.



[Figure 6] Outlook of Seoul Citizens on the Influence of Technological Advances and Global Trends on the Future of Seoul

For the future directions of Seoul, the largest number of the Seoul citizens supported that the city needs to incorporate knowledge culture and high technology

Seoul citizens were also asked whether they agree with four future directions of Seoul presented to them. More than a half of the respondents supported all the four directions. In particular, the idea that Seoul should “incorporate knowledge culture and high technology” received the most support (66.1 percent), whereas the idea that the city ought to “build a society where people live together in harmony” was least supported (58.3 percent).

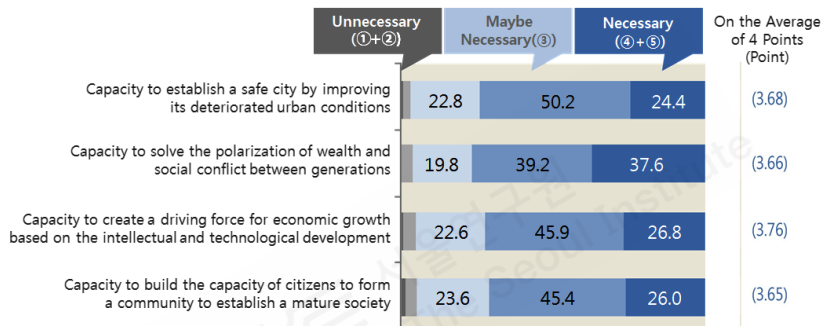


[Figure 7] Responses of Seoul Citizens to the Future Directions of Seoul

Seoul citizens regarded the capacity to solve the polarization of wealth and social conflict between generations as the foremost capacity that Seoul should build for the future

The survey inquired the respondents as to what capacity they think is necessary for Seoul to have preparing the future. Every capacity suggested by the survey drew a high consensus among the citizens, receiving support from over 70 percent of them. The largest number of the respondents (76.8 percent) said that Seoul should

build the capacity to “solve the polarization of wealth and social conflict between generations.” Of them, 37.6 percent answered that such a capacity is “very needed.” The participants also responded that Seoul ought to develop the capacity to “establish a safe city by improving its deteriorated urban conditions (74.6 percent),” “create a driving force for economic growth based on the intellectual and technological development (72.8 percent),” and “build the capacity of citizens to form a community to establish a mature society (71.4 percent).”

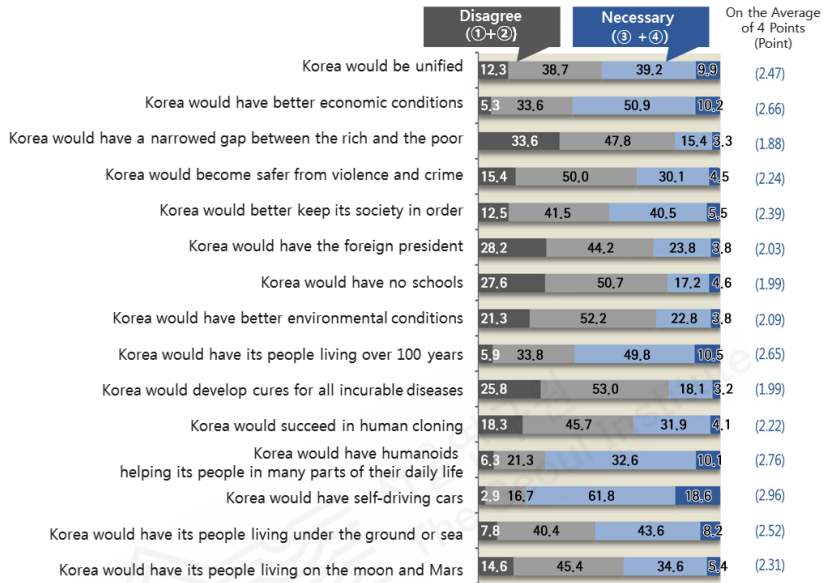


[Figure 8] Responses of Seoul Citizens to the Capacity Required for the Future

The vast majority of Seoul citizens expected that the scientific and technological advancement would have the biggest influence on Korea

In the survey, Seoul citizens shared their views on the future of Korea 30 years from now. The largest number of the respondents (80.4 percent) anticipated that men would not drive cars as autonomous vehicles would be prevalent. The second biggest number of the participants (72.3 percent) expected that humanoids (human-looking robots) would help people in many parts of their daily lives, while 61.1 percent believed that the Korean economic condition would be improved. On the other hand, 81.3 percent disagreed that the gap between the rich and the poor would be narrowed, whereas 78.8 percent did not agree that cures would be developed for all incurable diseases. To the expectations that all schools would

disappear and the environmental (air, water, and forest) conditions would become better, 78.3 percent and 73.4 percent of the citizens had a different thought.



[Figure 9] Outlook of Seoul Citizens on the Future of Korea

The majority of teenagers chose to form a nuclear family in the future

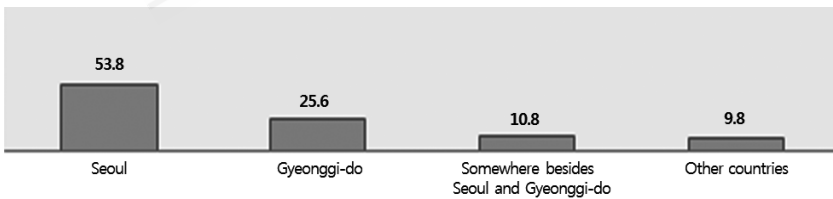
More than a half of teenagers who participated in the survey picked a “nuclear family (consisted of a couple and their dependent children)” as the family type that they want to have 20-30 years from now. A “large family” was favored by the second largest number of the teenagers (15.4 percent) followed by a “couple (14.2 percent)” and “alone (8.6 percent).”



[Figure 10] Future Family Types Favored by Teenagers

Over a half of the teenagers wished to remain in Seoul in the future

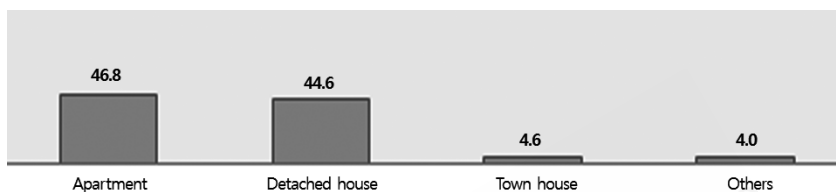
More than the majority of the teenagers (53.8 percent) said that they would like to continue to live in Seoul 20-30 years from now. The next biggest group (25.6 percent) picked “Gyeonggi-Do” for their future home. The rest chose “somewhere besides Seoul and Gyeonggi-Do (10.8 percent)” and “other countries (9.8 percent).” Compared to males, females showed higher desire to reside in Seoul in the future. Across different age groups, middle school students (aged between 14 to 16) were especially willing to live in Seoul when they grow up. Meanwhile, the teenagers dwelling in the southwest part of Seoul wished to stay in the city more than those living in other parts of the city.



[Figure 11] Future Home Areas Chosen by Teenagers

The vast majority of teenagers favored an apartment unit and a single-family residence for their future housing type

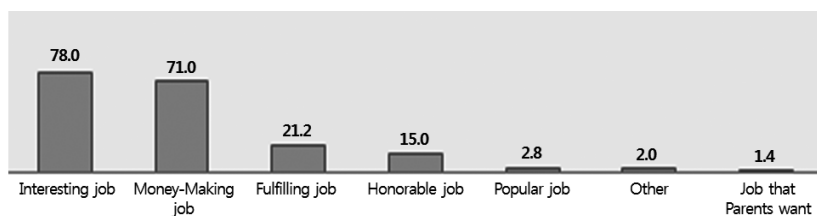
In the survey, 46.8 percent and 44.6 percent of the teenagers each chose an apartment unit and a detached house, respectively, for the type of residence that they wish to live 20-30 years from the present.



[Figure 12] Future Residential Types Chosen by Teenagers

Almost 80 percent of teenagers hoped to have a job that they have interest in and aptitude for

Above all other standards by which they choose a job, 78 percent of teenagers who participated in the survey prioritized their personal interests and wished to have a job that they can enjoy for 20-30 years. Money was also considered important to 71 percent of the respondents. Some looked for fulfillment (21.2 percent), honor and respect (15 percent), popularity (2.8 percent), other (2.0 percent), and a job that their parents want (1.4 percent).



[Figure 13] Future Jobs Favored by Teenagers

(Note: The respondents were asked to choose the first and second most wanted jobs)

In general, the teenagers anticipated that they would become happier in the future

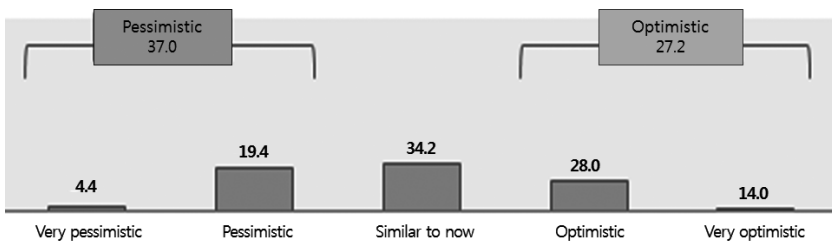
The teenagers who expected that they would become happier 20-30 years from now accounted for 42 percent of total number of respondents. They outnumbered those who said that their level of happiness would stay the same as now in the future (34.2 percent) as well as those who had a pessimistic future outlook (23.8 percent).



[Figure 14] Outlook of Teenagers on their Happiness Level in the Future

More of the teenage respondents had a pessimistic view about the future of Seoul

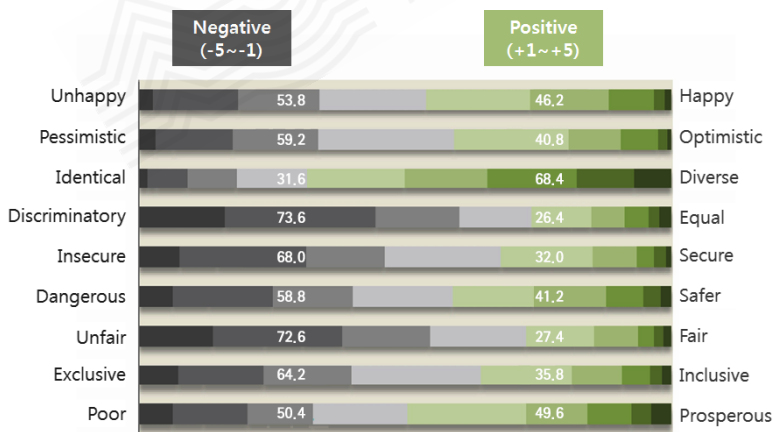
In the survey, 36.8 percent of teenagers responded that Seoul would remain not much different from now 30 years later. But, the respondents with negative prospect (37 percent) outnumbered those with positive prospect (26.2 percent). It drew a contrast with how they anticipated their lives in the future.



[Figure 15] Outlook of Teenagers on the Future of Seoul

The teenagers associated the future image of Seoul with negative qualities

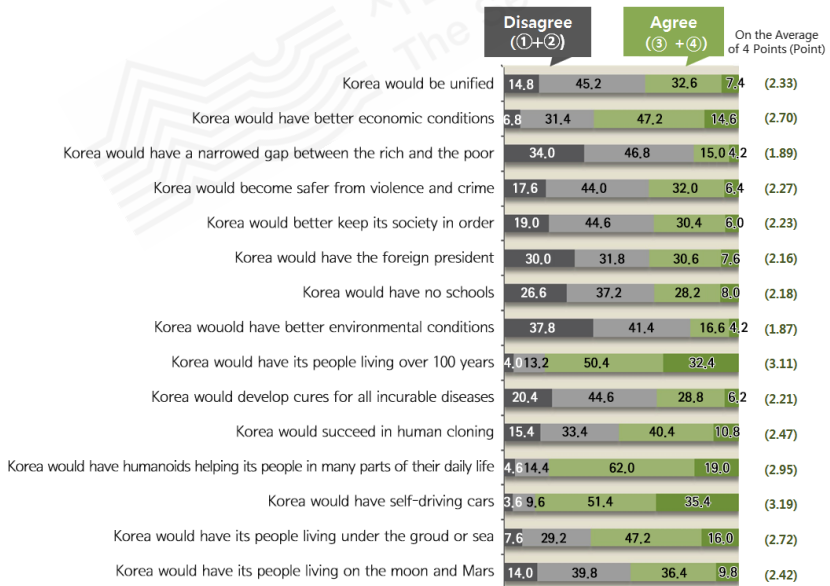
The survey looked at what images teenage respondents drew when they were asked to think about Seoul 30 years from now. It first came up with nine images associated with Seoul. Then it showed the participants nine scales, of which each had two adjectives with the opposite meanings in regard to the selected image placed on its two ends. The teenagers were asked to make a check mark on every scale according to what they think Seoul will be like in the future. According to the result, the teenagers associated the future image of Seoul with more of negative qualities than positive ones. Only “diversity” had a larger number of the respondents who stood on the positive end of the scale (68.4 percent). Everything else evoked negative images. In particular, 73.6 percent chose “discriminatory” over “equal” for equality; 72.6 percent picked “unfair” instead of “fair” for fairness; 68.9 percent made a check mark on “insecure,” not on “secure” for security; and 64.2 percent chose “exclusive” over “inclusive” for inclusivity.



[Figure 16] Responses of Teenagers to the Future Image of Seoul

Like adult citizens, teenagers also expected that the scientific and technological advancement would have the biggest influence on Korea

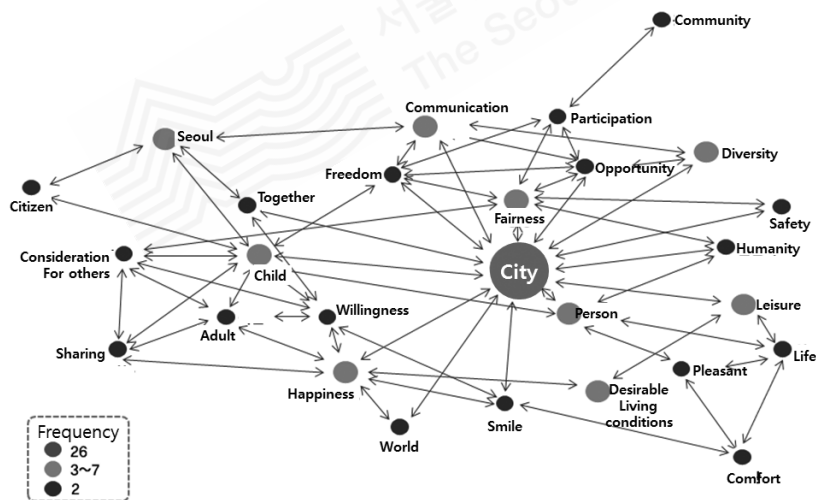
In the survey, teenage respondents were asked to share their views on the future of Korea 30 years from now. The largest number of the respondents (86.8 percent) anticipated that men would not drive cars as cars would drive on their own. The expectation that people would live over 100 years was chosen by the second biggest number of the participants (82.8 percent) followed by the expectation that humanoids (human-looking robots) would help people in many parts of their daily lives (81 percent). By contrast, 80.8 percent disagreed that the gap between the rich and the poor would be narrowed, whereas 79.2 percent did not agree that the environmental (air, water, and forest) conditions will be improved 30 years from now. Also, 65 percent had a different thought about the expectation that cures would be developed for all incurable diseases.



[Figure 17] Outlook of Teenagers on the Future of Korea

The teenagers dreamed of having a society built upon common hopes and values of citizens in the future

To identify the expectation that young generations have about future Seoul, the previous study titled “2030 Future Seoul” asked college students and young people in their 20s and 30s to imagine the future of Seoul and freely fill in the gap in the statement, “For us, 2030 future Seoul is _____.” According to the keyword analysis of their responses, they mostly wished to have fair Seoul in which everyone is happy. They also expected to build the future of Seoul together through continuous communication and cooperation. Some of the respondents looked forward to having more comfortable and humane conditions in Seoul. In short, the young people in Seoul wanted their city to be built upon hopes and community values in the future.



[Figure 18] Keyword Analysis of Responses Given in 2030 Future Seoul Study

The young generations shared their insightful ideas on the obstacles impeding socioeconomic progress of Seoul. They regarded the city’s high population density

as the problem that must be addressed with a priority. They considered that the quality of life in Seoul will decrease if a large number of people continue to live in small area, and therefore the government must move industrial, economic, and cultural facilities concentrated in Seoul to other regions to disperse population.

Besides the high population of Seoul, the young respondents also picked 1) a gap between the rich and the poor, 2) unfair institutional/legal systems as the impediments to Seoul's future development. They argued that if Seoul does not promptly solve the problem of the rich-poor gap, it will inevitably end up polarizing wealth, which will hinder the social and economic progress of the city. They also said that improvements should be made to the current institutional and legal systems in every area to ensure the fairness of society. Other than these two factors, the young generations considered that a lack of citizenship works as an obstacle to Seoul's development, too. They asserted that Seoul citizens should participate in various areas of the city governance, expressing their opinions. Some argued that Seoul (or its citizens) has been vested with certain rights while enjoying the privilege as the capital city of Korea since the Joseon dynasty. They said Seoul can make progress in becoming a better city in the future only when it gives up those vested rights.

Second, this study surveyed expert opinions. In order to elaborate on the policy objectives and directions for the future of Seoul, it is important to understand the perspectives of experts. It can help establish an effective city government system. In this study, the online survey was conducted to experts from various fields. A group of experts was asked to share their thoughts on, for instance, the way Seoul would change in the future, challenges that it may face in its endeavor to become a better city, and strategies to overcome such challenges.

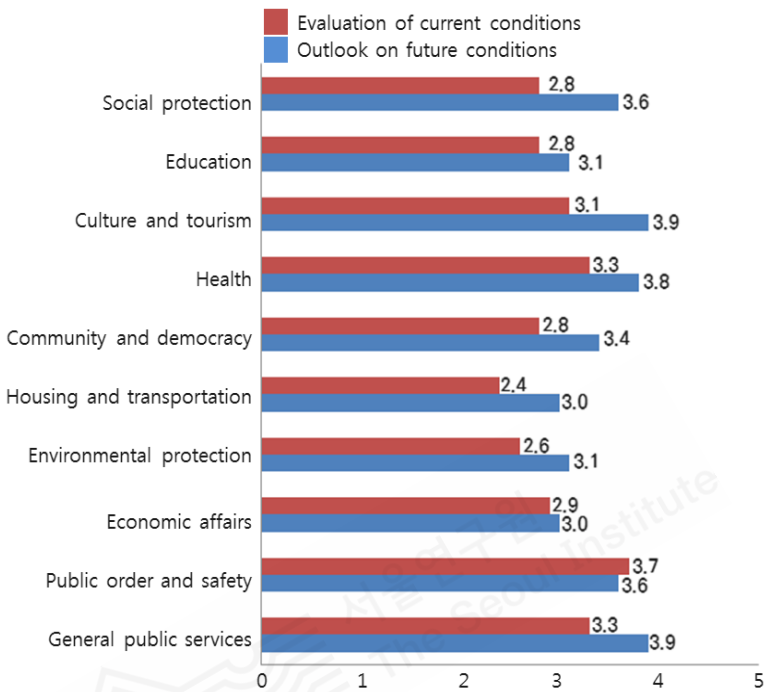
Almost 80 percent of experts said that they had thought about the future of Seoul. The experts most positively evaluated the public order and safety for the present. They awarded equally highest marks to the public services and culture/tourism for the future

In the expert survey, the respondents were asked if they had ever thought about the future of Seoul 30 years from now. To the question, 38 (79 percent) of them said “yes,” whereas 10 (21 percent) answered “no.” Considering that 66 percent of the Seoul citizens who participated in the survey answered “yes” to the same question, the experts were more interested in Seoul’s future than citizens.

The experts were asked to evaluate the current (2015) conditions of Seoul and share their outlook on the future (2045) conditions by grading the following 10 categories representing the policy areas of the SMG from one to five. Then, the average point of each category was calculated.

- General public services
- Public order and safety (public safety, social order, disaster control etc)
- Economic affairs (economy, finance, corporate environment, consumer price, other economic infrastructures etc)
- Environmental protection (climate, sea, forest, soil, air etc)
- Housing and transportation (transportation, telecommunication, housing etc)
- Community and democracy (community, citizenship, democracy etc)
- Health (health, food, drugs etc)
- Culture and tourism
- Education
- Social protection (social welfare, labor, women, human rights, retirement packages etc)

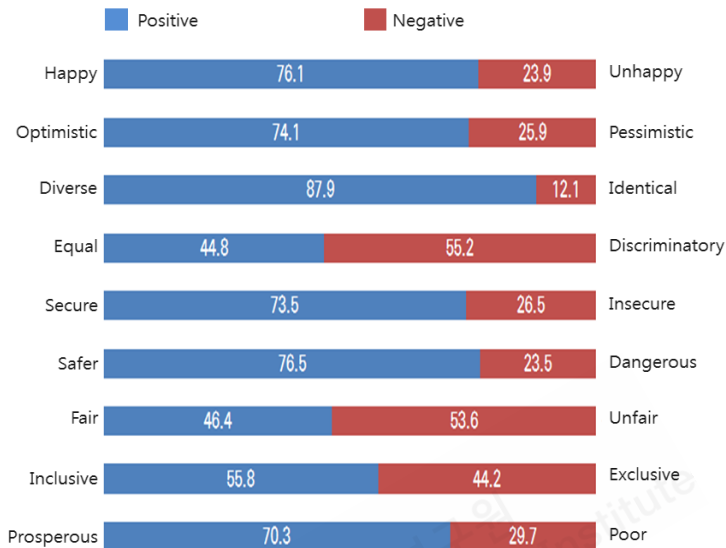
In the evaluation of current conditions of Seoul, the respondents gave the highest point of 3.7 to the public order and safety. In contrast, the housing and transportation received the lowest point of 2.4 followed by the environmental protection (2.6 point). The experts shared their outlooks on the future condition of Seoul, giving the equally highest point of 3.9 to the general public services and culture and tourism. The housing and transportation scored the lowest (3.0 point).



[Figure 19] Outlook of Experts on the Future Conditions of Seoul

The experts mostly associated the future image of Seoul with positive qualities

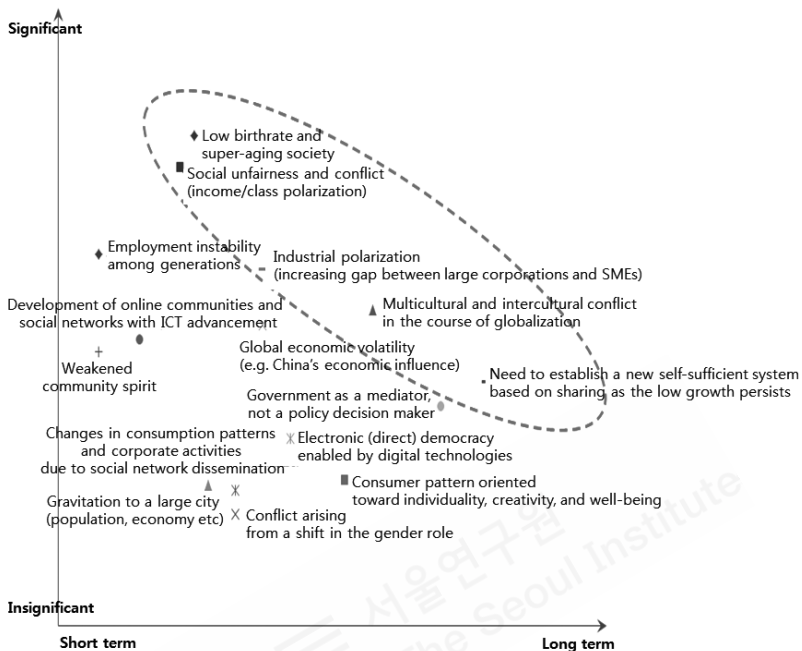
In the survey, the experts mostly drew positive images for the future of Seoul. They had a particularly positive outlook on diversity as well as safety, happiness, hope, and security. Yet a larger number of the respondents associated equality and fairness with negative qualities just like Seoul citizens did in the previous survey,



[Figure 20] Responses of Experts to the Future Image of Seoul

The experts considered that, for the long term, Seoul should strive to establish a new self-sufficient system based on sharing as the low growth persists

For the short term, the experts picked “low birthrate and super-aging society” and “social unfairness and conflict” as the most urgent issues that need to be addressed. For the mid-to-long term, they argued that Seoul should deal with “industrial polarization” and “multicultural and intercultural conflict in the course of globalization.” For the long term, the respondents recognized the “need to establish a new self-sufficient system based on sharing as the low growth persists.”

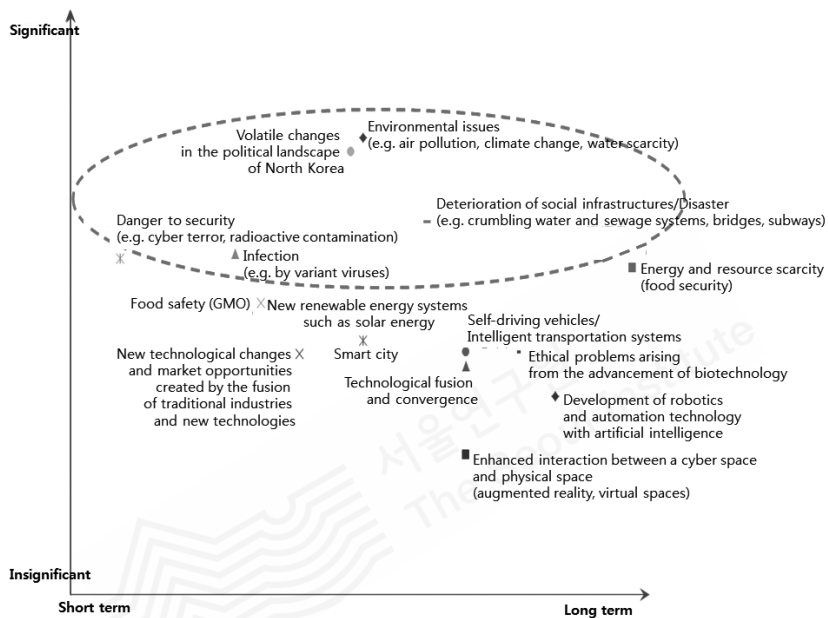


[Figure 21] Responses of Experts to the Social, Political, and Economic Influences on the Future of Seoul

For the areas of technology, environment, and others, the experts anticipated the scarcity of energy and resources would become the most significant issue in the future

Regarding the areas of technology, environment and others, the respondents regarded danger to security such as cyber terror and radioactive contamination, and infection by variant viruses as two most important issues for the short term. The plausible cause of their concerns would be the terror activities and the advent of MERS that took place in and out of the country in recent years. For the mid-to-long term, the experts considered volatile changes in the political landscape of North Korea, the following issues are significant and urgent: the deterioration of social

infrastructures and environmental issues like air pollution, climate change and water scarcity. Lastly, they expected that the scarcity of energy and resources would become an important issue in the long term.



[Figure 22] Responses of Experts to the Technological, Environmental and Other Influences on the Future of Seoul

About one third of the experts expected that the future conditions of Seoul would be entirely different from now

In the survey, the experts were inquired whether they agree that Seoul would have the future on the extension of the present. Over a half of the respondents (65 percent) answered in the affirmative. But 35 percent anticipated that “Seoul would become an entirely different city 30 years from now.”

To the question asking for the specific reasons of such expectation, they mostly pointed to “radical social change upon the unification of North and South,”

“environmental change (climate change),” “safety issue,” and “change in the living style due to technological advancement.” Some of the respondents also expected that “dispersed urban population with an accelerated decentralization process” and “change in demographics and the concept of a homogeneous nation” would make future Seoul completely different from now. Others said that it would become impossible to predict the future because of increased unforeseen incidents like terror.

Third, we sought opinions from the SMG officials. At present, Seoul faces various challenges and opportunities for the future. Society is aging with low economic growth, while technological advancement is afoot. Heads and directors at the SMG would be the ones that ponder and prepare for those future risks more than anyone else. Their deep experiences in the public and private sectors would provide insight into dealing with the current social changes and help establish an effective city government system for future Seoul. For “Seoul Future Report 2045”, the deputy mayor of Seoul and the directors at the SMG, who represent the major policy decision makers, were asked a series of questions in in-depth interviews.

Risks to the future of Seoul in 2045

What would be the biggest risk to the growth and development of Seoul 30 years from now? Future risks chosen by the policy decision makers who participated in the interview can be classified into the threats arising from (1) demographic changes (e.g. aging population, low birthrate), (2) environmental changes (e.g. climate change), (3) deterioration of infrastructures, and (4) archaic administrative structure.

Most of the policy decision makers considered that demographic changes, such as super-aging population, low birthrate, and the increasing number of nuclear families comprising one or two persons, are what everyone would expect in the future. They argued that if Seoul does not prepare for such demographic changes in advance, those changes will serve as huge threats to future Seoul.

A century ago, every country had their own situations and different problems associated with each city. But 30 years from now, the whole world would face

similar problems and should devise solutions in coalition. Serious environmental risks that the globe would face in the future include aggravating climate change and water scarcity.

The interviewees also deemed the risk arising from the deterioration of infrastructures as another serious threat to future Seoul.

Society is increasingly adopting a less hierarchical and more decentralized network structure. Nonetheless, many city officials still take top-down approach at work, insisting to maintain their archaic administrative methods. They have to change to adequately cope with a new form of administration in the future, said the interviewed high-level officials.

Besides the above risks, the policy decision makers also regarded the conflict of values, indifference and unfairness, the growth of Chinese cities, and a lack of preparedness for the unification of North and South as the future risks.

Core values for future Seoul in 2045

Until today, SMG has presented visions and core values to its citizens by implementing policies for economic growth, urban development, urban design, globalization, civil society (community), and social welfare for each generation. Then, what would be the foremost core value that the SMG should seek in order to prepare for the future risks and opportunities in next 30 years? To this question, the policy decision makers answered “community,” “social solidarity,” “shared values,” “tolerance,” and “consideration for others.” In other words, they believed that the SMG should promote social capital to build a city where people can live together in harmony.

In a space called a city, people are given anonymity. And in the present time of materialism, most attach importance to material possessions. Consequently, less and less people are “expressing gratitude” and “valuing community spirit.” On top of this, social conflict and discord are worsening as a downside of rapid economic growth. A consensus was formed among high-level officials that the SMG should strive to restore social values for the future.

Policy priorities for future Seoul in 2045

The interviewees in charge of different works gave different answers to the question as to which of the SMG's current main projects or policies should be prioritized for budget organization and implementation 30 years from now. They picked the management of "human resources," "facilities," and "urban spaces." After all, these are crucial factors that can make a contribution to improving the quality of life.

Human resource management refers to the development of Seoul citizens' capacity as well as investment in educating individuals. In terms of facility management, the SMG should redevelop or reconstruct crumbling houses, buildings, roads, subways, and water systems built in the 70s and the 80s. Such management is necessary to ensure that Seoul continues to serve its basic functions and remains safe in the future. The city government should also prepare for new housing demands. For space management, the SMG ought to build and manage many attractive places where citizens can rest and share. Those spaces would help urban regeneration.

Proposals for the central policies (projects) of future Seoul in 2045

Based on their previous outlooks on the future of Seoul, policy decision makers gave their ideas on the project that the SMG must first carry out at this very moment for Seoul 10, 20, and 30 years from now. Their opinions can be categorized into the reinforcement of education, industry development and job creation, and long-term planning including the establishment of a future financial plan.

Changes must be made in the public sector for future Seoul

The interviewees were asked if they consider whether the way the SMG officials work is changing in a right direction and what parts of the public sector they think must change to prepare for the future.

Their responses can be summarized into (1) necessity to change the organizational structure and administrative system, and (2) need to alter the role and attitude of

public officials. SMG should change its current administrative system, including its personnel management scheme, organizational structure, and employee training programs. The present hierarchical structure should be rendered more flexible while improved training programs and communication channels need to be offered to public officials to help them better adapt to new changes in their fields. At the same time, the SMG ought to alter the role and attitude of its employees. Public officials are being increasingly required to make judgement about their areas of work and accordingly navigate problems from a long-term perspective. They should no longer act as decision makers or managers who focus on details. Instead, they are expected to serve the roles of mediators or managers who look at the bigger Figure.

3. Conclusions & Policy Recommendations

This research presents the future outlook on various areas of Seoul in 2045. Seoul is anticipated to have social and structural transformations as its current economic, social, and environmental changes continue at a dramatic speed. In the future, the city may become so old that men and women in their 50s would be treated as young people. While Seoul struggles to regain economic growth momentum, its resources for urban spatial improvement may drain away. As a result, a conflict between generations may deepen.

With such future outlooks, the SMG has recognized the need to adopt “future perspectives” in governing Seoul and begun to prepare for new cognitive city government system. This study, the first volume of “Seoul Future Report 2045”, is looking forward to laying the foundation for public discussion on the issue of future Seoul. This report would serve as the very first step of initiating a new type of city government for the future. This research aims to encourage various members of society to share their future outlooks on Seoul and take part in the endeavor to build what is believed to be an ideal city by the general public and experts. The future generations of Seoul expected that their home city would become better in the future. At the same time, however, they worried that conflict between generations

would deepen and society would become exclusive. The policy experts concluded that Seoul is not adequately prepared for the future after examining the SMG's administrative systems and mid-to-long term policies. They argued that the SMG should devise solutions to cope with demographic, social, and economic changes. The experts anticipated that threats to development of Seoul, such as low birthrate, super-aging population, social unfairness, employment instability, industrial polarization, deterioration of social infrastructures, and food insecurity, would still remain in the future. They suggested establishing a social system that can solve the problem of discrimination. Meanwhile, the SMG officials, who implement policies, mostly had positive prospect for future Seoul. They emphasized that the SMG needs mid-to-long term plans and strategies to effectively grapple with various changes afoot. In particular, the public officials argued that the city government should implement an administrative system that enables its mid-to-long term plans to work in practice and carry out the policies for sustainable urban development with priority. Citizen participatory effort of creating future Seoul would constitute a process in which all these opinions are discussed to elaborate on the plan to shape Seoul's ideal future.

Restructuring the Seoul Basic Security Scheme Corresponding to the National Basic Livelihood Security Reform

Kim, Kyung-Hye

Summary

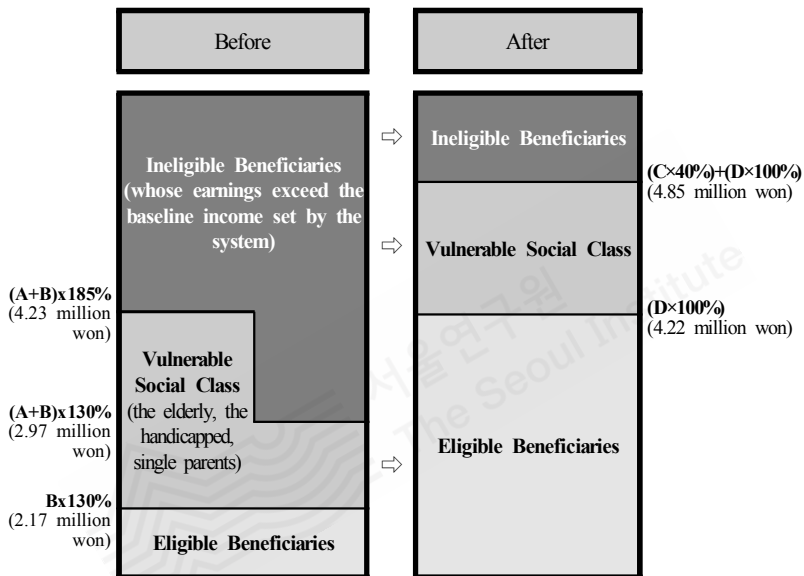
There is a need to relax the Seoul Basic Security Scheme's beneficiary selection criteria and adjust its allowance payment method to avoid income reversal among the beneficiaries.

1. Introduction

The Seoul Basic Security Scheme must be restructured in response to the National Basic Livelihood Security System reform

The national government of Korea has been endeavoring to better support the livelihood of low-income individuals. In this regard, it has introduced a system called the National Basic Livelihood Security System (NBLSS) in 2000. The system provides financial support to the poor whose earnings are less than minimum cost of living. Later in July 2015, the government has undertaken the system reform. In the process, two significant changes have been made: First, the national government has expanded the scope of beneficiaries (refer to [Figure 1]). Second, it has adjusted the allowance payment method (refer to [Figure 2]). Previously, the beneficiaries of NBLSS were selected based on one criterion - that is, whether their income can cover minimum cost of living. Once they were accepted, they all received the same amount of allowance. After the reform, the national government now determines who receives the allowance by weighing multiple factors. Instead of taking only livelihood into account, it looks at other areas of needs such as medical care, housing and education. In other words, it pays a wider range of people with varied financial needs. Still NBLSS does not attend to

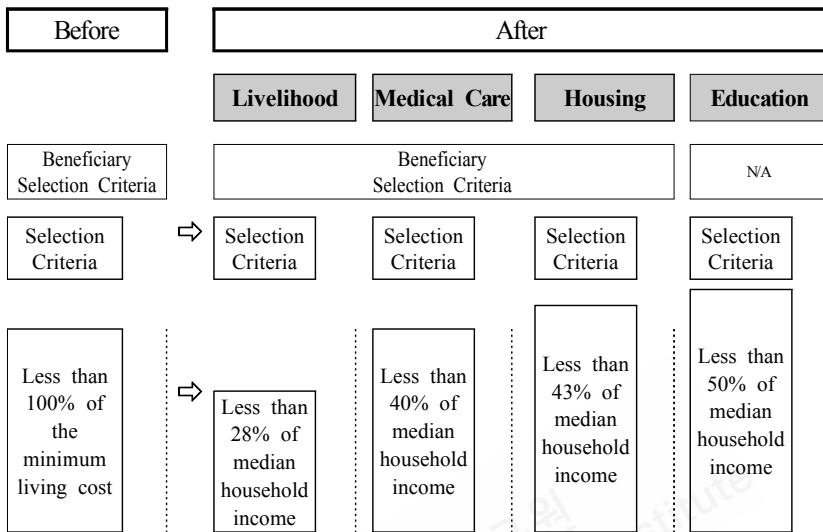
everyone in pecuniary difficulties. This is why the Seoul Basic Security Scheme (SBSS) has been implemented. It supplements income of the poor who are ineligible for NBLSS, yet greatly suffer from poverty. In this sense, two systems are closely related to one another.



- A: Minimum living cost of beneficiary households (one person)
- B: Minimum living cost of eligible beneficiary households (four persons)
- C: Median income of beneficiary households (one person)
- D: Median income of eligible beneficiary households (four persons)

Source: 2015 Educational Materials on the National Basic Livelihood Security System Reform and Guidelines for the Allowance Payment Management, Division of Basic Livelihood Security at the Ministry of Health and Welfare (Jan. 2015)

[Figure 1] NBLSS Beneficiaries before and after the Reform



Source: 2015 Educational Materials on the National Basic Livelihood Security System Reform and Guidelines for the Allowance Payment Management, Division of Basic Livelihood Security at the Ministry of Health and Welfare (Jan. 2015)

[Figure 2] Beneficiary Selection Criteria and Allowance Payment Scheme of NBLSS before and after the Reform

As a result of the NBLSS reform, a slightly greater number of Seoul citizens are now NBLSS beneficiaries. SBSS should accordingly adjust the scope of its beneficiaries and how it secures their livelihoods.

2. Main Findings

This research is comprised of three parts in large. In the beginning, it explains what changes the NBLSS reform has brought to its beneficiaries. Next, it delineates how the reform has affected Seoul citizens. In conclusion, it proposes various options for how to improve the beneficiary selection criteria and living allowance payment scheme of the SBSS.

Reformed NBLSS would embrace extra 30.7 percent of non-beneficiary households in Seoul

This study has utilized the data from the welfare-related database managed by the national government. It has applied the new extended beneficiary selection criteria of reformed NBLSS. The result shows that maximum 30.7 percent of Seoul citizens who were previously found ineligible for NBLSS would now be accepted according to new criteria : 22.1 percent comes from people who qualify for livelihood assistance; the rest 8.6 percent is represented by new recipients of medical care and housing support.

NBLSS declined the application of 15,175 families each year from 2012 to 2014. If those applicants all reside in Seoul, 4,569 of them would be embraced by the system in accordance with its new beneficiary selection criteria.

[Table 1] Estimated Number of Extra Households Approved by New NBLSS (accumulated no.)
(Unit : %, No. of households)

Category	Livelihood	Medical care	Housing	Education
Baseline Income	30% of median income	40% of median income	43% of median income	50% of median income
Beneficiary Selection Rate	22.1	28.1	30.7	52.5
No. of extra households approved by NBLSS	3,354	4,264	4,659	Paid Individually

Seoul needs to relax the SBSS's beneficiary selection criteria so that it can better fulfill its initial purpose and help a greater number of Seoul citizens in need

SBSS ought to change in response to the NBLSS reform. In particular, its beneficiary selection criteria need to be adjusted to better find a blind spot where the poor are being neglected. This report urges the Seoul Metropolitan Government (SMG) to improve the system in the following two directions.

First, remove inappropriate elements from the current beneficiary selection

criteria. This would raise the beneficiary selection rate, meaning the system can help more citizens in financial hardship. At the moment, the SBSS requires its beneficiaries to qualify for all six criteria - if one wishes to receive the allowance, he or she must satisfy a set of requirements for income, asset, financial asset and car ownership categories. Moreover, their caregivers such as family members who have a legal responsibility to support them also need to meet income and asset requirements. This multi-dimensional criteria certainly reduce the chance of people getting accepted by the system. There lies another problem. That is, the requirements related to car ownership and financial asset overlap.

Second, serve the fundamental purpose of the SBSS. SMG has designed and installed the system in pursuit of addressing the problem with the NBLSS: It applies utterly tight criteria to legal caregivers of its beneficiaries. Further, it pays the equal amount of living allowance to all the beneficiaries across the country. In other words, the system fails to recognize that price level in each region varies. Consequently, some impoverished people end up being neglected in blind zones. This is basically why the SMG has created the SBSS in the first place: To help the poor neglected by the NBLSS. The national government should concentrate on serving this very purpose.

This study suggests options for system adjustment in three areas: beneficiary eligibility requirements, baseline beneficiary household income, and optional criteria

Following the directions of changes suggested earlier in this report, the SMG should (1) ease the beneficiary eligibility requirements, (2) adjust the baseline beneficiary household income to represent the exact median Seoul household income, and (3) relax the optional criteria. This study has drawn 13 options for system adjustment in three aforesaid areas of change (refer to [Table 2]). It has been discovered that the selection rate increases by applying each adjustment. More people will receive the benefit provided by the SBSS when each adjustment is applied to the system.

[Table 2] Options for Beneficiary Selection Criteria Adjustment

(Unit: %)

Area of adjustment	Baseline	Supporting data	Beneficiary selection rate change
Current criteria			28.6
① Ease the beneficiary eligibility requirements	①-1 Median income of two-person households in Seoul	Modified only the minimum living cost in the current equation	31.2
	①-2 Median income of three-person households in Seoul	Used a median Seoul household income	32.8
	①-3 No baseline	Serves the basic purpose of SBSS	38.4
② Adjust the baseline beneficiary household income	②-1 40% of median Seoul household income	The minimum living cost(now)≐40% of median income	35.7
	②-2 45% of median Seoul household income	Used a figure between Options 1 and 3	38.4
	②-3 50% of median Seoul household income	Applied the concept of relative poverty	40.5
③ Relax the optional criteria	③-1 Financial assets worth 15 million Won	Based on the median value of financial assets owned by Seoul citizens (source : Field Study of Welfare Conditions in Seoul 2013)	30.9
	③-2 No requirement for car ownership	Both car ownership rate of beneficiaries and the prices of their cars are low	33.9
	③-3 No requirement for financial assets	Financial assets are already counted in assets	38.3
	③-4 No requirements for car ownership and financial assets	Solves the problem with the current multi-dimensional criteria	44.6

Raise the baseline value of financial assets to 15 million Won and eliminate the beneficiary requirement related to car ownership

From various combinations of 13 options, we propose herewith the final draft for the adjustment of the SBSS beneficiary selection criteria (refer to [Table 3]). It suggests easing the income requirement that the beneficiaries must comply with. It also recommends increasing the baseline value of financial assets from 10 million to 15 million Won. Another significant change proposed here is the removal of beneficiary requirement regarding car ownership.

Not every eligible beneficiary family lives in Seoul. Therefore, it is inappropriate for the SBSS to have the median Seoul household income as the baseline value for its income requirement. Yet taking out such a requirement would not be understood nor accepted by most Koreans. Experts argue that this also poses a problem: The beneficiaries of the SBSS would receive a larger amount of allowances than the relatively poorer beneficiaries of the NBLSS. Many would certainly argue that this is unfair.

In regards to the optional criteria, this report proposes raising the baseline value of financial asset requirement. In addition, we believe in the feasibility of removing beneficiary requirement related to car ownership: Most of ineligible beneficiaries do not own cars. Even they do, their cars are not worth much.

[Table 3] Final Draft for the Adjustment of SBSS Beneficiary Selection Criteria

Category		Current	New
Beneficiary households without family assistance	Income	100% of the minimum living cost	40% of the median household income
	Asset	100 million won	No change
	Financial asset	10 million won	15 million won
	Car	Declined if a household owns a car	Remove this requirement
Beneficiary households with family assistance	Income	The minimum living cost of two-person household	40% of the median three-person household income(no change in calculation)
	Asset	500 million won	No change

With the adjusted beneficiary selection criteria, 3,633 families would be newly chosen as the SBSS beneficiaries each year

On the assumption that the SMG adopts the adjustments proposed in this study, 3,633 families would be added to the pool of the SBSS beneficiaries each year from 2012 to 2014 (calculated by applying the change to the number of households declined by the NBLSS during the same period).

However, this number is susceptible to change given that the size of annual NBLSS applicant pool fluctuates. It may also be affected by the national government that is aggressively encouraging eligible beneficiaries to apply for new system at the moment.

[Table 4] Estimated Size of SBSS Beneficiary Pool with the Adjusted Beneficiary Selection Criteria

(Unit: %, No. of households)

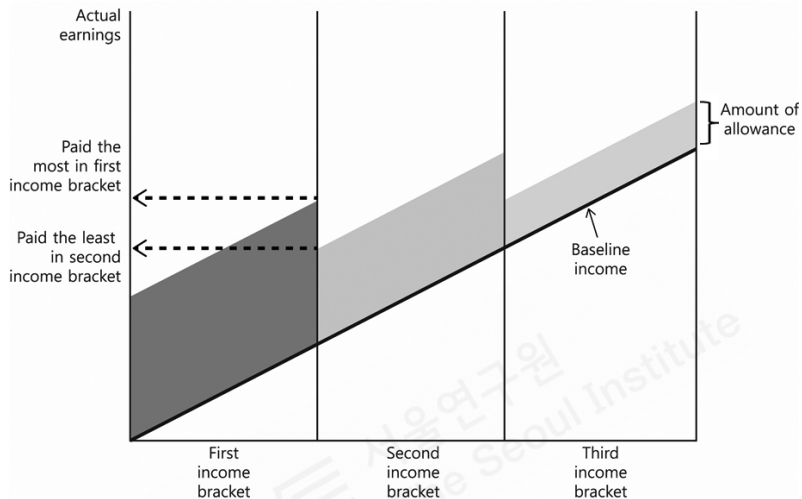
	Estimate	Note
Beneficiary selection rate	33.3	
No. of eligible beneficiary households	10,911	15,175 households × 71.9% ¹⁾
No. of accepted beneficiary households	3,633	10,911 × 33.3%

1) The rate of previously declined applicants turning into the recipients of livelihood or medical care assistance is excluded

SBSS has three different amounts of living allowance to pay its beneficiaries in each of three income brackets. This method needs to be adjusted

NBLSS reduces the amount of allowance it pays to its beneficiaries when their earnings rise. In the case of the SBSS, it has three income brackets. The system pays its beneficiaries the equal amount of allowance according to which bracket they belong to. This means that even if a beneficiary earns a greater income than others in the same income bracket, he or she can still receive the same amount as long as they stay in the same bracket. Thus, they may find the current scheme beneficial.

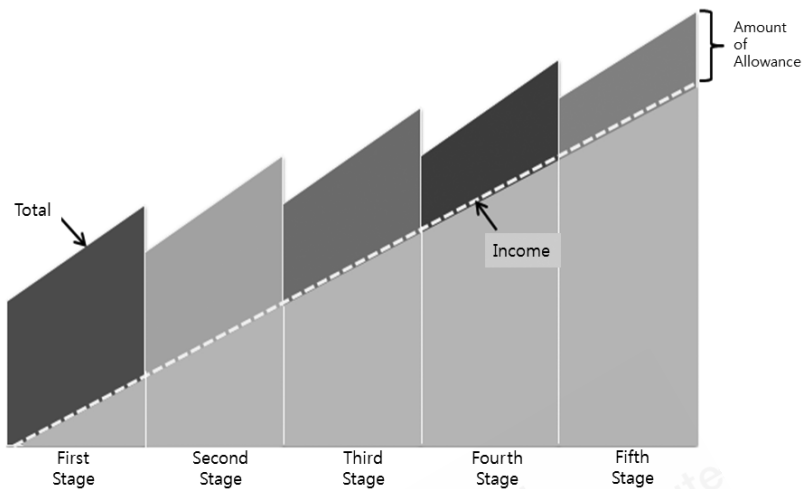
However, it embodies a problem: A beneficiary receiving the most in the first income bracket may end up having greater earnings than the one receiving the least in the second income bracket (refer to [Figure 3]). This is called “income reversal.”



[Figure 3] Income Reversal among Beneficiaries across the Income Brackets

Option 1: Devise more income brackets. SMG can more easily determine the amount of allowance and better prevent income reversal

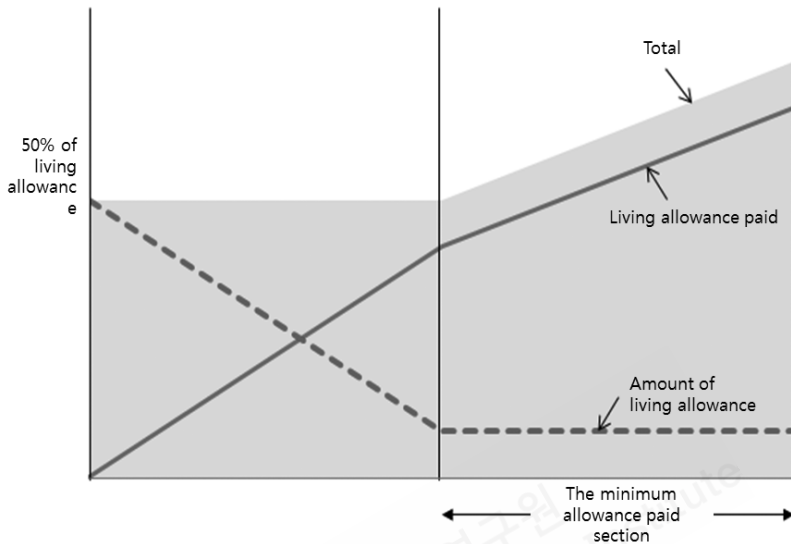
One way to make the SBSS more effective is to devise more income brackets - five, seven or ten as shown in [Figure 4]. This is to be done while maintaining the system’s basic framework designed by the SMG. This option can contain confusion to the minimum level. Moreover, it may ease the process of deciding the amount of allowance. With more brackets, income reversal can better be prevented. Yet income reversal cannot be completely unraveled as long as the SBSS sets the income bracket as a basis to determine the amount of allowance payable to its beneficiaries.



[Figure 4] Five-Stage Income Brackets

Option 2: Take out the earnings of beneficiary households from the maximum amount of allowance, and then pay them the leftover

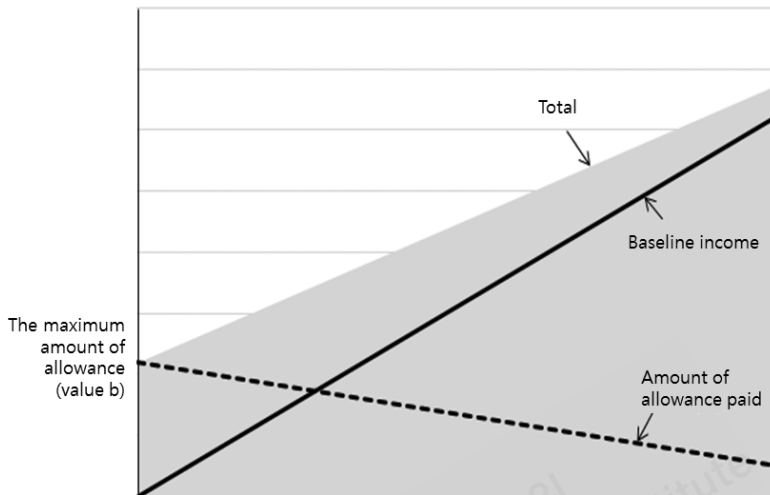
Alternatively, the SBSS may pay its beneficiary households what is left in the maximum amount of allowance after deducting their earnings. This option can prevent income reversal. But the problem is that a beneficiary might end up receiving none. It is because the SBSS limits the maximum allowance up to a half of how much the NBLSS pays to its beneficiaries. To deal with such a problem, the system may impose a fixed minimum amount for the allowance. However this poses another problem: The maximum 67.9 percent of the beneficiaries might end up receiving the same minimum allowance. This makes the whole purpose of dividing the beneficiary pool into different income groups meaningless.



[Figure 5] Paying 50% of Living Allowance

Option 3: Adjust the amount of allowance payable to beneficiary households according to change in their earnings

The last option is to apply a linear equation (i.e. $Y = aX + b$ demonstrated in [Figure 6]), so that the amount of allowance payable to a beneficiary decreases by a certain rate according to an increase in their incomes. Since the allowance changes accordingly as a beneficiary's earnings change, income reversal can be avoided. Furthermore, it prevents the problem found with Option 2: a concentrated number of beneficiary households receiving the minimum allowance. The key to the success of this option is to determine the correct value of 'a' (i.e. the rate of allowance reduction). Such a task, however, is difficult in that the value has to be calculated every year for the amount of living allowance changes every year.



[Figure 6] Graded Payment Method Proportionate to the Income of Beneficiary

Option 3 is a sensible and logical choice compared to the other two alternatives

Of all three options proposed in this report, Option 3 would be the best choice. Yet this option (as well as the other two) would inevitably result in paying less to some beneficiaries under the current payment scheme of the SBSS - which limits the amount of maximum allowance to 50 percent of the NBLSS allowance. This is unavoidable as the system would have to pay less to the beneficiaries who currently receive more, vice versa, in order to avoid income reversal. This problem may continue until society fully adapts to new method. To tackle such a matter, the SMG may compensate beneficiaries who receive a less allowance than before 2015 by paying them the amount taken out from their previous allowance. Or it may alter the present eligibility requirement for the maximum allowance payment.

[Table 5] Advantages and Disadvantages of each Method

Method	Advantages	Disadvantages
Devise more income brackets and set a different allowance amount for each bracket	<ul style="list-style-type: none"> • Better prevent income reversal • Require a smaller budget than now • Make it easier to determine the allowance amount 	<ul style="list-style-type: none"> • Not fully prevent income reversal • Result in some beneficiaries receiving less allowance than now
Set the 50% of maximum amount of allowance as a cap	<ul style="list-style-type: none"> • Avoid income reversal • Require the smallest budget among other methods 	<ul style="list-style-type: none"> • Hurts the system's effectiveness as it pays many beneficiaries the same allowance set for a lower limit • The total amount of allowance payable to beneficiaries is smaller than other options • Result in some beneficiaries receiving less allowance than now
Set the 100% of maximum amount of allowance as a cap	<ul style="list-style-type: none"> • Best serves the purpose of guaranteeing a basic standard of living • Avoid income reversal 	<ul style="list-style-type: none"> • May conflict with the NBLSS living allowance • Require a relatively larger budget
Pay a varied amount of allowance according to a beneficiary's earnings	<ul style="list-style-type: none"> • Avoid income reversal • Prevent beneficiaries concentrating in a lower limit • Require a moderate size of budget 	<ul style="list-style-type: none"> • Coefficient value must be recalculated every year • Result in some beneficiaries receiving less allowance than now

3. Conclusions & Policy Recommendations

Various options are anchored in the analysis of numerous data. Yet imperfect features have been found in the data. Besides multiple factors that are not visible in the data affect the beneficiary selection process in reality. In this regard, we strongly suggest that the SMG draw a final plan for the SBSS improvement by weighing every relevant factors. It should also utilize every available information and skills in the process - the result of data analysis, information on the actual progress of system improvement and practical judgment.

Carefully decide the boundary of the SBSS by factoring in its close relationship with the NBLSS

When the SBSS was being first designed, the NBLSS then had a fixed amount of allowance. Thus, it was not complicated to select its beneficiaries. But now, it has a different amount set for each assistance category. In response, numerous experts have raised questions about who should be added to the pool of the SBSS beneficiaries. Some argue that the system must embrace every family that is ineligible for the NBLSS. Their argument rests on that the system should focus on serving its fundamental purpose: protecting the livelihood of Seoul citizens. Others contend that the SBSS should not accept households receiving any other kinds of government assistance.

There are some issues with the allowance amount and the way the SBSS pays it. The system must ensure that its beneficiaries are selected based on fair criteria. It needs to make sure that no doubts or questions about the validity or fairness of beneficiary selection process are raised by either beneficiaries of NBLSS or SBSS. If the SBSS accepts too many people for its beneficiaries, it will conflict with the NBLSS. If it embraces too little, on the other hand, it will fail to help people maintain a basic standard of living.

『Welfare Standards of Seoul Citizens』, which is the declaration on welfare for Seoul citizens, rules that any citizen of Seoul should be guaranteed a basic standard of living. Thus, the SBSS should pay its beneficiaries more than 50 percent of the NBLSS allowance - the NBLSS pays 70 percent of the minimum living cost. Yet one must question whether it is really appropriate to support the poor by increasing the cash payment through the SBSS. Securing a basic standard of living falls under the responsibility of the national government. If SMG provides greater financial support, confusion about the role of the national and local governments may arise. This may widen the gap between Seoul and other municipalities in the country.

A Study on the Strategy of Labour Policy in Seoul

Joo, Jin-Woo

Summary

To protect vulnerable workers in Seoul, the Seoul Metropolitan Government should campaign for “Abide by the Labor Law” and expand living wage program.

The first enactment of labor policy at a local government level

In 2011, the Seoul Metropolitan Government (SMG) set the goal of making the city “Special City Respecting Workers’ Rights.” To achieve this, the SMG has laid out various labor policies. They include ones advocating the creation of good jobs and the protection of workers’ rights.

Seoul has carried out various labor policies in pursuit of becoming a “Special City Respecting Workers’ Rights.” As such, the SMG has been exemplary in protecting workers’ rights over the past several years. From 2010 to 2014, pioneering labor policies and administrative systems were laid out. Namely, the SMG (1) converted temporary workers into the regular, (2) initiated Seoul New Deal, (3) invigorated the operation of Labor Welfare Center in autonomous districts, and (4) introduced Citizens’ Ombudsman Program for labor supervision. Through these works, Seoul actively spawned job opportunities and protected vulnerable workers’ rights. Furthermore, it legislated the ordinance on the Rights and Interests of Workers. It also formed a special team responsible for dealing with labor-related matters. It is called Labor Policy Division.

Seoul’s endeavor to promote a higher standard of living for workers did no stop there. The 6th office of Mayor has succeeded the 5th office in July 2014. It has then introduced a comprehensive package of labor policies. In detail, it has installed its

own living wage program. It has also set up the Center for the Rights and Interests of Workers. Moreover, it has launched the Committee for the Protection of Workers' Rights and Interests. Through these efforts, the SMG has made sure that vulnerable workers are not denied their rights and interests. From there, the government has taken few steps further: First, it has come up with Basic Plan for Labor Policy. Next it has set up the Employment and Labor Bureau.

Despite all these accomplishments, the SMG still faces institutional limitations that every local government has. That is, it is not entitled to supervise working conditions. Moreover, it does not have the authority to prescribe nor amend labor laws. This thwarts the adequate protection of vulnerable employees. In order to surmount these challenges, a new policy must be introduced.

2. Main Findings

Seoul strives to be the leader in creating quality Jobs

SMG has turned over 70,000 non-regular workers in the public sector into the regular in 2012. SMG has converted 1,369 of its directly-employed¹⁶, temporary workers into unlimited contract employees (deemed as regular workers). Among them were short-term contract laborers. Since 2013, the government has regularized the status of 5,953 indirectly-hired, temporary employees (e.g. janitorial staffs, caretakers, facility managers). The conversion will continue till 2017. In summary, total number of 7,322 temporary laborers who are engaged in “constant and continuous work” have been converted into regular employees.

Regularizing the status of temporary workers can make a striking improvement in

¹⁶ A directly-employed worker (also called a direct employee) refers to an employee who is directly involved in the government administration and work associated with the provision of public service to Seoul citizens. An indirectly-employed worker (also called an indirect employee), on the other hand, refers to one that is hired through a third party (e.g. agency) to provide contracted-out services.

SMG's employment structure. Compared to 2010, the number of regular workers at the SMG has jumped by 351.1 percent in 2014. In the meantime, the number of indirectly-hired temporary workers has dropped by 77.3 percent relative to in 2012. No other local governments in Korea have achieved such remarkable improvements.

[Table 1] Changes in the No. of Unlimited Contract Workers at Major Local Governments

	2010(a)	2011	2012	2013	2014(b)	(b)-(a)	Rate of Change (%)
Seoul	354	354	686	1,119	1,597	1,243	351.1
Busan	651	654	654	641	641	-10	-1.5
Daegu	391	389	374	386	397	6	1.5
Incheon	295	296	290	325	334	39	13.2
Gwangju	321	326	377	380	383	62	19.3
Daejeon	217	211	209	216	219	2	0.9
Gyeonggi	366	366	396	400	415	49	13.4

Source: Nam, Ugeun. *The Current Status of Bad Jobs at Local Governments and Challenges to Overcome* (2014)

[Table 2] Changes in the No. of Indirectly Employed Workers Employees of Major Local Governments

	2010(a)	2011	2012	2013	2014(b)	(b)-(a)	Rate of Change (%)
Seoul	-	-	1,052	717	239	-813	-77.3
Busan	142	142	142	153	153	11	7.7
Daegu	181	191	196	239	251	70	38.7
Incheon	371	419	400	476	502	131	35.3
Gwangju	85	85	85	87	87	2	2.4
Daejeon	78	78	79	79	79	1	1.3
Gyeonggi	205	218	239	256	274	69	33.7

Source: Nam, Ugeun. *The Current Status of Bad Jobs at Local Governments and Challenges to Overcome* (2014)

SMG has installed its own living wage program

As the first metropolitan government in Korea, the SMG adopted a living wage program in 2015. Such a decision was made in pursuit of helping the citizens to make decent lives. It was also expected to be conducive to eliminating income inequality. In 2016, Seoul has applied an hourly wage of 7,145 Won (equivalent to 1,493,305 Won per month) to the calculation of living wage. This amount is 18.5 percent point higher than the minimum wage (6,030 Won an hour). At present, the living wage is only paid to workers directly hired by the SMG. Needless to say, it should be made available for indirectly hired employees (i.e. contracted-out and service contract workers). Furthermore, the program needs to embrace employees in the private sector as well.

SMG has laid the groundwork to protect workers' rights

Seoul has established institutional framework for labor policy. It has done so by passing the ordinance on the Rights and Interests of Workers. The ordinance stipulates the protection and enhancement of workers' rights. It also admonishes employers to comply with minimum wage regulations to protect workers' dignity. Furthermore, it urges the market to take responsibility in improving working environments. In addition, the ordinance demands for the preparation and implementation of the Basic Plan for Labor Policy. Moreover, it mandates education on workers' rights. Last but not least, it requires administrative and financial support for labor welfare.

To protect workers' rights, Seoul has set up the Center for the Rights and Interest of Workers in 2015. It has been operating Labor Welfare Center in four autonomous districts. They are all committed to assist workers in blind spots. Their services include consultation on issues related to labor laws and the provision of legal aids. They also make sure that employers abide by the labor laws. As explained earlier,

the SMG does not have the authority to conduct labor supervision. As a solution, it has installed the so-called Citizens' Ombudsman Program in its autonomous district governments. According to the program, one person at each district, total of 25 honorable labor supervisors, monitors the progress of the program.

New Employment, Labor Bureau and Labor Policy Division

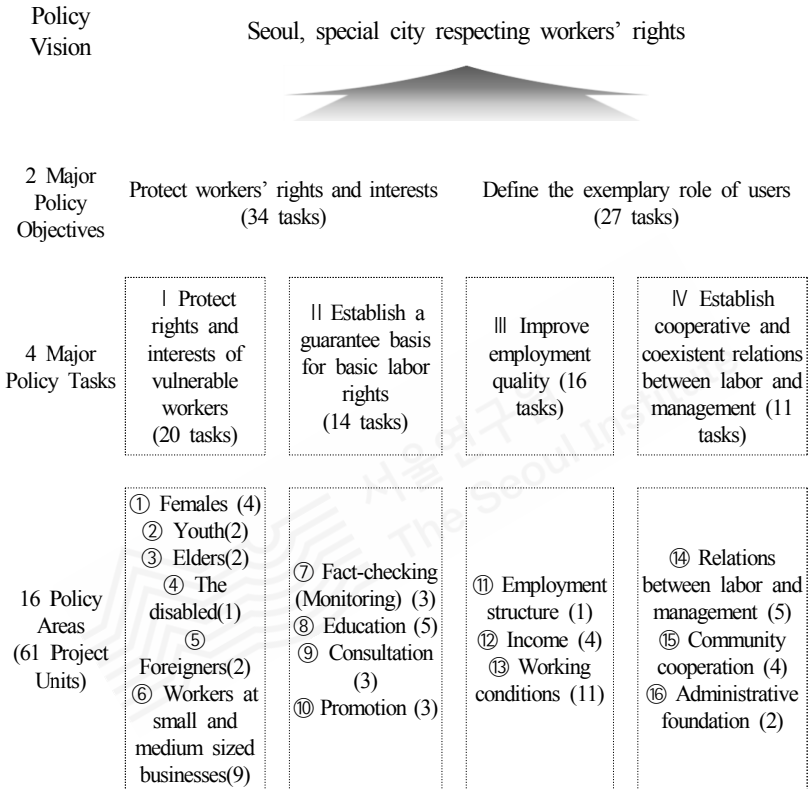
In September 2012, the SMG has formed a special team called Labor Policy Division. Its central task is to deal with labor policy. SMG is the first local government that has done such a job. In February 2016, the government detached the Job Planning Team from the Economic Promotion Office. Then, it turned it into a new office called Employment and Labor Bureau. By doing so, it has established an independent administrative body to handle issues related to employment and labor policy.

Establishing the foundation for systematic implementation of labor policy

In April 2015, the SMG has introduced Basic Plan for Labor Policy. It has been prepared in accordance with the ordinance on the Rights and Interests of Workers. The plan also conforms to the vision of "Seoul, Special City Respecting Workers' Rights." In this light, it lays out 61 projects for 16 policy areas. They all aim to achieve the following four policy objectives: (1) the protection of vulnerable workers, (2) the establishment of a guarantee basis for basic labor rights, (3) the improvement of employment quality, and (4) the promotion of cooperative and coexistent relations between labor and management.

Furthermore, it lists five central projects for administrative efficacy. Each aims to bolster job security (by converting the temporary into the regular); to guarantee a moderate wage (with the living wage program); to improve the quality of workers' life (by reducing working hours); to ensure labor safety; and to establish respectful

relations between employees and employers (through involving workers in management)



[Figure 1] SMG's Plan for Labor Policy

Limitations in Protecting the Interests and Rights of Vulnerable Workers in the Private Sector

Only the vulnerable workers in the public sector are enjoying the positive changes. Thus, not every temporary worker is eligible for being converted into the regular. Only those who are either directly employed by the SMG or engaged in service works

(e.g. cleaning, facility maintenance, care taking) have been regularized so far. Seoul has yet to come up with a solution for how to regularize contracted-out workers. Meanwhile, there still exists job insecurity in social service sector.

The same is true of Seoul's living wage program. Only directly-hired workers can enjoy the benefit at the moment. In other words, the living wage is not paid to indirectly-employed laborers (i.e. the contracted-out, service contractors). In addition, the SMG still has not come up with a plan to propagate the living wage program in the private sector.

Importantly, local governments are not empowered to supervise labor conditions in Korea.

SMG does not have the authority to supervise working environments. As a result, it cannot fully protect vulnerable workers in the private sector. Yet such a problem can be overcome. This requires cooperation with the right authority - that is, the Seoul Regional Ministry of Employment and Labor. However, collaboration with the aforesaid Ministry is rather impossible given a shortage of administrative officials at the SMG.

In the meantime, the importance of heightening the public awareness of labor rights is belittled. The general public (including users and laborers) should be educated about such matters. This is the prerequisite for protecting vulnerable workers' rights and interests. In spite of its significance, the SMG has not paid enough attention to it.

3. Conclusions & Policy Recommendations

Seoul ought to select core project areas, while devising comprehensive and systematic labor policy

SMG needs to promote policies that help create good jobs. The government has

already successfully regularized the status of non-regular workers in its direct employment sector. As a follow-up, it should set appropriate standards and principles for contracted-out workers. By doing so, it can bolster job security.

At the same time, the SMG ought to launch strategic projects to protect vulnerable workers. In particular, one that promotes their rights, interests, and welfare. This requires the followings: First, paying the living wages to a wider range of workers. Currently, the SMG pays the living wage to directly-hired workers only. It should find a way to offer the benefit to contracted-out workers. Surely it also needs to induce private companies to pay their workers the living wages. Second, setting up the Social Service Foundation (given name is tentative). Then, currently ill-treated social service workers are to be hired there. This will improve the conditions of their employment. Better treated social service workers will then provide better welfare services to the public.

Lastly, Seoul is to eradicate blind spots of labor laws. Running a strategical campaign can help achieve this goal. The campaign may be titled “Labor Law Abiding Seoul.” To yield the best outcome, the SMG needs to cooperate with related parties - the Seoul Regional Ministry of Employment and Labor, labor unions, the business world, and related social groups.

Seoul ought to convert temporary employees into regular workers in both public and private sectors to expand the scope of beneficiaries of labor policy

For starters, the SMG should find a way to secure the employment of contracted-out workers. This requires establishing appropriate standards and principles. Next, the government needs to adopt some changes in its public supply system (i.e. the government contract system). It is necessary to promote better employment on behalf of workers in the private sector. As one way to do it, the SMG may give additional incentives to bind companies to protect workers’ rights. For example, a firm that changes its employment structure in favor of their employees is to earn incentives. At the same time, the government should

encourage private companies to create good jobs. It is to do so through the public supply system. For instance, it may urge bidding companies to set their minimum labor costs at the moderate wage (or the living wage) set by the SMG.

Last but not least, the SMG ought to address labor-related issues of temporary workers. At the moment, both national and local governments are operating various one-to-one services (e.g. visiting nurse care, consultation, medical care assistance). Similar services are also offered by 25 autonomous district governments. Non-regular workers are main providers of said services. They need to be converted into the regular.

SMG should stringently monitor the regularization process of temporary workers, never ceasing to improve labor conditions

The SMG has announced that it will continue to gradually convert non-regular workers into regular employees until 2017. This asks for tight monitoring. For starters, new employees who are to be engaged in constant and continuous work should be hired as unlimited contract workers (i.e. regular workers). Next, newly converted employees should by no means experience discrimination. They must be treated as equally as existing regular workers. SMG ought to thoroughly monitor these.

SMG should expand the scope of beneficiaries of the living wage program

Above all, Seoul ought to examine the appropriateness of the current living wage program. It accounts for 52 percent of the average household expenditure in Seoul. Though it seems acceptable, the SMG ought to pull the living wage up to 60 percent of median income - a poverty baseline of advanced communities including the European Union.

SMG also needs to devise a strategic plan to promote the living wage program in the private sector. First of all, it ought to target the following two sectors: One is the

indirect employment sector (i.e. contracted-out workers and service contractors). Another is consisted of private firms participating in the bid for the city's public supply. In order to achieve such a goal, the SMG should consider the followings: (1) applying the living wage to calculation of unit labor cost of indirectly-hired workers, (2) introducing new rule in the public supply guideline to give extra points to bidding companies that adopt the living wage program, (3) adding a new article mandating the adherence to the living wage program in "Special Conditions of the Public Supply Contract," and (4) making agreement with major private companies in Seoul to pay the living wage.

SMG should set up Labor Welfare Center in all 25 autonomous district governments

Labor Welfare Center provides services for vulnerable workers in order to promote their interests. Its services include consultation on labor-related issues, legal assistance, welfare support, and education. At present, only four autonomous districts own Labor Welfare Center. The center should be set up in all the 25 districts. And Seoul is to establish Social Service Foundation to guarantee job security and rights of social service workers. SMG should establish a Social Service Foundation (given name is tentative). And then, current social service workers are to be hired there as regular employees. This can secure the employment of those workers. Surely, their labor rights can be better protected. They are, in turn, expected to provide better welfare services to the public.

Organize "Labor Law Abiding Seoul" campaign for Workers in the Blind Spot

Through such a campaign, Seoul should build a social consensus about the protection of basic labor rights. SMG should organize a campaign for workers in blind zones. In such a zone, they are usually neglected by labor laws. The campaign

can be named “Labor Law Abiding Seoul.” It should aim to bring actual changes to the working conditions of vulnerable workers. It will serve as an effective tool for realizing the city’s vision - “Seoul, Special City Respecting Workers’ Rights.”

The movement is to have five slogans as follows: “Seoul avoiding overdue wages”, “Seoul making employment contracts”, “Seoul respecting the minimum wage”, “Seoul not tolerating sexual harassment”, and “Seoul following the Occupational Safety Act.” For the efficacy of campaign, the SMG is to form an open campaign promotion board. The city government ought to accept free participation of related parties in the campaign. Besides the SMG, the stakeholders are namely, employers from industries, local labor unions and NGOs, the Seoul Regional Ministry of Employment and Labor, and the Seoul Ministry of Education. At the heart of the organization, should be the Seoul Committee for Civilian Relations between Labor and Management.

Seoul should come up with detailed campaign strategies for each region and industry. The campaign needs to reflect the unique characteristics of labor environment of each region within Seoul. In other words, it should be designed to represent special features of places like Seoul Digital Complex, urban manufacturing areas, and restaurant-concentrated regions. Simultaneously, the campaign should factor in the characteristics of its targets. While running the campaign, the SMG ought to make agreement with employers and related unions. The process must take into account special qualities of workers (e.g. resident caretakers, young part-timers, employees at megastores, janitorial staffs, artists).

Also, the cooperation with the Seoul Regional Ministry of Employment and Labor is crucial. As mentioned earlier, the Seoul Regional Ministry of Employment and Labor has the authority to supervise labor conditions. SMG should collaborate with the ministry amid the campaign. Next, it ought to run a special center to where workers can file a complaint when labor laws are violated. At the same time it needs to execute a certification system to certify companies that abide by labor laws and regulations. Lastly the SMG is to introduce Citizens’ Ombudsman Program (or Citizens’ Labor Supervision Program). This will greatly support the labor supervision of the Ministry.

[Table 3] SMG's Labor Policy

A. Ensure the Efficacy of Labor Policy

- 1) Establish a system to monitor the regularization of temporary workers and the improvement of converted employees' treatment
- 2) Devise a solution to tackle labor-related issues of temporary workers engaged in governmental 1:1 services (operated by both state and local governments as well as 25 autonomous districts)
- 3) Improve the employment structure of temporary, contracted-out worker
- 4) Launch financial and administrative plans for labor policy
- 5) Develop the current project on improving the employment structure by amending the city's public supply (contract) system
- 6) Prepare a plan for how to connect Seoul New Deal Jobs Project with the private sector; to cut working hours; and to raise the pay
- 7) Redefine the role and work of New Deal Job managers, while bolstering the tie between the project and actual employment

B. Ensure the Efficacy of Labor Policy

- 1) Introduce a policy to protect social servicer workers' rights: Set up Social Service Foundation (tentative name)
- 2) Devise an action plan for increasing the living wage and expanding the scope of beneficiaries to contracted-out workers and service contractors
- 3) Establish and operate Labor Welfare Center in every 25 autonomous district
- 4) Strengthen the cooperation between the Center for the Rights and Interest of Workers and Labor Welfare Center, and among related groups
- 5) Invigorate the Citizens' Ombudsman Program and link its activity with that of Labor Welfare Center
- 6) Revise the adoption of Citizens' Labor Supervision Program

C. Establish a Governance System to Manage Relations between Labor and Management

- 1) Activate the operation of Seoul Committee for Civilian Relations between Labor and Management
- 2) Turn the Committee into an investment institution, allowing the participation of a wider range of parties and bolstering the committee's function to negotiate public policy agendas

D. Improve the Administrative System for Labor Policy

- 1) Set up Employment and Labor Bureau as a body responsible for handling labor and employment issues, then specify its works
- 2) Operate and manage the Consultative Group for Labor Administration with affiliated organizations and autonomous districts
- 3) Form a task force team responsible for education on labor-related matters
- 4) Consolidate the education on labor-related issues for public officials

E. Run a Strategic Project

- 1) Organize "Labor Law Abiding Seoul" campaign (tentative name)

The Lives of the Working Elders in Seoul

Yoon, Min-Suk

Summary

Most of working elders are employed for labor intensive jobs such as security or cleaning. They work for long hours and sometimes experience prejudice against the old.

1. Introduction

One third of senior citizens living in Seoul are working.

Today, a growing number of elderly people engage themselves in economic activities for living. It is largely because they are unprepared for their long lives ahead of them due to involuntary early retirement. Compared to other OECD countries, Korea has a high economic activity rate of senior citizens. It also has a high poverty rate of the same group. It is expected that more and more grey people will have to work for living in the future. Therefore, the government should seek a way to take care of them.

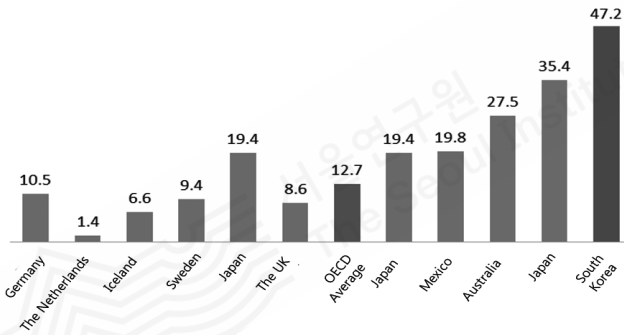
The research has discovered that majority of them had to work to pay for their living expenses. In other words, they were not financially prepared for their old age. At work, elderly employees were paid less than they used to in the past. They were also generally working in poor working conditions. The situation was no different for the self-employed: They made a petty amount of profit from their own business in spite of their life-long experience in their fields.

The purpose of this research is to understand working conditions of elderly workers and propose policy recommendations to increase their quality of lives.

2. Main Findings

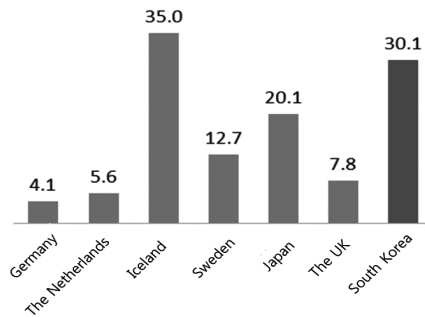
Steady rise in poverty among seniors

Senior citizens make up 12 percent of the population in Seoul; 40 percent of them still hold jobs. Many of these seniors find it necessary to work as they are unprepared to retire in a city where the population is rapidly aging. Poverty among seniors in South Korea runs at 47.2 percent, one of the highest in the OECD nations; 30.1 percent of people aged 65 or older still work, which is the second highest among OECD member nations. Poverty leaves those in their senior years with no choice but to work.



Source : OECD, 2013

[Figure 1] Senior Poverty Rate in OECD Member Countries

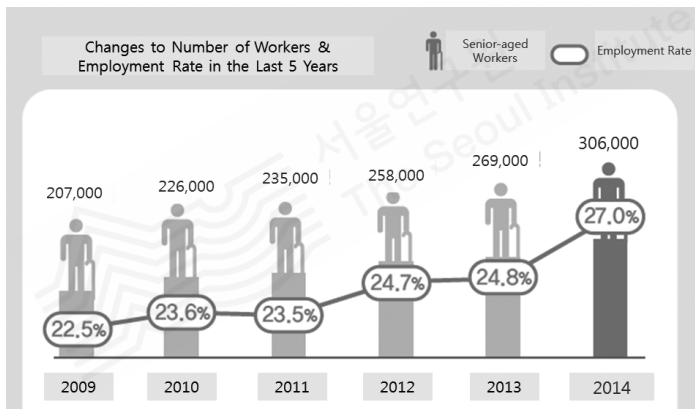


Source : OECD, 2013

[Figure 2] Labor Force Participation of Persons Aged 65 Years or Over

Increase in senior-aged employment, inadequate working environment

Employment among senior citizens has risen from 22.5 percent in 2009 to 27.0 percent as of 2014. During the same period, the number of senior-aged workers increased from 200,000 to over 300,000. One in 3 senior citizens in Seoul work after the age of 65. While poverty drives seniors into job market, their working conditions are poor. There are positive aspects to seniors holding jobs and working, but the crux of the matter is that most of them are forced to work to survive, and they often work in situations where their basic rights are not protected. Many of them are working for a living under less-than-adequate conditions.



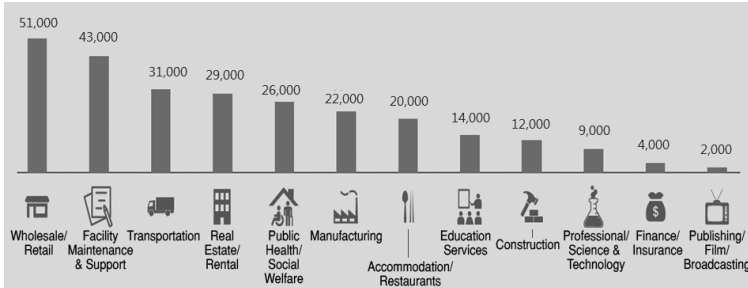
[Figure 3] Number of Senior-aged Workers & Employment Rate in Seoul

Source : Statistics Korea, Survey on the Working Population by Year

Higher percentage of self-employed/non-professionals

In the meantime, the percentage of those who are self-employed or non-professional has risen. The highest in this category is Wholesale/Retail, numbering approximately 51,000 persons, followed by Facility Maintenance & Support (43,000 persons) and Transportation (31,000 persons). It is estimated that

most senior-aged wage workers are engaged in simple labor.

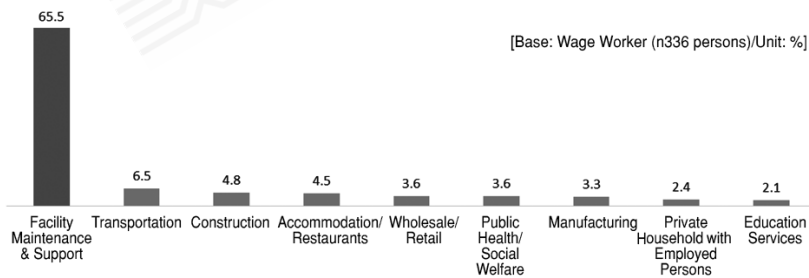


[Figure 4] Number of Senior-aged Workers in Seoul (By Industry)

Source : Statistics Korea, Employment Survey by Region, 2nd Half of 2014

Senior citizens working in poor situations mostly engaged in simple labor

A survey that looks at the industry make-up of the senior workforce indicates that 65.6 percent of senior citizens are engaged in “Facility Maintenance & Support”. This is followed by Transportation (6.5 percent), Construction (4.8 percent), and Accommodation & Restaurants (4.5 percent).

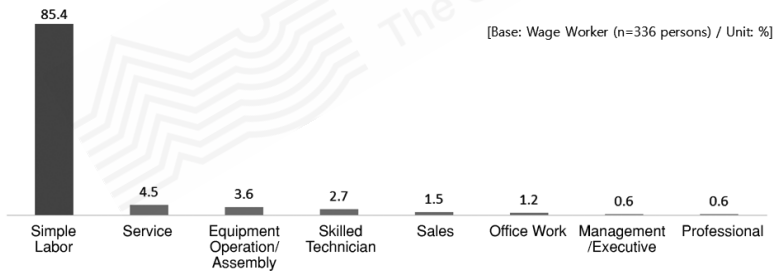


[Figure 5] Industries where Senior Citizens Work, Based on Standard Industry Classification

About the Survey

Objective	Identify working conditions and status of senior citizens in Seoul and study psychosocial awareness
Target	1,000 workers aged 65 or over in Seoul
Period	April 20 - May 22, 2015
Method	Visitation of households for one-on-one interviews / Proportionate stratification by region, gender, and age of workers
Description	Quantitative analysis of working conditions such as working hours, income, reason for working and field of work; Qualitative analysis of jobs, satisfaction with life, etc.

They are mostly concentrated in simple labor (cleaning, security) accounting for 85.4 percent of all job classifications. These simple labor jobs include: security, cleaning, delivery, care-giving, domestic help, and driving (community/ kindergarten/private school buses, etc.).



[Figure 6] Types of Work Based on Standard Occupational Classification (Top-tier Classification)

Senior security guards & cleaners work for long hours in poor condition

Some 41 percent of senior citizens working in Seoul are security guards or cleaners. Among those who are on shifts, 98.6 percent are senior male workers. The average worker works 18.26 hours a day. These workers have poor situations without any official guidelines on working hours, breaks, meals, and conditions for nighttime work.

[Table 1] Working Hours, Wages of Senior-aged Cleaners & Security Guards

Category	Gender Ratio	Daily Working Hours	Working Days per Week	Weekly Working Hours	Work on Weekends or Public Holidays		Average Monthly Income	
					Yes	No		
All	M	71.4%	11.60	5.67	64.27	76.0%	24.0%	Won 1,466,900
	F	28.6%						
Cleaning, Security	M	98.6%	18.26	3.76	66.41	97.8%	2.2%	Won 1,309,400
	F	1.4%						
Other Wage Work	M	60.6%	9.21	5.34	49.33	54.5%	45.5%	Won 1,172,200
	F	39.4%						

Senior workers prefer the easily-accessible taxi industry, where there are few age restrictions

In Seoul, 21.6 percent of taxi drivers were 65 years or older (as of 2014). The survey revealed that transportation (6 percent) is the second most common industry for seniors, after security guard jobs. However, there is increasing anxiety with regard to senior drivers as their vision and hearing deteriorate, undermining their ability to quickly respond to dangerous situations. Even so, the increase in the number of older drivers is inevitable, and it is therefore necessary to create adequate and working situations for them.

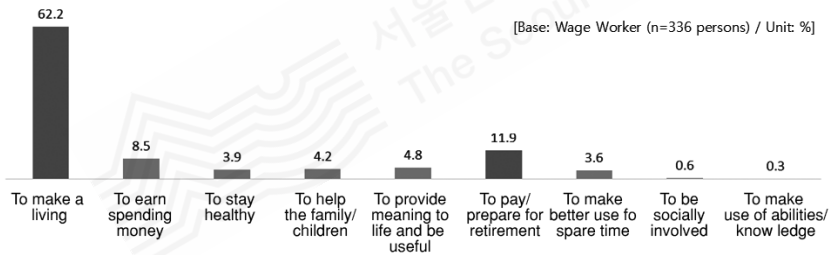
Seniors are working in situations where rights are often neglected

On average, senior wage workers work 12.9 hours per day, and 4.6 days a week. They work an average of 56.4 hours per week. For their services, they earn a monthly average of 1,228,000 Won less than 40 percent of a regular wage worker, who makes a monthly income of 3,200,000 Won (Ministry of Employment & Labor, 2014). Senior citizens are driven by their economic needs to job market, but their labor rights are often neglected. Most of the respondents (62.2 percent) said

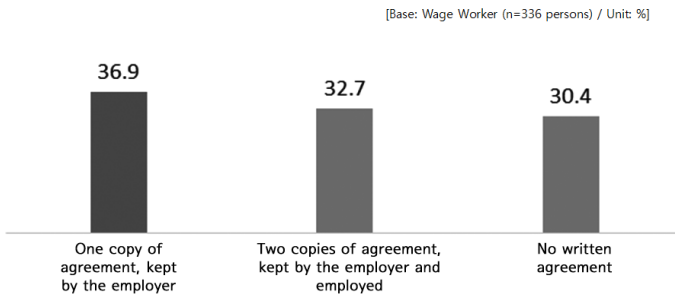
they are currently working “to make a living.” This is followed by “to pay/prepare for retirement” (11.9 percent) and “to spend money” (8.5 percent). It was found that many senior-aged workers started working without negotiating their terms of employment, such as the length of employment, or without signing legal agreements. A large number does not have their basic working rights protected.

[Table 2] Working Hours & Wages of Senior-aged Wage Workers (By Employment Status)

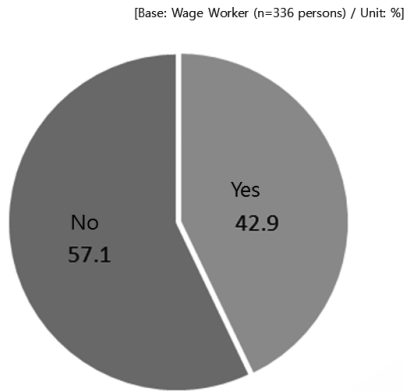
Category	Number of Cases		Working Hours per Week	Monthly Average Income	
	336 persons	100.0%	56.4	1,228,000 Won	
Wage Worker	Regular Worker	175 persons	52.0%	61.8	1,309,000 Won
	Temporary Worker	125 persons	37.2%	53.1	1,172,000 Won
	Day Worker	36 persons	10.7%	41.9	1,030,000 Won



[Figure 7] Reasons for Working



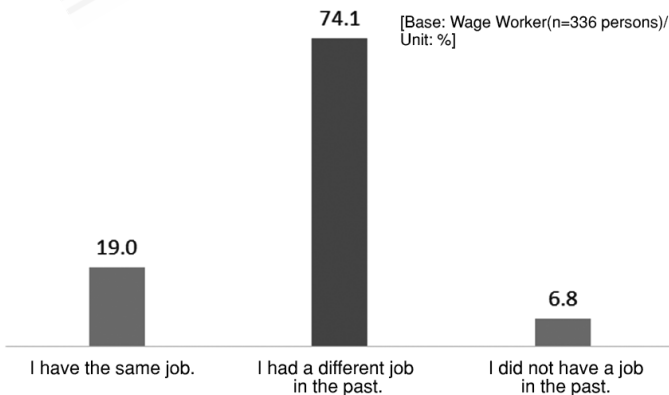
[Figure 8] Discussion of Length of Employment



[Figure 9] Discussion of Length of Employment

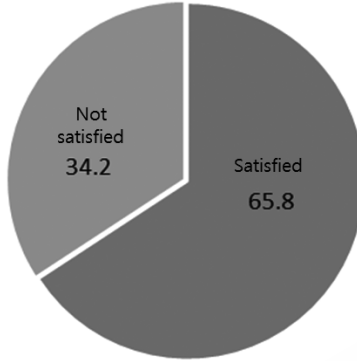
Current job is different from their past careers but satisfied to have a job

In the survey, 74.1 percent indicated that their current jobs are different from their careers. Very few work in the same industry as they had before retirement. Although overall working conditions and wages are below standard, 65.8 percent responded that they are satisfied with their current job in that they have a job, whereas other seniors do not.



[Figure 10] Comparison of Previous & Current Jobs

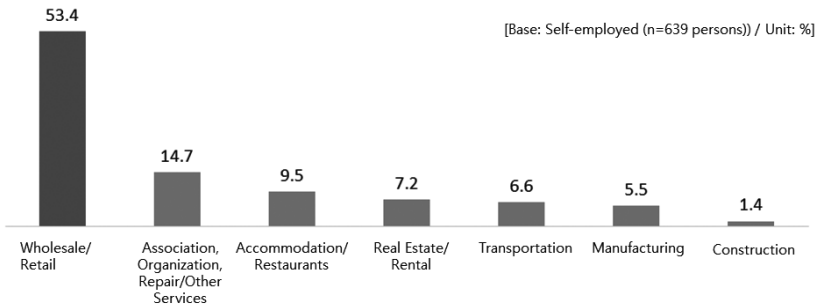
[Base: Wage Worker (n=336 persons) / Unit: %]



[Figure 11] Satisfaction with Current Job

Life is equally difficult for the senior-aged self-employed

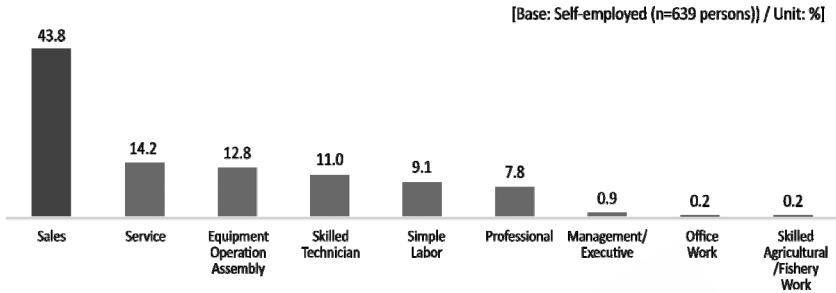
Most senior-aged self-employed workers are in wholesale/retail, sensitive to economic changes. Among seniors who are self-employed, 53.4 percent are in “Wholesale/Retail”, followed by “Association, Organization, Repair/Other Services” (14.7 percent), “Accommodation/Restaurants” (9.5 percent), and “Real Estate/Rental” (7.2 percent).



[Base: Self-employed (n=639 persons) / Unit: %]

[Figure 12] Industries Engaged in by the Senior-aged Self-employed, Based on Standard Industry Classification

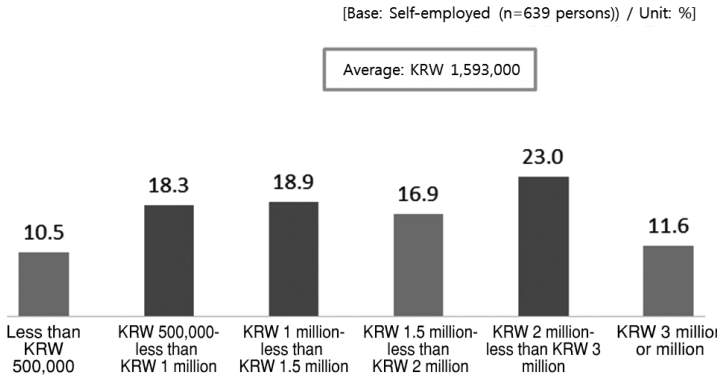
Upon closer look, 36.8 percent work as store salespeople while 5.3 percent are involved in door-to-door or street sales, or telemarketing.



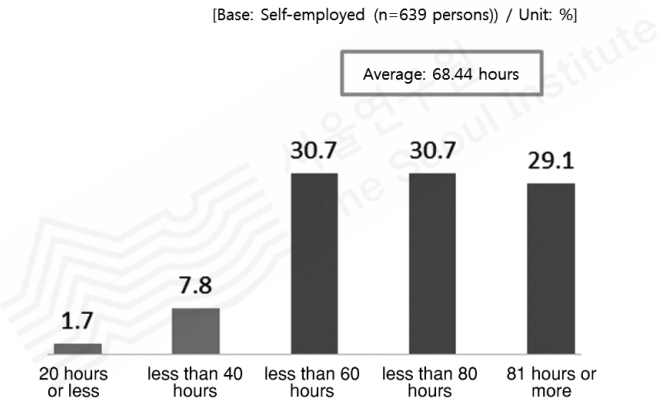
[Figure 13] Types of Work for the Self-employed, Based on Standard Occupational Classification (Top-tier Classification)

Self-employed seniors work for long hours with higher income than senior-aged wage workers

Self-employed seniors work 10.9 hours on average per day. The largest number of respondents (62.1 percent) said they work between 9 to 12 hours, followed by 13 - 16 hours (18.0 percent) and 5 - 8 hours (15.0 percent). They work 6.2 days per week on average. According to the survey, 89.2 percent said they work for 6 - 7 days. It was found that senior citizens who are self-employed work 68.4 hours per week on average, which is longer than the working hours of senior-aged wage workers (56.3 hours). An average monthly income is 1,593,000 Won. Self-employed senior citizens earn approximately 370,000 Won per month more than senior-aged wage workers 1,228,000 Won. Their income exceeds the average monthly income of all working seniors 1,460,000 Won by 130,000 Won.



[Figure 14] Average Monthly Income of the Senior-aged Self-employed

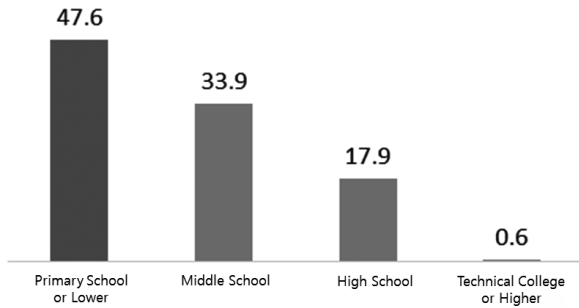


[Figure 15] Average Weekly Working Hours of the Senior-aged Self-employed

Self-employed senior females have poor working situations

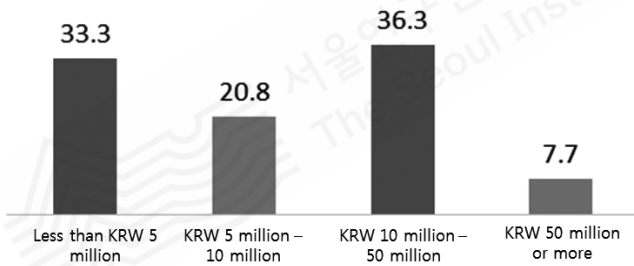
Most self-employed senior females have lower-level education and work alone. Some 30% of self-employed senior citizens are female. 47.6 percent of whom have low education levels (primary school or lower) and are in the wholesale/retail business. These seniors (78.6 percent) work alone for a minimum initial investment (less than 5 million Won, 33.3 percent).

[Base: Self-employed Female (n=168 persons)] / Unit: %



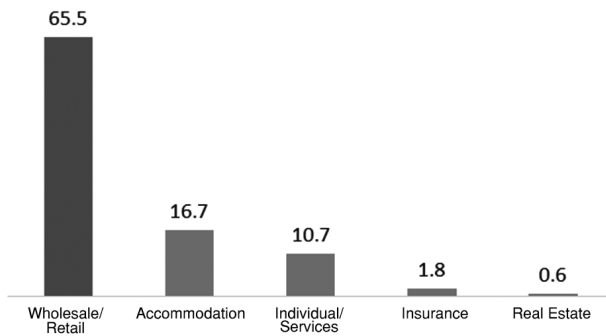
[Figure 16] Educational Level of Self-employed Senior-aged Females

[Base: Self-employed Female (n=168 persons)] / Unit: %



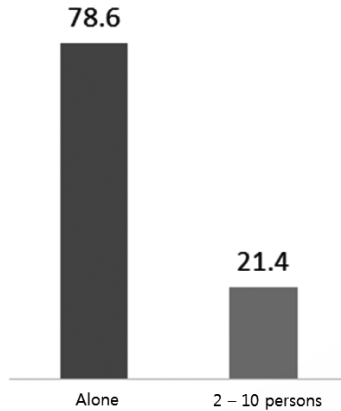
[Figure 17] Initial Investment of Self-employed Females

[Base: Self-employed Female (n=168 persons)] / Unit: %



[Figure 18] Type of Occupation for Self-employed Females

[Base: Self-employed Female (n=168 persons) / Unit: %]



[Figure 19] Number of Workers in
Businesses Owned by Self-employed
Females

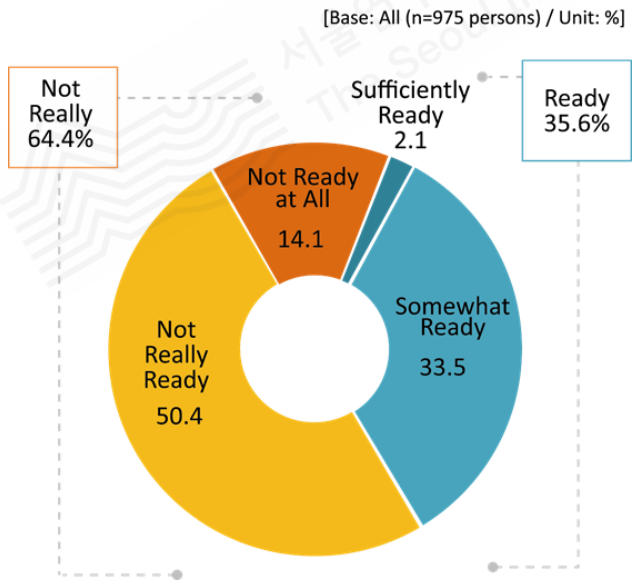
Overall, seniors have inadequate retirement plans

This research shows that a large number of senior-aged couples suffer from insufficient retirement planning. Seventy percent of married senior citizens live with unmarried children. Some 58 percent of senior citizens live with their spouse, while 17.9 percent of wage-working senior citizens and 20.5 percent of self-employed senior citizens live with their children. The percentage of those living alone is equal for those who are self-employed and those who are wage workers (11.9 percent each).

64.4 percent of seniors feel that they are not ready for retirement. Only 35.6 percent said they are ready for retirement (“Sufficiently Ready”, “Somewhat Ready”). A greater number of people - 64.4 percent - said they were not ready (“Not Ready at All”, “Not Really Ready”).



[Figure 20] Types of Senior-aged Worker Households in Seoul



[Figure 21] Retirement Preparedness of Senior-aged Workers in Seoul

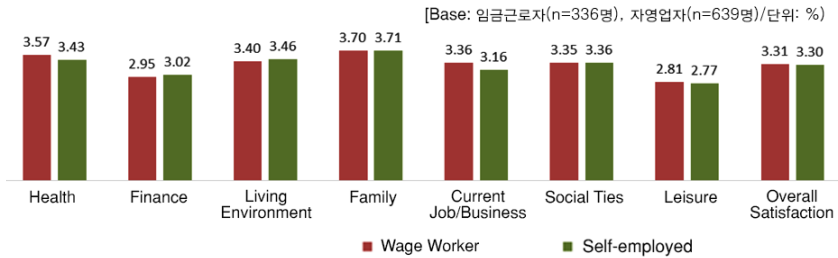
Most seniors are mentally healthy but worried about physical health

Regardless of employment status, it was found that 80 percent of senior-aged workers in Seoul were not depressed.

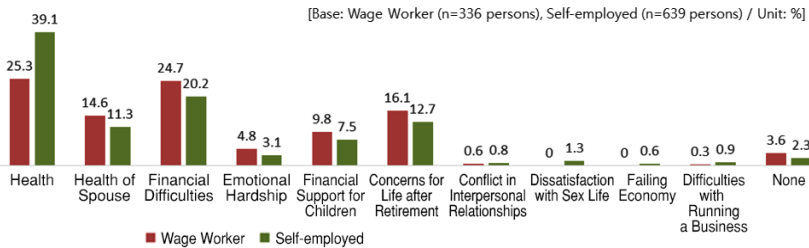


[Figure 22] Level of Depression

One of the greatest difficulties in life is “Health” issues, according to 25.35 percent of senior-aged wage workers and 39.1 percent of self-employed seniors, followed by “Current Financial Difficulties” and “Life & Finances after Retirement.” One of the greatest concerns for senior-aged workers is their own health as they need to keep healthy to continue working.



[Figure 23] Satisfaction with Life



[Figure 24] Difficulties in Life

3. Conclusions & Policy Recommendations

Working conditions for senior-aged workers need improvement

We need to improve jobs provided for senior citizens by different city departments. The national government programs for senior citizens are divided between the Ministry of Employment & Labor and the Ministry of Health & Welfare. The line of command and organizational structure should be improved so as to integrate and implement programs at the city level. Furthermore, it is crucial that the providers abandon their views that the programs are charity and recognize that the programs are to create good working conditions for ordinary citizens who wish to work.

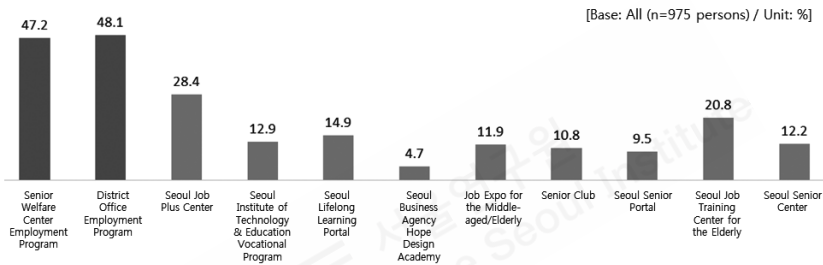
In that context, more practical policies are needed to meet the needs of senior citizens. Senior citizens need easier access to essential information. To make this happen, the information on jobs and policies for seniors needs to be integrated and provided via a consistent channel. Designation of an institution to handle issues related to jobs for seniors and develop training programs is also needed.

Designate a dedicated body to handle policy on jobs for seniors

We suggest installing “control tower” to maximize policy effectiveness. Such an organization can be made more efficient by integrating the relevant departments

that handle job programs for senior citizens or by modifying their roles and responsibilities. Currently, the Bureau of Community Welfare and the Bureau of Employment Planning are in charge of such policies. These channels should be integrated for easy access.

A framework and system can be put in place for working seniors and promoted by making access to information easier. The survey revealed that potential users were unaware that such policies even existed. It is therefore necessary to improve public access to the relevant policies and information.



[Figure 25] Percentage of Senior Citizens Aware of Job Policies for Seniors, by Channel

Eliminate discrimination through an age-integrated approach

To ensure that policies recognize senior citizens as ordinary people who wish to work, we need to change systems that discriminate against working seniors and alert the national government. Relevant regulations need to be enacted or revised to make it mandatory for seniors aged 65 or older to join the national Employment Insurance and Industrial Accident Compensation Insurance schemes. For those employers that fail to sign a written employment agreements that specify official working hours and fail to meet the minimum wage requirements, administrative guidance should be imposed, thereby eliminating discrimination against senior citizens. In addition, there must be efforts to renew social awareness of senior citizens and the need to recognize them as equal to “ordinary” citizens, instead of focusing on their ages.

Develop training programs for the employers of senior citizens

Employers need a new approach to working seniors. An education system is needed to help change negative attitudes regarding working seniors and stereotypes of the elderly. Employers who hire senior citizens will need continued training and assistance programs as well, which, along with campaigns, should be designed to help eliminate discrimination. Senior internships or senior recommendation programs can be a good way to stabilize the supply of human resources to the job market.

Policy efforts are required for systematic preparations for life after retirement for senior citizens & those nearing retirement age

The Seoul Metropolitan Government should provide and support mandatory retirement preparation and training programs. And the city should provide training to baby boomers, citizens nearing retirement and senior citizens who wish to work. By utilizing current resources such as the Seoul Senior Center or the 50+ Foundation, job training and placement services can be improved for retirees and those nearing retirement. The city also needs to utilize other resources (e.g., vocational training centers and leisure facilities) to offer training and employment opportunities to those with a wide variety of talents and needs. Seoul should consider enacting an ordinance that will require large businesses in Seoul to offer retirement preparation programs. It should also consider starting regular programs on retirement preparation for employees of the Seoul Metropolitan Government and its affiliated institutions.

05 Urban Planning

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

Maeng, Da-Mi

Summary

The Seoul Metropolitan Government needs to reset the purposes and targets of the Residential Environment Management Project (REMP), while establishing the foundation for cooperation among public authorities and residents that play key roles in the project governance.

1. Introduction

The Residential Environment Management Project (REMP), which was launched in 2010, is examined to evaluate its performance and identify its limits

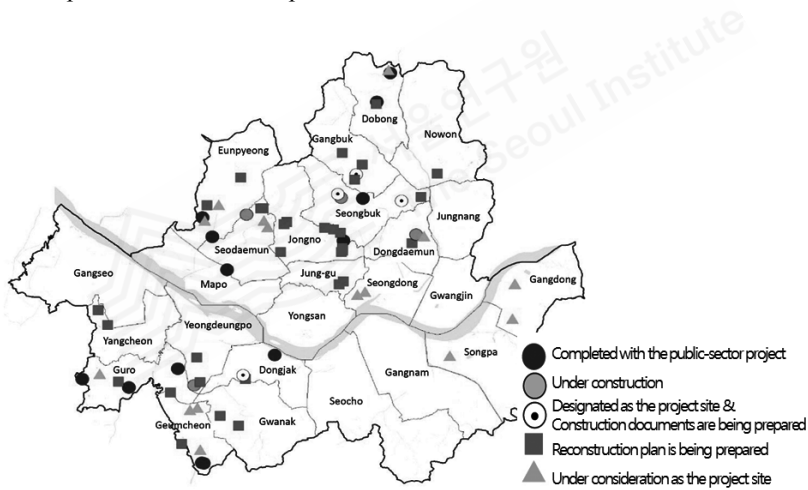
The REMP is responsible for improving residential condition of areas densely populated by single-family homes and multiplex houses¹⁷ and maintaining in a desirable state. It involves expanding infrastructures and building more public facilities. The Seoul Metropolitan Government (SMG) has been carrying out this project in pursuit of preserving low-rise residential areas in Seoul and promoting diverse residential arrangements across the city. The public sector supports the construction of infrastructures and public facilities for local residents, who in turn form

¹⁷ A multiplex house refers to a residential structure consisted of multiple single units similar to condominiums. In general, it is no higher than four stories and often regarded as a smaller version of an apartment house.

a community and strive to improve residential environment of their neighborhoods.

Since the SMG embarked on the Human Town Project¹⁸ in 2010, it had launched the REMP for total 63 areas (as of December 2015). For 17 of them, the government has either already completed the REMP (i.e. the construction of infrastructures and public facilities) or established neighborhood improvement plans. The rest are being considered as the REMP sites, and neighborhood improvement plans are being prepared for some of them.

The year 2015 marked the fifth year of the REMP. This report examines how the SMG has carried out over the past five years, identifying what it has achieved and failed. Based on the findings, it proposes the directions as to how the REMP and related policies need to be improved.



[Figure 1] The Designated Areas of the REMP

¹⁸ The Human Town Project is dedicated to improving the residential environment of low-income families, providing housing and improving the low-rise residential condition.

2. Main Findings

A recently enacted law pursuant to redeveloping deteriorated residential areas has laid a foundation for implementing the REMP

In 2012, the grounds for undertaking the REMP were endorsed by the Act on the Maintenance and Improvement of Urban Areas and Dwelling Conditions for Residents. Since then, the SMG secured the budget based on the institutional ground. Meanwhile, it has established a foundation for local communities to pursue urban regeneration.

The REMP comprises three steps: identifying final project sites; developing a neighborhood improvement plan with local dwellers; executing the project. SMG has enforced various policies to ensure that the project proceeds smoothly. In addition, it has revised the previous policy that induces local communities to participate in urban regeneration.

The REMP involves the following activities: improving road conditions, constructing community facilities, such as community centers, and constructing physical infrastructures, including roads, water and sewage systems, public parking lots, parks and CCTV. By the end of October 2015, the SMG had finished the public-sector project in 13 areas, of which 10 now have their newly built public facilities managed and operated by local residents.

Residents have become increasingly involved in the government's planning in their neighborhoods. This recent trend has prompted a community to be created in areas where the residents previously did not engage in collective actions regarding such matters. Meanwhile, the SMG has been dispatching so-called "regeneration activists" to designated project areas to support residential communities. It also has implemented various policies and programs countenancing local residents to carry out home improvement. For instance, the SMG offers low-interest loans, provides consulting services, and subsidizes the cost of house repairing.

There exists inconsistency between the purposes of the REMP defined by the SMG and the means it employs to fulfill such purposes, causing the invigoration of housing improvement hindered

The purpose of the REMP is to preserve, improve and refurbish residential areas populated by low-rise houses. Yet the applicable law endorses the construction of apartment complexes by fully demolishing low-rise houses. It stipulates the procedures and specifics of such demolition projects. In other words, there are not enough institutional grounds for improving the living environment of low-rise residential areas. Nor is there sufficient institutional support for housing improvement. In particular, the absence of the system that aggressively promotes home improvement has led the private sector to become reluctant to carry out home improvement and use loan services that the public sector offers for such work.

On top of everything, the problem lies with the current law destitute of provisions for managing low-rise residential area. This inevitably reduces the motivation of district governments to take the initiative in the REMP. As a consequence, they do not work on encouraging their district residents to form communities and take collective actions in regard to the project. They also do not play a part in housing improvement. They only manage public facilities at present.

The improvement or refurbishment project for residential areas should be designed and implemented in accordance with physical and social characteristics of each area. In the case of the designated low-rise residential areas for the REMP, geographical connectivity between roadways has to be considered before anything else. SMG has, however, limited the scope of project to works such as improving road condition and pedestrian mobility, reorganizing and refurbishing parks and rest areas, and installing CCTV and security lights. This kind of passive project implementation can hardly invigorate housing improvement in deteriorated residential areas where the location and size of infrastructures are inconsistent.

The public sector needs to put more effort into inducing the participation of local residents in the REMP

In order to ensure that local dwellers play their roles as organizers and managers of the REMP, the public sector needs to actively promote the project to residents and persuade them to participate in the project. Yet no such work has been done. As a result, residents do not have complete understanding of the project and this deters the formation of consensus among them. And without the consensus, it is difficult for the district government that wishes to implement the project to even find a desirable site for the project. Even if they identify one, the residents may not approve it, leaving the whole project precluded. In fact, there have been numerous cases in which this happened.

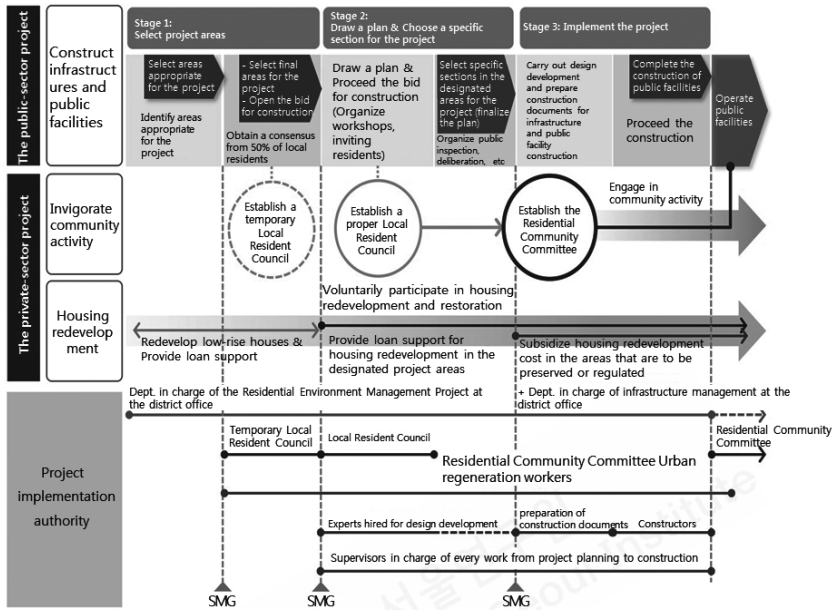
Once the public sector determines a site for the REMP and establishes a plan with residents, it carries out the project and later leaves the operation of newly constructed public facilities in the hands of residents. Therefore, it is necessary to inform local dwellers as to the contents of the project that the SMG or other public entities are to carry out. Moreover, they should be educated and trained for the operation and management of public facilities that will be built in their neighborhoods. Yet there is currently no channel for residents to participate in the stages of project design and construction. Even if a project plan is drawn together with residents, it may end up being not used at the field. Consequently, residents may find new structures or services unsatisfactory. In some cases, they came to distrust the public sector.

The policy developed to promote the creation and collective action of residential community is being enforced without factoring in the capacity of residents to do such works and differences in the growth rate of each community

In principle, the entire community of a designated project area has to be involved in the REMP. However, only some small unrepresentative groups of residents participate in the project at present. One of the reasons why it is difficult for people to form a large community that can represent their entire neighborhood is that there is almost no support available for them to secure a meeting place to discuss and plan the project.

Another challenge that hinders the formation and maintenance of residential community is that most residents decide to create a community not because they believe in the necessity of such a group, but for they need a governing entity to run their public facilities. This burdens residents and hurts the solidarity and sustainability of their community.

In the stage of project planning, community activity takes place as residents participate in the workshop organized and led by urban planners responsible for the project. However, if residents lack the capacity to take the initiative to engage in collective action for themselves, their participation will wane upon when the project is executed. On top of this, most communities are short of manpower given that they are consisted of people in their 60s-70s. SMG dispatches regeneration activists to address such problems, but this cannot be a long-term solution: The community may become dependent on such workers, wounding up being unable to work without their support. All these problems manifest most starkly when the community submits a bid for contracts and projects to attract funding for their community activities and public facility operation. The majority of communities whose members are mostly old find it difficult to, for instance, fill out application form, prepare required financial statements, and carry out the project due to a lack of manpower with skills to do such works.

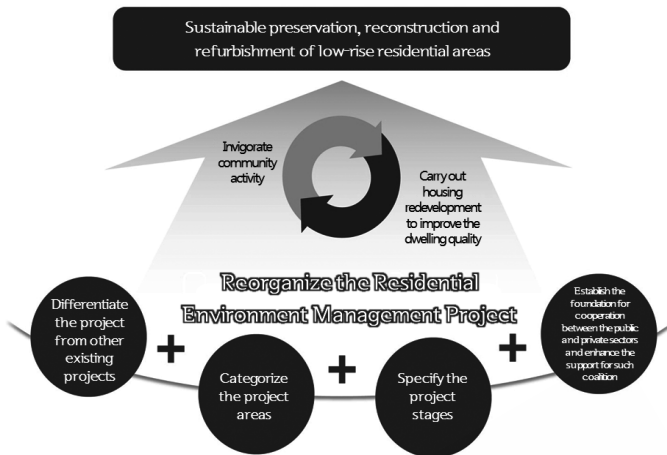


[Figure 2] The Implementation Process and Authority of the REMP

3. Conclusions & Policy Recommendations

Focus on improving and managing residential environment, while the target needs to be low-rise residences and detached houses

SMG’s REMP needs to concentrate on low-rise residential areas and individual houses, continuing to improve their conditions and keeping them in a desirable state. The scope of the REMP has to include the reorganization of infrastructures in low-rise residential areas. Furthermore, the SMG needs to take a gradual approach to achieve the goals and carry out the project differently in each designated project site, taking into account the characteristics of area and its residents. The project must be designed and implemented in coalition among public authorities, residents and experts.



[Figure 3] Improvements to be made in the REMP

Differentiate the REMP from other existing projects to become the main means of managing low-rise residential areas

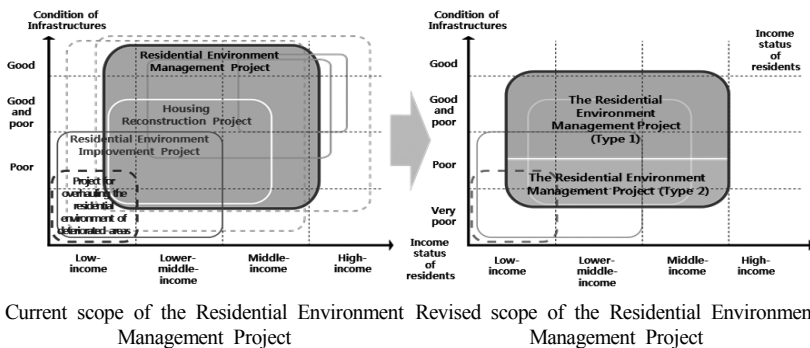
In order to differentiate the REMP from other existing projects, the SMG should first redefine its targets and contents. It would help ensure the project's effectiveness in improving and managing the dwelling conditions of designated project areas. SMG needs to set the place that is densely populated by low-rise houses as the primary target area, and then amend the law in a way that zoning is the secondary consideration. On the other hand, the SMG needs to work on adding a separate provision in the law for an improvement plan pursuant to the REMP. It also needs to prescribe the particulars of residential environment management plan.

Next, the SMG has to enhance the support system for the REMP. It needs to develop and devise various systems to carry out REMP. Public authorities need to provide private contractors and residents with comprehensive assistance from multiple angles: They need to offer consulting services regarding housing improvement and subsidize the cost of making improvements for aesthetic and sanitary purposes as well as for energy conservation. While continuing to provide

loan support for housing improvement, the SMG needs to assign the beneficiaries with the responsibility to comply with its housing improvement requirements. It also needs to diversify support services by, for instance, providing residents with a space for temporary stay until the completion of project, offering tax benefits, and relaxing the regulations. SMG may extend the support to private contractors who make substantial contribution to the invigoration of housing improvement, giving them tax benefits and favorable loan services. Lastly, it needs to reinforce the role of public bodies as to housing improvement and community activity promotion. It can be achieved by regularly monitoring the project.

Divide the public-sector role into two parts: infrastructure improvement project and infrastructure expansion project. Next, carry out housing improvement by implementing either project that better suits the condition of designated project area

In order to increase the effectiveness of the REMP in improving residential environment and raising the level of satisfaction felt by residents on the outcomes, the public-sector project must be divided into two parts: infrastructure improvement and infrastructure expansion projects. And then, the SMG can choose either one that better suits the condition of selected project site. They would serve as the foundation for housing improvement.



[Figure 4] The Public-Sector Project of the REMP

The infrastructure improvement (Project Type 1) is no different from the current REMP. The infrastructure expansion project (Project Type 2), on the other hand, targets the impoverished residential area with extremely deteriorated infrastructures. For this project, the SMG and other public authorities should support the private-sector project for housing improvement, such as road expansion, readjusting lots, negotiating with residents about land ownership, and joint development. SMG has to come up with the standards by which it selects the area for the infrastructure expansion project. It needs to develop protocols for the operation of selection committee (i.e. the official group in charge of choosing the project site).

Set the goals and contents of the project according to the conditions of designated project areas. Then it can implement the project in three stages

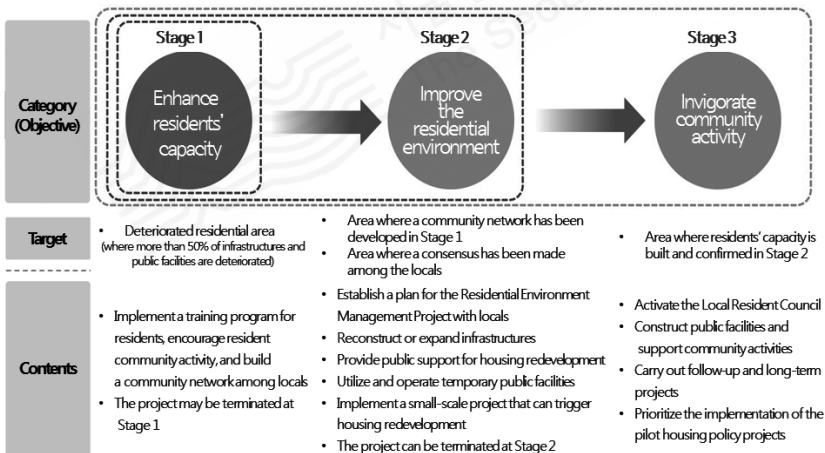
SMG needs to adopt some changes in the way it carries out the REMP. It needs to first establish the goals and contents of the project by weighing the conditions and characteristics of each designated project area. Next it should execute the project in three stages, which are to be assigned with a stage-specific goal: At each stage from one to three, SMG needs to aim to enhance residents' capacity, improve the residential environment, and invigorate community activities, respectively.

The goal of stage one is to build a residential community network in pursuit of enhancing residents' capacity to effectively carry out the REMP. In this regard, the SMG can run a training program for residents for about a year. This would increase the practicality of housing improvement while encouraging and maintaining community activities.

The stage two is where the project is executed. Here the SMG had better concentrate on improving residential environment. This involves infrastructure reconstruction and housing improvement. They all need to be carried out based on the project plan drawn together by the government and residents. For housing improvement, the program should be implemented with the government's support.

SMG has to lease the operation of temporary public facilities while pursuing a small-scale project that can trigger housing improvement, continuously giving residents the opportunity to build their capacity to run the project for themselves.

When the project reaches the stage three, the SMG needs to target the residential community of an area where its residents have been successfully trained in the stage two and become capable of carrying out housing improvement and managing their neighborhoods on their own. The government would concentrate on supporting them in conducting various activities concerning urban regeneration. In this sense, the SMG needs to construct public facilities and support a wide range of community activities. Moreover, it could organize budgets for the follow-up projects discussed when planning the REMP with local residents. And then, the SMG would aggressively implement those projects and ensure that the sites are prioritized as pilot areas for housing policy in the future.



[Figure 5] Stages of the REMP Implementation (tentative)

Find a way to establish the effective governance of the REMP

This report proposes herewith the directions for how to establish and promote the

effective governance amongst public administrations, residents and experts for the REMP.

First of all, the SMG has to provide residents with various types of support to induce them to actively engage in collective action and take the initiative in the project operation. This requires the SMG to design and run a suitable capacity building program by weighing the characteristics of residential communities. In addition, there needs a space open for community use all the time. SMG needs to develop and implement various models for the public facility establishment and operation that impose less burdens on both public authorities and residents. Moreover, the government supports have to begin from the early stage of the project, helping residents build their capacity and raise fund for running public facilities so that they can manage the facility operation on their own in the future.

Second, the SMG has to attach greater responsibility to public entities with regard to supporting residents. It is necessary to make district governments provide all-time support to residents in the designated REMP areas. Furthermore, the SMG would introduce a comprehensive management system for district governments to continue with managing residential areas and supporting community activities after the completion of the project. On top of this, the SMG must actively communicate with residents and cooperate with other authorities to ensure the efficacy of the project.

Third, the SMG has to train urban regeneration activists and involve them in the REMP. It needs to establish the institutional grounds for assigning them with relevant roles for the project. Moreover, a network of urban regeneration activists need be developed and organized.

Lastly, the SMG has to specify the roles of experts employed on behalf of residents and flexibly apply them according to the characteristics and needs of a designated project area. When drawing up the plan of the REMP, the SMG could ensure that it includes planning experts with full understanding of the process in which residents participate in the project. Moreover, it needs to support regeneration activists in their capacity building.

Improve the REMP by taking both short-term and long-term approaches

At present, the REMP only focuses on reorganizing infrastructures in low-rise residential areas. SMG needs to transform it into a more sustainable project, making improvements in the directions suggested earlier in this report. In particular, the project targets, purposes and goals must be clarified to increase its efficacy. And this work can be achieved by enhanced cooperation among public administrations, residents and experts. A newly improved REMP coupled with resident communities that have become more capable of carrying out the project on their own would help preserve low-rise residential areas while improving living conditions.

In regard to improving the REMP itself, the SMG would consider various factors such as the urgency of policy intervention and the time required for system installation. And then, it would take both short-term and long-term approaches. The former includes works that need to be dealt with right away due to the urgent need for policy intervention and that can be carried out in a short time. The latter, on the other hand, covers works that are relatively less urgent and consume a long period of time to prepare necessary groundwork for execution. Laying out the foundation for sustainable implementation of the whole project is also part of the long-term work.

For the short term, the SMG should work on adding a section on sustainable management of low-rise residential areas in the law while carrying out the REMP. For long term, however, the SMG needs to establish a separate institution for the sustainable management of low-rise residential areas. To further promote housing improvement, the SMG needs to consider paying more subsidies, offering more tax benefits and further relaxing the building regulations. These options should be carefully examined and categorized as long-term plans to establish the specifics for implementation. The monitoring system should be installed shortly, yet establishing the database required for the continuous monitoring of current housing status would need more time. Prioritizing the subsidization of designated areas at the stage three, implementing pilot projects and financially supporting urban regeneration activists should all be proceeded in the long term.

A Planning Monitoring Study on the Community Plan of Seoul

Yang, Jae-Seob

Summary

The Seoul Metropolitan Government (SMG) should specify the role of the Community Plan and develop strategies to realize the plan at the district governmental level.

1. Introduction

A bottom-up approach should be taken for developing the Community Plan involving the public authorities, experts, and local residents

SMG is building the Community Plan as a follow-up of its master plan called the “2030 Seoul Plan.” There has been a criticism that the 2030 Seoul Plan, which presents the SMG’s visions for the future, does not work well with the Seoul Management Plan that outlines specific guidelines for the city development. To address such a problem, the SMG has introduced the Community Plan. The Community Plan elaborates on the 2030 Seoul Plan to come up with detailed action plans tailored to each region and sub-region in Seoul. In October 2014, the Ministry of Land, Infrastructure and Transport has amended guidelines related to urban planning and management, enabling city governments to establish their own Community Plans. SMG has striven to ensure the practicability of the Community Plan by inducing the participation and cooperation of residents. In summary, the Community Plan has been introduced to serve the following three purposes.

First, the Community Plan is to act as a bridge between the 2030 Seoul Plan and the Seoul Management Plan. Other cities in Korea also have their urban planning systems divided into two parts: the urban master plan and the urban management

plan. This kind of planning system is congenial to small and medium cities with relatively small population. Yet it is inappropriate for a large city like Seoul, which is a home to nearly 10 million people with 25 districts.

In fact, the 2030 Seoul Plan and the Seoul Management Plan differ from one another in terms of target years, planning areas, legal binding, and drawing scales. For a large city like Seoul, the urban master plan renders the long-term development directions for the entire city. But the master plan cannot adequately present specific guidelines in the urban management plan, which is implemented at the level of individual land plot. This is why the SMG has introduced the Community Plan as a bridge between the 2030 Seoul Plan and the Seoul Management Plan. The Community Plan elaborates on the former, while presenting detailed guidelines in the latter.

Second, the Community Plan is to reflect the characteristics of an area and demand from its residents in urban planning and management. So far the urban master plan of Seoul has been carried out in a way of supporting or regulating large-scale urban development projects. In other words, it strayed from the role of addressing inconvenience that Seoul citizens feel in their lives. By developing the Community Plan that is carried out at the Sub-Regional levels, the SMG aims to set the development visions and directions of an area with its residents, while connecting the plan with other various projects.

Last, the Community Plan is to be drawn based on the consensus and participation of residents as well as the support from district governments. In other words, the SMG should take a bottom-up approach to develop the plan. Until now, urban planning has been conducted in top-down manner led by government officials and experts. Such a way of urban planning has the merits of enabling the comprehensive and consistent management of the entire city. Yet it is limited in terms of addressing different characteristics and demands of local residents. The Community Plan formed and supported by residents is likely to be executed smoothly.

The Community Plan is divided into two sub-plans: the Regional Plan and the Sub-Regional Plan. SMG categorizes its residential area into five regions and 116

sub-regions. Then, it renders the development visions and directions for each region in the Regional Plan and presents urban management guidelines in the Sub-Regional Plan. The Community Plan is different from previous plans in that it involves cooperation among public authorities (SMG and district governments), experts, and local dwellers in the Sub-Regional Plan.

SMG has never developed such a small-unit spatial plan before. The Community Plan is significant in that it is the first bottom-up, citizen participatory plan. Yet the plan is still imperfect. This research proposes what should be addressed and improved for sustainable development and implementation of the Community Plan. This research is based on the results of monitoring the development process of the Community Plan.

2. Main Findings

Based on the monitoring results of the Community Plan formation process, this study presents herewith the plan's achievements and problems

SMG has been preparing to introduce the Community Plan since 2012, and later in September 2014, it has begun to draw the plan. Until today, over 4,000 residents have participated in developing the plan. The Community Plan has been developed in the order of pre-planning, planning initiation, and the establishment of the Regional and Sub-Regional Plans with local residents.

At the stage of pre-planning, the SMG forged a consensus with local residents. It then formed a task force for the development and implementation of the Community Plan at the planning initiation stage

At the stage of pre-planning, which took place from April 2012 to November 2013, the SMG and the Seoul Institute laid the ground for introducing the Community Plan, emphasizing its necessity. They also drew a road map for the

development and implementation of the Community Plan. Next, the SMG organized an expert advisory conference and gave a presentation to local residents, trying to forge a consensus.

At the stage of planning initiation occurred between December 2013 and July 2014, the SMG established the Community Plan and developed detailed actions plans for it. In the process, it designated Urban Planning Experts in each region. It also appointed four Master Planners and formed the Community Plan Task Force.

District governments also organized special teams and budgets for the Community Plan upon the request of the SMG: 13 district governments formed a task force team dedicated to the implementation the Community Plan in their office.

SMG is still developing the Regional and Sub-Regional Plans: The former focuses on addressing regional issues, while the latter concentrates on Sub-Regional spatial management

SMG started to develop the Regional and Sub-Regional Plans in August 2014. Planning is still afoot. For the Regional Plan, the SMG focuses on specifying details of the 2030 Seoul Plan with the Master Planners, urban planners from various fields, and technical experts. In the Regional Plan, the SMG has presented visions and addressed issues as to employment, industry, urban spatial management, transportation, and environment (local parks and green spaces) with goals and strategies.

SMG has structured the Sub-Regional Plan into four parts: downtown areas, special zones, landscapes, and living infrastructures. The government initially planned to propose consistent urban management standards for the entire Seoul, but it has encountered difficulty in elaborating on the plan as different interests of multiple stakeholders are intertwined. Moreover, regions and sub-regions all vary in their conditions. Nor has it been easy to forge a consensus with residents for the implementation method.

The Sub-Regional Plan is different from the Regional Plan in that it involves

local residents. For each sub-region, local participants were recruited and workshops were organized. At the workshops, selected residents shared their thoughts about the visions for their towns and discussed how to utilize available resources to overcome challenges in developing their areas. SMG initially planned to assign district governments the job of developing the Sub-Regional Plan, but later it has decided to take the responsibility by itself. District governments have taken the job of recruiting local participants and running the workshop instead.

To involve local residents in the planning of the Sub-Regional Plan, district governments recruited a group of 30-50 local participants in each sub-region and organized a workshop

For the Sub-Regional Plan, district governments recruited a group of local participants with 10 residents for each administrative Dong¹⁹ and 30-50 residents for each sub-region. SMG has ensured the representativeness of local participant groups by mandating that each group has a 5:5 ratio between “resident councilors” recommended by community centers and local residents recruited by district governments. It also has made sure that the members represent both genders across various age groups and occupations. In compliance with such mandates, district governments recruited local participants with the help of community centers.

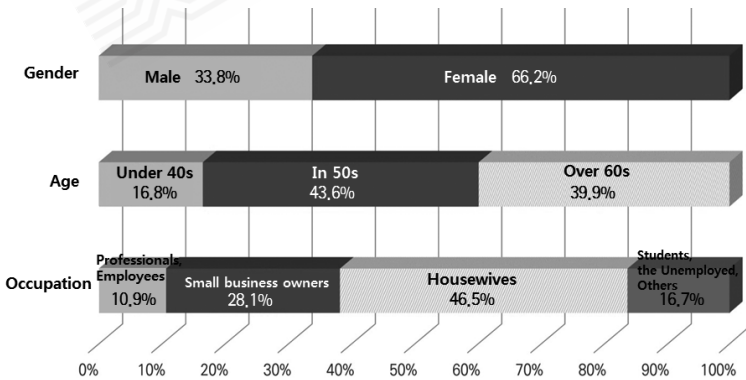
District governments organized two four-hour workshops for the local participant group in each residential area. A designated workshop facilitator led the session. The first workshop explained the Community Plan and the role of local participants. Residents in turn shared information on the current condition of their towns and ideas on what would be the desirable future for all of them. In the second workshop, they discussed challenges to overcome and development directions.

¹⁹ An administrative ‘Dong’ is the primary division of districts (Gu), representing the smallest level of urban government to have its own office and staff.

Some district governments organized additional programs for themselves, such as a representative meeting at each Dong, field trips, and expert sessions.

Local participant groups lack representativeness and self-motivation, yet the members are highly satisfied with the participatory workshops and willing to take a part in the programs again

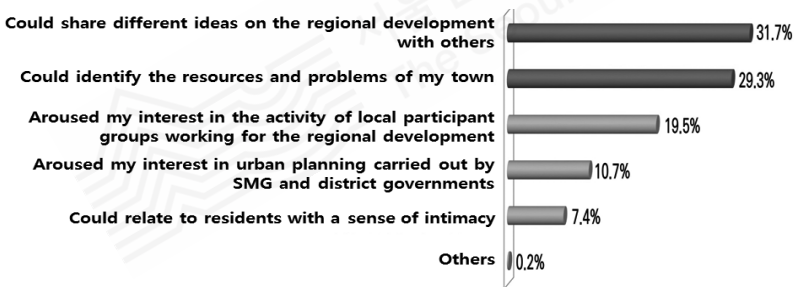
According to the survey of local participants (535 members), the large majority (84 percent) were consisted of residents in their 50s and 60s. Most of them had past experience in regional activities. Of the total respondents, women accounted for 66 percent. The survey shows that local participants were mostly short of younger generations in 20s-40s. Meanwhile, housewives comprised 47 percent of total respondents, representing the biggest occupation group. It was followed by small business owners (28 percent). There were not many employees and students. The vast majority of respondents (91 percent) had past experience in regional activities such as voluntary work at community centers. Last, 61 percent of respondents had lived in their areas for over 20 years.



[Figure 1] Genders, Ages, and Occupations of Survey Respondents

To the question about the channels of participation, 75 percent of respondents answered that they were recommended by community centers. A mere 11 percent said that they applied for the participation after they found the recruitment notice. Moreover, 52 percent of respondents were not aware of the Community Plan before they joined local participant groups.

Despite the respondents' low awareness of the Community Plan and lack of self-motivation to participate in the program, their satisfaction of local participatory workshops was found to be high. Of total respondents, 90 percent answered that the workshop was organized and proceeded smoothly, while 96 percent claimed that they actively participated in the workshops. Besides other merits, 32 percent of respondents said that they found the workshop helpful as venues to share different ideas, while 29 percent pointed to the benefit that they could identify available resources and problems of their towns through the workshops.



[Figure 2] Responses to “What Did You Like the Most About the Workshop?”
(multiple responses were allowed)

In the survey, 30 percent of respondents were interested in “managing and improving their living conditions,” while 15 percent showed their interest in “improving transportation and mobility environment.” Their expectation for the Community Plan was found to be high: 98 percent believed that the plan will make a substantial contribution to regional development and living condition improvement. Meanwhile, 93 percent of respondents expressed their willingness to work in the local participant groups and take a part in the local participatory workshop if possible.

The Community Plan has set a turning point for urban planning of Seoul in terms of content, style, and planning process

As a “bridge plan,” it has specified the details for the 2030 Seoul Plan, which is quite abstract. As a “bottom-up plan,” it has proposed visions for each residential area and directions for the improvement of living conditions with residents.

So far development plans and projects for each field of housing, landscape, and transportation have been developed and implemented separately. The Community Plan has put them together. Moreover, it has paved the way to including opinions of district governments, such as district development plans and pledges made by district chiefs.

The Community Plan is most significant in that it is a bottom-up plan involving local residents in setting the development directions for each region. In the past, there were some cases in which residents participated in planning a development project at the neighborhood level. However, the Community Plan has provided residents with an opportunity to take a part in mid-to-long-term urban development planning for the first time.

The status and role of the Community Plan as an intermediate plan are vague, while local participant groups lack representativeness

Unfortunately, the following issues have come to the fore as the Community Plan is being developed for the first time.

The Community Plan is meaningful in that it serves as a bridge between the 2030 Seoul Plan and the Seoul Management Plan. Yet a consensus on the status and role of the Community Plan are not fully forged among the stakeholders, including the Master Planners, the SMG, and district governments.

Meanwhile, concern grows over the uniformity of the Sub-Regional Plan, which may work as an obstacle to developing a tailored plan for over 100 sub-regions.

While the plan is developed based on regional issues, some of sub-regions had no particular issues to address, making it difficult to derive the plan.

SMG plans to elicit the full participation of district governments and experts in developing the Community Plan, yet it has not been easy. District governments only recruited local participant groups and remained passive in other areas of planning. The role of the Master Planners designated for each region is also rather vague.

SMG is taking a bottom-up approach to develop the Community Plan by involving over 4,000 local dwellers in the planning. However, there are some criticisms that local participants are less representative of general residents and the local participatory workshops are organized as a mere formality.

Last, there arose difficulty in ensuring consistency in the Community Plan. Although the SMG and district governments have their own task forces for the Community Plan, public officials in charge were replaced in the middle of developing the plan, making it difficult to ensure consistency in the plan.

3. Conclusions & Policy Recommendations

This research proposes herewith the five directions for improving the Community Plan.

First, the SMG should redefine the role of the Community Plan and devise strategies for the implementation.

While the Community Plan is divided into the Regional Plan and the Sub-Regional Plan, the latter is the key. SMG should redefine the status and role of the Sub-Regional Plan as an intermediate plan that links the 2030 Seoul Plan and the Seoul Management Plan. It needs to fill the plan with detailed contents, methods, and utilization methods.

For the long-term, the SMG ought to amend its ordinance to define the role of the Community Plan as an intermediate plan. At the same time, it needs to specify the

procedure and legal grounds for the Community Plan development.

Upon the completion of planning, it is important to ensure that the Community Plan is implemented accordingly. SMG should devise strategies as to how to carry out various projects and policies proposed in the Community Plan.

In particular, the SMG should ensure that it takes the priority to review and implement plans or projects proceeded by district governments that are in line with the Community Plan.

Second, the SMG should establish the Sub-Regional Plan by factoring in the characteristics of each sub-region

In order to minimize the uniformity and strengthen the connection between regions and sub-regions, the SMG should set the Sub-Regional Plan at the district unit level. In other words, the SMG should identify the issues of each sub-region, and then establish a balanced Sub-Regional Plan pursuant to the development directions of districts. For the long term, the SMG needs to consider setting the Sub-Regional Plan as a part of the district plan.

In addition, the SMG ought to take the characteristics of each sub-region into account. Instead of focusing on dealing with civil complaints made by residents, SMG should focus on suggesting differentiated development plans for each region by comprehensively weighing the conditions and characteristics of each region.

Third, the SMG needs to clearly assign district governments responsibility to take the lead in developing the Sub-Regional Plan. It should also empower Master Planners to develop the Community Plan

SMG originally planned to develop the Regional Plan by itself, while letting district governments to establish the Sub-Regional Plan. However, in actual planning process, the SMG played the leading role in establishing the both plans.

Yet the Sub-Regional Plan should be developed by allowing for the characteristics of each sub-region and the opinions of its residents. In this regard, it is desirable for district governments that understand the conditions of their district better than the SMG should take the lead in setting the Sub-Regional Plan. District governments need to establish the Sub-Regional Plan with residents, while the SMG revises and approves the plan.

Meanwhile, the SMG should promote the Community Plan to the city and district councils as well as residents in pursuit of forging a consensus among them. It would help secure the budget for the plan and enhance its practicability.

At the same time, the SMG needs to assign Master Planners authority commensurate with their roles. While SMG should take the responsibility for supervising the whole planning process, the Master Planners need to establish the Community Plan by factoring in the characteristics of each region. They should also be given the power to coordinate the opinions of the SMG, district governments, and residents from the perspective of experts.

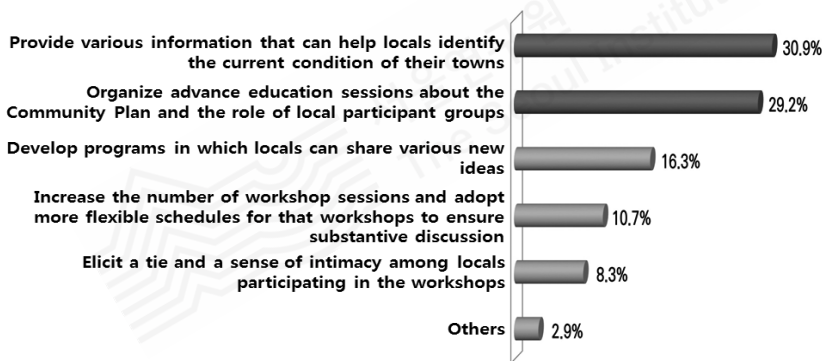
Fourth, the SMG ought to increase the number of workshop sessions, and strengthen the resident education programs and a feedback process

Local residents were highly satisfied with the residents participatory workshops. The issue was that they were held as one-time event and therefore had some limitations in collecting substantive opinions from locals that can be used in actual planning. It is necessary to organize the workshops more often in order to elicit more practical ideas from residents, while giving them the opportunity to participate in planning of the Sub-Regional Plan on a regular basis.

In addition, the SMG should raise the residents' understanding of the Community Plan and local participant groups through education. It needs to disclose a wide range of information, such as regional information and survey results, so that residents can identify the current conditions and problems of their

towns with objectivity. Moreover, the SMG must undertake a feedback process like a presentation session on draft plans to increase the practicability of the Community Plan. This would also help residents accumulate positive experiences of participating in the planning process.

Another issue raised regarding to local participatory workshops was that they were organized in the afternoon on weekdays, making it hard for employees to take a part. This resulted in hurting the representativeness of local participant groups. In order to give residents more chances to participate in drawing the Community Plan and induce their voluntary engagement in the process, the SMG should organize various events and run necessary education programs. If possible, it needs to devise an ordinance that regulate the operation of local participant groups.



[Figure 3] Responses to “What should be improved in the local participatory workshops?”

Last but not least, the SMG should keep the consistency of planning mechanism by enhancing its role of supervising the entire planning process

It is essential to enhance the “supervisory role” of the SMG given that the Community Plan covers a wide range of spatial units and development programs. At the same time, the SMG needs to form a consulting group for the Community Plan and support their works in setting and implementing the plan. Furthermore, it

ought to consider invigorating discussions by establishing a council between the districts in each region.

To ensure consistent planning, replacing public officials in charge of the Community Plan at both SMG and district governments should be avoided until the plan is established. Last, the SMG should lay the foundation for carrying out the projects of each development area according to the Community Plan. It is to be done by invigorating the department responsible for the Community Plan at each district government.



06 Environmental Planning

A Study on Functional Improvement and Management for Streamlets in Seoul

Cho, Yong-Mo

Summary

The Seoul Metropolitan Government(SMG) should create waterfront parks at *Silgaecheons* in restorable conditions.

1. Introduction

SMG needs to establish a healthy urban ecological environment by restoring *Silgaecheons*

Silgaecheon is a Korean term referring to a brook. By definition, it is a small, narrow stream that resembles a long, thin thread. *Silgaecheon* includes every brook or stream that is classified as neither small, local nor national rivers defined by the River Act. In other words, there is no legal status attached to *Silgaecheon* and its very name is not a legal title. Concrete sluices and small man-made rivers featuring natural characteristics are also referred to as *Silgaecheon*. However, this report only looks at naturally created *Silgaecheons*. [Table 1] presents the list of *Silgaecheons* selected for the investigation.

[Table 1] 15 *Silgaecheons* Selected for Investigation

Name of <i>Silgaecheon</i>		Total length	Location		Name of main stream
			Head	Confluence	
1	Gingorangcheon	2.9km	Yongmasan(Mt.)	Donggok samgeori (Crossroad)	Jungnangcheon
2	Nangokcheon	8.6km	Samseongsan (Mt.)	Nanhyang Elementary School	Dorimcheon
3	Daehakcheon	4.4km	Bugaksan	Jongno 5-ga sageori (Crossroad)	Cheonggyecheon
4	Manjocheon	11.4km	Muakjae(Mt.)	Wonhyo Bridge	Han River
5	Motjarigolcheon	0.9km	Bukhansan(Mt.) (West)	Hyundai I-Park Apt.	Changneungcheon
6	Musucheon	3.1km	Bukhansan(Mt.) (East)	Nowongyo(Bridge)	Dobongcheon
7	Mulpuregolcheon	0.9km	Imalsan(Mt.)	Gupabal Station	Jingwannaecheon
8	Baeksasilgyegokcheon	0.9km	Bugaksan(Mt.)	Unidentified	Hongjecheon
9	Baegundongcheon	3.7km	Bugaksan(Mt.)	Gyeongbokgung Station	Cheonggyecheon
10	Bugeyongcheon	3.7km	Bugaksan(Mt.)	Cheonggye 3-ga	Cheonggyecheon
11	Ongnyudongcheon	1.2km	Inwangsan(Mt.)	Post office at Tongui-Dong	Baegundongcheon
12	Junghakcheon	1.2km	Bugaksan(Mt.)	Mugyo Sageori (Crossroad)	Cheonggyecheon
13	Jihyangcheon	10.3km	Jiyangsan(Mt.)	Guil Station	Oryucheon
14	Jingwannaecheon	3.5km	Bukhansan(Mt.) (West)	Tongilgyo(Bridge)	Changneungcheon
15	Pildongcheon	2.9km	Namsan(Mt.)	Euljiro 4-ga	Cheonggyecheon

Today, Seoul is considered a leading and rising global city as a result of phenomenal economic boom called the Miracle on the Han River. Long before the economic success, however, the city has been recognized as one of the beautiful cities in the world: It is situated on the Han River, of which the lower stretches are lined with pedestrian walkways, bicycle paths, public parks and restaurants throughout the city. Seoul is also enveloped by mountains which are found in both

the center and outskirts of the city. Seoul once had problems arisen from rapid economic growth accompanied by a high population density. It impinged upon the surrounding nature, including numerous *Silgaecheons* and small rivers flowing into the Han River. Most of them have been covered over with concrete to be served as roads. But there recently has been done various works at local government level to restore the city's natural environment to previous conditions. For instance, a number of parks and greens have been established.

In recent years, people have increasingly spent their leisure at *Silgaecheons* (and small rivers) nearby their residences. *Silgaecheon* not only facilitates the passage of rainwater into streams and rivers, but also provides green spaces and relaxing areas, where grownups can take a rest while children play. Moreover, it cools down heat islands in summer, while creating natural habitats for various living organisms.

Silgaecheons like Baeksasilgyegokcheon are popular among Seoul citizens, partially for the beautiful scenery. Legions of people make short trips to *Silgaecheons* especially in summer.

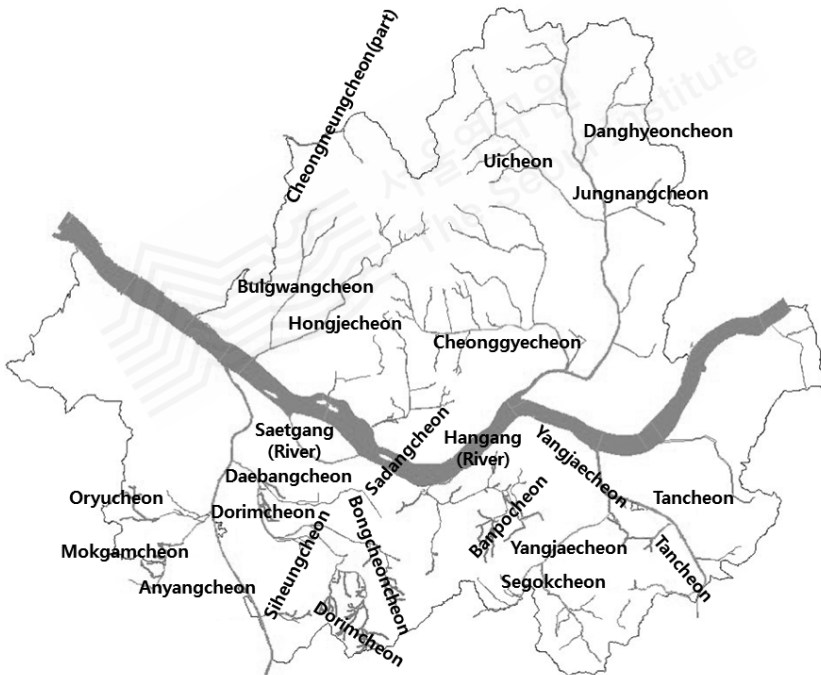
In Seoul, 36 rivers and 18 small rivers are officially designated by the law as either national or local rivers and managed by the public sector. As explained earlier, *Silgaecheons* do not belong to any of the two categories. Consequently, they are currently in blind zones, not being managed nor preserved properly. The objective of this report is to investigate *Silgaecheons* located throughout Seoul and present policy recommendations about how the SMG should manage *Silgaecheons*. In other words, this paper outlines directions and strategies for preserving currently ill-managed *Silgaecheons*.

2. Main Findings

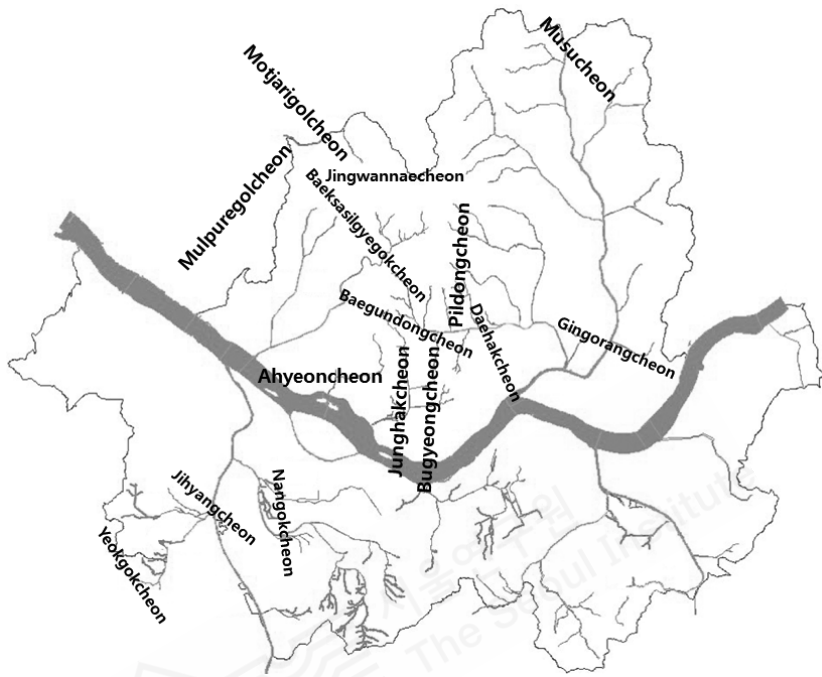
Drawing a map of Seoul showing every waterway in the city based on the Geographic Information System database

This research presents maps containing all types of waterways in Seoul including

Silgaecheons, streams, creeks and rivers. It is the first attempt in its kind. Based on the Geographic Information System (GIS) database, the map has been constructed through the following steps: First, we checked the locations of rivers that have been covered over to be used as roads by making reference to the existing map showing the topography of Seoul in 1976. Second, we adjusted or confirmed the locations by referring to satellite Figures and other related documents. [Figure 1] and [Figure 2] below are the maps that indicate the locations of some waterways in Seoul produced based on the GIS database. There are total 73 waterways in the city, consisted of 4 national rivers, 36 local rivers, 18 small rivers, and 15 *Silgaecheons*.



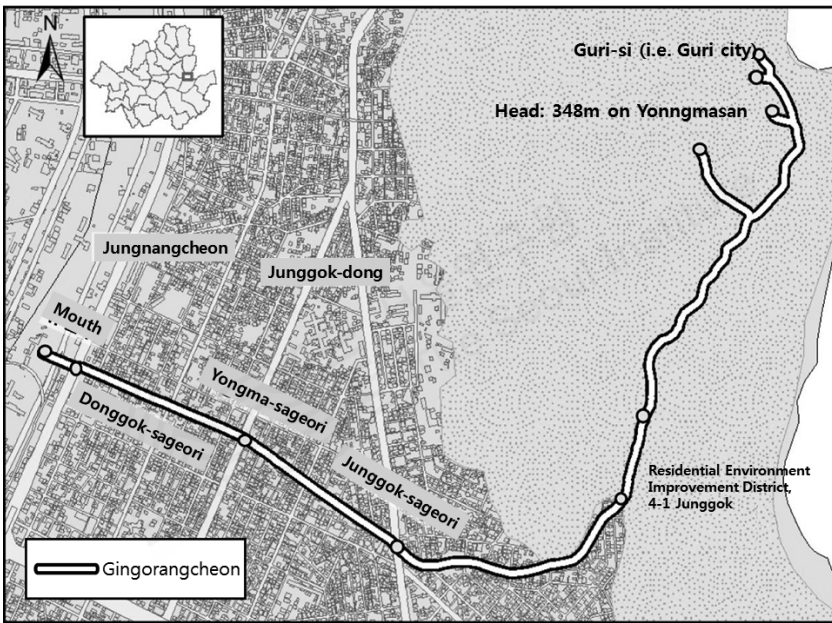
[Figure 1] Map of National and Local Rivers

[Figure 2] Map of *Silgaecheons*

In this study, a map showing detailed information on the locations of 15 Silgaecheons in Seoul has been constructed. Among them, this report presents herewith the map of Gyeongrangcheon. Gyeongrangcheon is total 4.04km long, starting from Yongmasan through Junggok-sageori to Jungnangcheon. Most parts of Gyeongrangcheon have been covered over, but the upper stream recently has been restored in the process of Yongma Park construction. It is currently used as the park's green space for the public. Areas constructed above the mid- and lower streams of Gyeongrangcheon, on the other hand, are populated by low-rise apartments. Places nearby Yongma-sageori comprise commercial streets, whereas one lane of Gyeongrang-no (a street built on the covered Gyeongrangcheon) is used by drivers who wish to park or stop to load their cars. [Table 3] below shows the geographic features of Gyeongrangcheon. [Figure 3] is the map of Gyeongrangcheon.

[Table 2] Geographic Features of Gingorangcheon

Covered area	Mid- and lower stream	Total length	4.04km
Head	Yongmasan (Mt.)	Characteristics of sections in use	Residential, commercial, preservatory(of nature)
Course of stream	Yongmasan ▶ Junggok redevelopment site ▶ Junggok-sageori ▶ Yongma-sageori ▶ Jungnangcheon		



[Figure 3] Map of Gingorangcheon

The ecological condition of six Silgaecheon including Baeksasigyegokcheon are reported to be sound

According to the study on the environmental state of *Silgaecheon*s in Seoul, *Silgaecheon*s that have not been covered over are in good ecological condition. They are, namely, Baeksasilgyegokchoen, Musucheon, Mulpuregolcheon,

Jingwannacheon, and the upper streams of Bugyeongcheon, Ongnyu-Dongcheon and Jihyangcheon. They are expected to purvey waterfront spaces that Seoul citizens can use for recreational purposes and therefore should be preserved. [Table 3] below shows the list of *Silgaecheons* that are found to be in sound condition considering its biotope and ecological environment.

[Table 3] List of *Silgaecheons* in Sound Ecological Conditions

Name	Biotope Assessment1)				Overall condition (the result of fact-checking investigation reflected)
	Entire stream (Grade, %)	Upper	Mid	Lower	
Musucheon	1st (52%)	1	1	5	Excellent
Mulpuregolcheon	1st (54%)	1	1	3	Mostly excellent
Baeksasilgyegokcheon	1st (69%)	1	1	1	Excellent
Ongnyu-Dongcheon	5th (47%)	1	5	5	Excellent at the upper stream, but the rest are mostly not
Jihyangcheon	4th (26%)	1	5	4	Excellent at the upper stream, but the rest are mostly not
Jingwannacheon	3rd (42%)	1	3	3	Mostly excellent

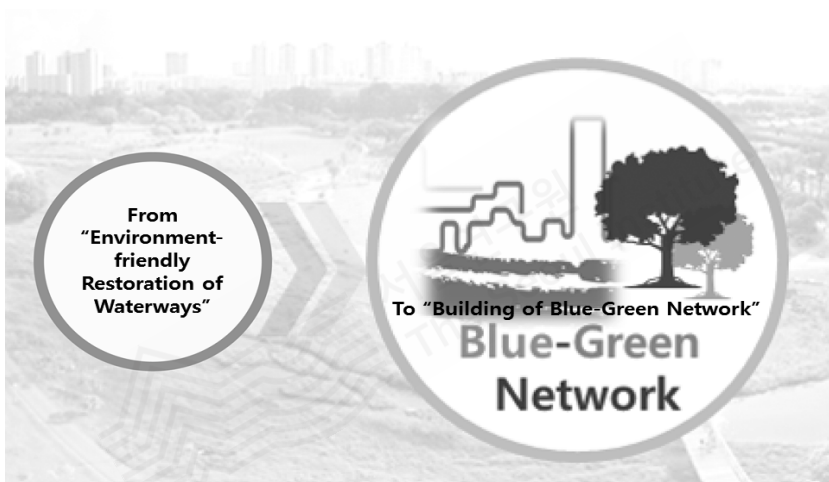
1) "Biotope" is the region of a habitat associated with a particular ecological community. Biotope Assessment grades regions with one (for the best condition) to five (for the worst condition)

Waterways should be restored by constructing the Blue-Green Network

The management of waterways is an important part of urban planning. In the past when rapid economic development took place, overly many people migrated to Seoul from other cities and regions in Korea. This inevitably resulted in damaging most of *Silgaecheons* in the city. In particular, raw sewage was discharged to *Silgaecheons*, which became polluted and began to reek. As a solution to avoid such problems while securing more sidewalks and roadways, many *Silgaecheons* have

been covered over.

As people have come to enjoy a higher standard of living, the SMG has increasingly recognized that waterways including *Silgaecheons* have positive influences on people's emotions as well as their living environment. In this sense, the government has introduced the concept of "environment-friendly restoration of waterways." Under this concept, SMG has restored several waterways in different regions and not stopped its endeavor yet.



In recent years, the direction of waterway restoration project has shifted from focusing on the aspect of "environment-friendliness" to establishing a wide network of living creatures across different ecosystems. Such a network is called the Blue-Green Network (BGN) (refer to [Figure 4]). The idea of BGN emphasizes the interconnection between aquatic ecosystems (e.g. waterways) and green ecosystems (e.g. ecological parks, forests). It believes that this interconnection will expand the green network, which will in turn bring ecological continuity. Besides this environmental benefit, natural landscapes created by a line of water, trees and forests will provide people with a sense of stability and comfort as well as aesthetically pleasing scenery.

Blue : ecosystem of aquatic spaces

Green : ecosystems of green spaces and parks,
interconnected to one another

- Aquatic spaces refer to waterways and waterfronts
- Green spaces refer to ecological parks, forests and roads embowered in trees
- Water and trees create ecological continuity, which in turn fosters the migration and reproduction of living creatures.
- Water and trees detoxify and eliminate pollutants
- Natural landscapes offer beautiful views and a sense of stability

[Figure 4] Concept of Blue-Green Network(BGN)

There are more than 70 waterways in Seoul. Many rivers and *Silgaecheons* have not been restored and still remain covered over. However, living environment of Seoul citizens will significantly improve if the construction of BGN gradually takes place and succeeds. The network will link waterfronts to nearby green spaces, generating synergy effect. This will then greatly help improve and sustain the ecological services of waterways.

To yield desired outcomes from the restoration project under the BGN concept, the SMG must first secure properly preserved and managed ecological spaces close to waterways. Therefore, it should ensure that wetlands and waterways in excellent ecological condition remain in their current good state. Moreover, it needs to look for a way to connect such natural sites to larger ecological spaces around waterfronts. In other words, the government should try to link *Silgaecheons* to small or local rivers as it has been doing so far. Next the SMG ought to maintain

biological diversity on and around waterfronts. This requires it to preserve waterways and waterfronts by regularly monitoring their ecological condition, while minimizing negative impact of development on them.

SMG should try to preserve the ecological condition of waterways

The “ecological services” of waterways refer to the benefits arising from the ecological functions of waterway ecosystems. Such benefits accrue to all living organisms including humans. They include the supply of natural resources, climate control, maintenance of biodiversity, and provision of recreational space. Not just one, but all these benefits affect humans’ life. For example, people use waterways as a source of drinking water, while being provided with more favorable living conditions by mitigating the effect of urban heat island and controlled microclimate. Moreover, waterways serve as habitats for various types of living creatures, increasing the diversity of organisms. Not to mention, people can enjoy aesthetically pleasing landscapes and relax.

Most *Silgaechoons* in Seoul have been incapacitated by urban development, being severed or covered over. Those preserved in relatively sound condition should also be regularly monitored to avoid rendering them incapable of providing ecological services. Furthermore, the SMG should restore *Silgaechoons* in restorable condition, particularly their upper streams close to residential areas as they can provide much more ecological services than national and local rivers.

As previously explained, *Silgaechoons* are multi-functional and offer numerous benefits: facilitating a passage of aquatic organisms, preserving biological diversity, purifying water, and mitigating the effect of urban heat island. They are especially beneficial to humans, for they provide public areas where people can use in pursuit of relaxation and recreation. By allowing people of all ages to freely come and use green spaces, *Silgaechoons* can have the positive effects on people’s emotions.

3. Conclusions & Policy Recommendations

This paper proposes herewith a detailed plan, which outlines five policy directions and seven strategies, for how the SMG should improve the condition of *Silgaecheons* in Seoul.

Five Policy Directions

1) Minimize the damage of *Silgaecheons*, while enhancing the preservation management

As mentioned earlier, a large number of *Silgaecheons* in Seoul have been covered over or destructed in the process of rapid economic development. It is crucial to prevent any more damages to *Silgaecheons*. Therefore, the SMG should pursue a policy in the direction of preserving those maintained in sound condition and sparing them from further harm. The government needs to acknowledge the positive influence of *Silgaecheons* on people's lives in terms of both physical and mental health.

2) Develop ecological foundation unique to *Silgaecheons*

SMG should aim to create a unique and distinctive ecological base of *Silgaecheons* by preserving vegetation found there. The government is to identify and cultivate plants that can be grown around walkways constructed on the waterfronts. At the same time, it should maintain biodiversity by protecting and restoring natural habitats. SMG should also ensure that *Silgaecheons* properly facilitate the passage of living creatures.

3) Improve the function of *Silgaecheons*, taking their current conditions into account

Before taking any actions to improve the ecological function of *Silgaecheons*, SMG should first allow for their current conditions and that of surrounding areas.

The upper streams of four to five *Silgaecheons* in Seoul remain in sound ecological conditions. They mostly come from the valley. SMG should focus on preserving these areas first, and then gradually move down to lower streams to purify the water and mitigate the effect of heat island.

4) Transform *Silgaecheons* that can be partially restored into parks

Most areas near *Silgaecheons* are densely populated. This renders it difficult to fully restore them. Nor is it easy to expand and connect some sections. *Silgaecheons* that can only be partly restored should be evaluated on the feasibility of restoration before undertaking any project. In the case when *Silgaecheons* pass through a park, expansion should take place in or near the park area. For some *Silgaecheons*, restoring the upper stream is quite infeasible, while the mid- and lower stream pose no such a problem. In this case, the SMG should transform the part of *Silgaecheons* into waterfront parks. Meanwhile, other waterways in rather non-restorable condition should be considered from a mid-to-long-term perspective.

5) Introduce a project in which residents can participate

Most *Silgaecheons* in Seoul run through residential areas. This implies that they are mostly used and managed by residents.

Therefore, it is desirable to encourage citizens residing nearby *Silgaecheons* to preserve and manage the waterways. In this sense, SMG should carry out policy in a way that induces the people to participate in the management of *Silgaecheons*. Their jobs may range from drinking water management for each season and water quality control by, for instance, preventing the inflow of sewage to the maintenance of *Silgaecheons* during heavy rain. In addition, the government should cooperate with various civil groups to seek vision and direction of a *Silgaecheon* preservation project.

Seven Strategies

1) Establish a framework for managing *Silgaecheons* by enacting the *Silgaecheon Management Ordinance*

As previously explained, *Silgaecheons* do not hold any legal status as they do not belong to any of small, local or national rivers defined by the River Act. As a result, they are placed in a blind zone, in which the governmental entities fail to properly manage them. Though some *Silgaecheons* are taken care by hands of either local or central government, the focus has been mainly on making them facilitate the passage of rainwater and sewage. In other words, *Silgaecheons* have been utilized for a restricted number of purposes. It is necessary to legislate the ordinance stipulating how and what parts of *Silgaecheons* must be preserved and managed. This will serve as a framework to improve the currently disorganized, and therefore ineffective management of *Silgaecheons*.

2) Designate *Silgaecheons* in sound ecological conditions, like Musucheon, as *Ecological Landscape Protected Areas*

Musucheon, Baeksasilgyegokcheon, Jingwannaecheon, Mulpuregolcheon, the upper stream of Bugyeongcheon, and some areas near the upper stream of Jihyangcheon should be designated as Ecological Landscape Protected Areas. They are also in excellent ecological conditions, given either 1st or 2nd grade in the biotope assesment.

Silgaecheons are often deformed or destroyed to utilize land more efficiently in the process of urban development or the construction of apartment complexes. Details on how to forestall such incidents should be included in the ordinance.

3) Insert an additional clause mandating the enhancement of ecological role in the *Small River Maintenance Act*

Silgaecheons in Seoul are practically the same as small rivers defined under the law. The only difference is that *Silgaecheons* are not recorded on legal documents,

while the other is. A plan to maintain small rivers must have been devised according to the law, yet it has not been done properly. Moreover, the maintenance plan tends to only highlight the estimation of flood discharge and the control of water volume. Consequently, the whole plan is imperfect to be used to enhance the ecological role of *Silgaecheons*. Given that, the SMG should insert an additional clause stipulating the enhancement of ecological role of waterways and set it as a goal for the maintenance plan.

4) Preserve vegetation found in the areas near *Silgaecheons*, and create private waterways, rapids, and swamps

Some sections of *Silgaecheons*, particularly their upper streams, are kept in their natural conditions. SMG should preserve vegetation found in those areas while creating rapids, small cisterns or swamps so that natural purification process can occur. During the time of heavy rain, which spans over about 50 days a year, rainwater flows through *Silgaecheons*. With the construction of small-sized cisterns at the upper stream, water would flow in the waterway longer.

It would be good if *Silgaecheons* were always filled with water. Yet it would become more costly to maintain them. Thus, it is more affordable and manageable to leave *Silgaecheons* up to the nature: When it rains, *Silgaecheons* will become full of water. Then residents can swim and play in the water. In the dry weather, on the other hand, the waterfronts will become embowered in waterside plants. This will make the environment all the better for residents to take a walk and relax.

5) Establish a short, mid, and long-term plans for restoring *Silgaecheons*, and then gradually carry them out

Restoring *Silgaecheons* located close to residential areas is especially important as they can directly showcase the benefits of ecological service to people. The government should come up with a short, mid, and long-term plans for the restoration of *Silgaecheons*' ecology and implement them step by step.

6) Induce citizens to take part in preservation and management of *Silgaecheons*

Local participation is crucial in the management of *Silgaecheons*. People living close by *Silgaecheons* have better knowledge of the waterways. Moreover, they have easy access to *Silgaecheons* and therefore may manage the waterways more conveniently. Furthermore, they can form and operate cooperative organizations for managing *Silgaecheons*. A clause that can promote the participation of citizens in *Silgaecheon* management - by forming, for example, civil groups or communities, or through Social Network - should be included in the *Silgaecheon* Management Ordinance.

7) Implement a recreational program for children at waterways in excellent ecological condition

One of the numerous benefits that *Silgaecheons* offer to citizens is that they can be utilized as a playground for children. In summer, children can play in *Silgaecheons* while their caretakers can relax in the shade of trees.

SMG should use the waterways in excellent ecological conditions (i.e. given high grades in the biotope assesment) by implementing a recreational program for children in the areas. Musucheon, Baeksasigyegokcheon, Jingwannaecheon, Mulpuregolcheon, the upper stream of Bugyeongcheon, and some places near the upper stream of Jihyangcheon are the ones in good conditions. When designing recreational programs for these *Silgaecheons*, the SMG ought to pay attention to details, such as suitable locations for water activities and the maximum number of people allowed for participating in the activities per day. Not to mention, it should inform the public of such information.

The Improvement of an Incentive System for Energy Efficiency of Buildings in Seoul

Kim, Min-Kyeong

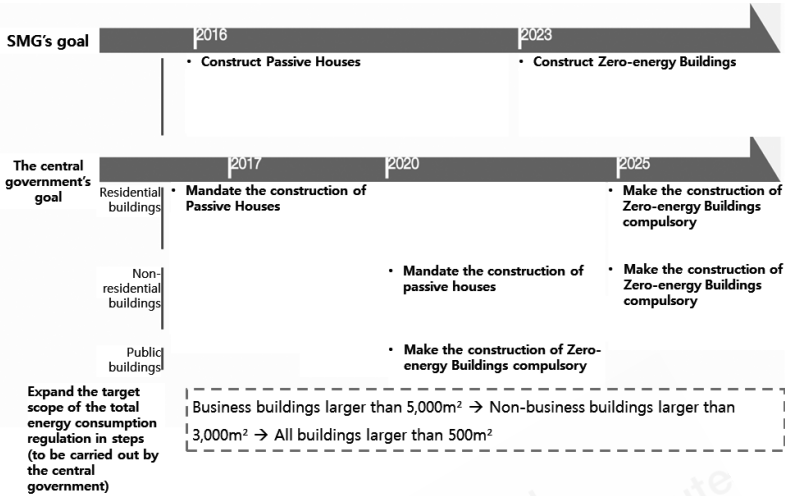
Summary

The Seoul Metropolitan Government (SMG) should provide existing buildings with appropriate incentives for efficient energy performance through the Energy Performance Diagnosis Program.

1. Introduction

At present, there are no measures to regulate the energy performance of existing and newly constructed buildings smaller than 500 square meters

The Korean government introduced its first National Energy Master Plan in 2008. The plan announced the “reinforcement of energy conservation in residential and commercial sectors through the construction and diffusion of Super Energy Conservation Buildings.” Later in 2014, the government presented the second energy plan. It mainly focused on achieving the goal of “transforming every new building into a Zero-Energy Building by 2025.” Participating in the national government’s quest for energy efficiency, the SMG introduced an enhanced version of the building code in September 2013. The new building code includes plans to make the construction of passive houses and Zero-Energy buildings compulsory by 2016 and 2023, respectively. SMG is also planning on gradually reducing building energy consumption. Its achievement is ahead of the national government’s energy conservation plan by one to two years.



[Figure 1] Plans of SMG and the Central Government to Promote and Obligate (in stages) the Construction of Zero-Energy Buildings

Although more buildings are now subject to the SMG's new building code, there is no system that regulates energy consumption of new buildings smaller than 500 square meters. In addition, the Green Building Certification Program and the Energy Efficiency Rating Program are unfavorable to small buildings compared to medium and large buildings. Furthermore, for existing buildings, there are currently no measures available to control energy performance of buildings over 3,000 square meter except for public buildings and apartment houses. The policy endorsing the improvement of building energy performance and the acquisition of the SMG's Green Building Certification are only presented as a suggestion, not a mandate. In other words, it is entirely up to building owners to decide whether to adopt energy-conserving practices.

Under such circumstances, an incentive program plays an essential role. Incentive programs targeting new buildings should be implemented in steps in accordance with the SMG's plan to promote building energy conservation. Also, more and more non-restricted buildings (buildings that are not being regulated)

need to be regulated by the energy consumption regulations. If the government offers incentives to non-restricted buildings for implementing energy-saving practices, their owners and users will adopt energy-efficient measures for themselves. The incentive will help raise the interest of Seoul citizens in the issue of energy conservation.

In this regard, this research examines how the SMG operates and manages the building energy incentive program. It introduces what improvements the government should make to the current financial and institutional incentives so that they become more effective in terms of encouraging building owners to implement energy conserving practices. Finally, this study proposes a plan as to how the SMG should foster an environment that promotes green buildings.

2. Main Findings

No incentive has been given in the form of an eased building code under the current building energy conservation program. Meanwhile, exempting acquisition tax has been offered in only four cases

The current building energy conservation incentive program comprises two parts: institutional support (building code relaxation) and financial assistance (local tax cut). According to our expert survey, there is a very high expectation that the government's relaxation of the building code would have positive effects. Yet many building owners find it more convenient and efficient to apply for other incentive programs for similar benefits, such as drafting the District Unit Plan, than resorting to the building energy conservation incentive program. Consequently, they feel reluctant to carry out environment-friendly and energy-conserving practices in their building construction.

To obtain a larger Floor Area Ratio (FAR) for a new building, most people resort to the District Unit Plan, from which they can also receive FAR incentives. They may even get the maximum FAR by proposing a plan that promises contributed

acceptance²⁰ and their participation in a public development project. However, receiving an incentive by carrying out green practices in construction is often considered bothersome due to its complicated procedures. Moreover, the size of such a financial incentive is not large enough to cover high investment costs required for building construction, equipment installation, and obtaining the green building certification. Thus a large number of land owners construe the current building energy conservation incentive program inadequate. Meanwhile, total of 35 private buildings were certified as environment-friendly structures by the Green Building Certification Program, yet only four received building energy conservation incentives, which were all paid in the form of acquisition tax exemptions.

[Table 1] Number of Buildings Certified by the Green Building Certification Program in Seoul (2014)

Category	No. of certified buildings (& its proportion in the total no. of buildings)		Mandatory Acquisition of the certificate (Yes/No)			No. of buildings that received incentive	Note
	No.	Proportion	Yes	No	Proportion		
Public	62	63.9%	Yes	53	85.5%	0	
			No	9	14.5%	0	
Private	35	36.1%	Yes	17	48.6%	1	<ul style="list-style-type: none"> · No. of cases where acquisition tax exemptions were given: 4 · No. of cases where regulations regarding to the FAR were relaxed: 0
			No	18	51.4%	3	

²⁰ Contributed acceptance refers to an act of contributing one's private land to the government for the public use, which in turn accepts the land for public development or use.

The size of local tax cut offered by the current building energy conservation incentive program is too small compared to the cost required for constructing new green building or making adjustments to the existing ones to meet the green building requirements

The incentive program currently offers local tax reduction, yet the discount is insignificant compared to the additional costs required for building construction, equipment installation, and obtaining the Green Building Certification, for which people have to incur extra expenditure for consulting services. Besides it usually takes more than 30 years to recover the investment costs. There are different types of loan support provided to building owners, including the SMG's Building Retrofit Project (BRP) as well as the Energy Service Company (ESCO) Loan Support Project and the Green Remodeling Project. However, loan recipients must fully repay the principal within a certain period of time, while bearing additional burdens such as having to pay for interests or put up their assets as collateral for the loan. As a result, building owners find these support programs less attractive as incentives.

[Table 2] Loan Support Available for Building Owners

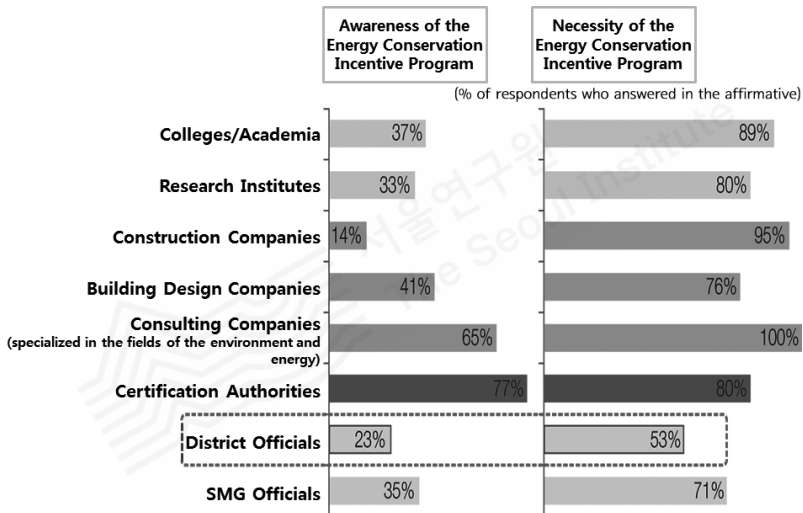
Category	Green Remodeling Project	BRP Project	ESCO Project
Main Agent	Ministry of Land, Infrastructure and Transport(MOLIT)	Seoul Metropolitan Government(SMG)	Korea Energy Management Corporation (KEMCO)
Support Type	Support for the repayment of loan interests	Grant a loan for business	Grant a loan for construction
Support Amount	3 billion Won	15 billion Won	225 billion Won

Category	Green Remodeling Project		BRP Project		ESCO Project
Limits on Loan	Non-residential	<ul style="list-style-type: none"> · Max. 3 billion Won · Min. 20 million Won 	Building	<ul style="list-style-type: none"> · Max. 2 billion Won · Min. 5 million Won 	Max. 30 billion Won (max. 15 billion Won for projects invested by the same source)
	Residential	<ul style="list-style-type: none"> · Max. 50 million Won (for a detached house) · Max. 20 million Won, Min. 3 million Won (for an apartment house) 	House	<ul style="list-style-type: none"> · Max. 10 million Won · Min. 2 million Won 	
Interest Rate	2~4% depending on the degree of improvement made in energy performance		1.75% (as of 2015)		Fixed interest rate : 2.75% Floating interest rate: 1.5%
Repayment Period	5 years (equal to the length of support period)		8 years (Allow a 3-year grace period)		7 years (Allows a 3-year grace period)

Both building construction planners and public officials who carry out the building energy conservation incentive program lack the knowledge of the program

In the expert survey, nearly 90 percent of respondents had a high awareness of systems, pursuant to which the building energy conservation incentive program has been developed and implemented. By contrast, their knowledge about the incentives was limited in general. The most serious problem of all is that building construction planners and public officials in charge of administering the building energy conservation incentive program are poorly informed of the program. In order to prompt the owners of buildings that are not subject to the energy conservation regulations to voluntarily adopt energy-saving practices, a variety of serious efforts must be made. Such efforts include education, campaign, and

strongly urging them to improve the energy performance of their buildings. Yet building construction planners and public officials who lack the knowledge of the building energy conservation incentive program hinder the quest for energy conservation. Their low awareness of the program also hampers not only the management of the program itself, but also the promotion of green building construction. This raises the need to establish an organization that can be in charge of the overall management of the SMG's building energy conservation policies and the building energy conservation incentive program.



[Figure 2] Survey Results Regarding to the Awareness and Necessity of the Building Energy Conservation Incentive Program

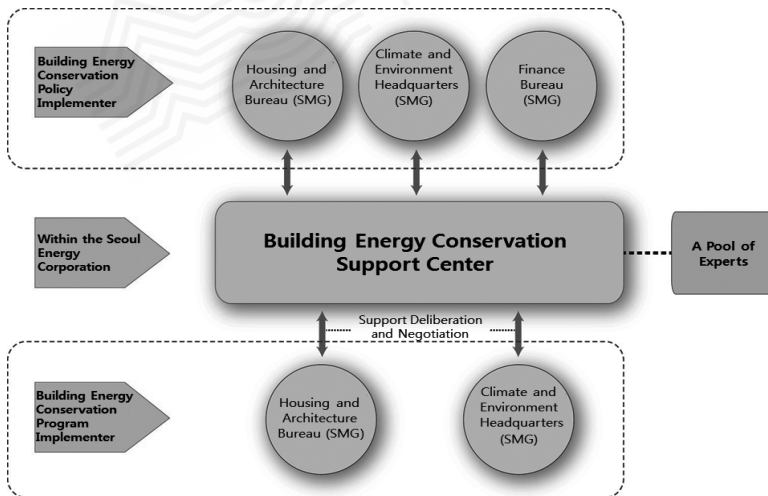
3. Conclusions and Policy Recommendations

SMG should establish a unit, in which experts from various fields exclusively deal with issues related to building energy in the Seoul Energy Corporation

The Seoul Energy Corporation that will start its operation in 2016 should have a special unit consisted of experts with knowledge in energy, building, and tax

systems. It can be titled the Building Energy Conservation Support Center. For the center to properly function, it must work in close cooperation with the SMG, in particular, the Housing and Architecture Bureau, Climate and Environment Headquarters, and Finance Bureau. In addition, it should cooperate with relevant public and private organizations dealing with energy, construction, urban reconstruction of redevelopment projects, and tax systems.

The main role of this center is to provide building owners with a wide range of consulting services on building design advice by tapping into experts from both inside and outside the unit. Furthermore it should improve the current evaluation system in the building energy conservation incentive program to ensure that it yields desired outcomes. The center ought to manage incentive disbursement. Later, a set of data would serve as the grounds for not only post evaluation and monitoring buildings that received the energy conservation incentive, but also for improving the incentive program. Lastly, the center should build a cooperation system in which it can closely communicate with 25 district governments.



[Figure 3] Management Structure of the Building Energy Conservation Support Center

SMG should revise the current building energy conservation incentive program, developing comprehensive consulting services for newly constructed buildings and existing ones

The Building Energy Conservation Support Center should provide comprehensive consulting services to building owners. With its pool of experts, the Building Energy Conservation Support Center can offer a wide range of consulting services and design advice to building owners as well as construction firms. As our expert survey shows, people's demand for building energy performance assessment and following consultation is quite high. To provide effective support, the center must develop a customized consulting service by weighing the condition of each building. At the same time, it should run energy performance simulations to show expected outcomes of its support in detail. In the meantime, the SMG ought to designate a consulting company for providing the best consulting service to building owners while actively encouraging them to comply with the efficient energy performance standards set by the SMG. The company would establish the standard consulting service in the market, where more and more private consulting firms are ceaselessly emerging. Thus, it would help relieve financial burdens on building owners.

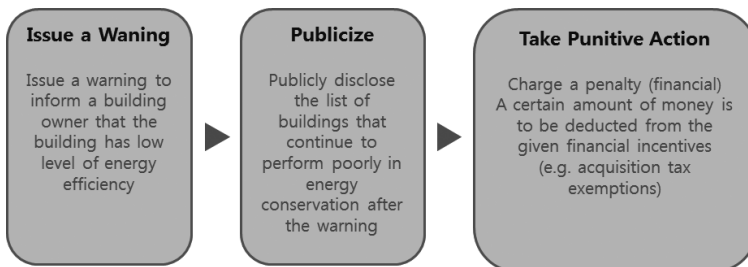
SMG should streamline the current building performance assessment standard and create new building energy performance evaluation model. SMG currently assesses the energy performance and environment-friendliness of buildings based on five different evaluation models. Without a system that comprehensively manages all the five models, many of their assessment criteria overlap. In other words, the five evaluation models are not much different from one another, rendering it inefficient to use all of them. In order to manage the energy performance of buildings in a comprehensive way, the SMG should streamline the current assessment system and establish its own building energy performance evaluation model that focuses on maintaining high energy efficiency of buildings.

SMG may develop the assessment standards and frameworks for its building

energy performance evaluation model by either creating a new assessment system or reorganizing the existing ones.

SMG ought to apply flexible assessment criteria to new small buildings and existing structures. Compared to constructing a medium or large structure, erecting a new small building entails greater financial burdens due to additional construction costs. The energy performance assessment criteria that are inappropriate to apply to a small building, such as ones related to equipment installation, nearby transportation, and the environment, should be removed, while placing greater emphasis on other criteria.

SMG should carry out the post evaluation of energy performance of buildings after giving them incentives. Depending on the evaluation result, additional incentives or penalties (punitive) should be given. The current building energy conservation incentive program examines the eligibility of a building for incentive payment based on its preliminary design and construction plan. Yet it does not monitor if the construction was carried out according to an original plan once incentives were disbursed. Besides there is no system showing whether the energy performance of a building has improved to the expected level stated in the plan. SMG should implement a system for the post evaluation of the energy performance and take punitive action against buildings that do not comply with their original energy conservation plans. Such buildings will be charged with penalties, which will be used to fund incentive disbursement and running education/promotion programs. With these measures, the SMG would be able to achieve the sustainable management of building energy performance.



[Figure 4] Working Steps of Punitive Measure

SMG should avail itself of the existing programs, such as the District Unit Plan, as a means to control the energy performance of new constructions.

Owners of newly constructed buildings have a high preference for institutional incentive (i.e. building code relaxation), such as eased FAR regulations. But such incentive does not serve the purpose of promoting energy conservative practices. It only results in increasing the size of area occupied by a building. Therefore, the SMG should offer the institutional incentive within the scope of inducing the voluntary participation of building owners in energy saving.

SMG should apply the building energy conservation incentive program to “Areas under Minimum Regulation.” The concept of the Areas under Minimum Regulation has been introduced to carry out the development by weighing regional characteristics through strategic deregulation, not restricted by strict zoning system. Related guidelines were set in January 2015. Depending on the size of public contribution they make, building owners may be incentivized with eased FAR regulations (either standard, permissible or maximum FAR according to the rules set in the district ordinance). However, they are currently not allowed to get a FAR larger than the maximum FAR by law. SMG should make the Areas under Minimum Regulation exempt from such a rule so that building owners may use favorably eased FAR regulations without being restricted by other regulations. For buildings constructed in the Areas under Minimum Regulation, the SMG should grant a FAR larger than the maximum FAR set by law if they satisfy the efficient energy performance standards suggested in this research.

SMG should increase the share of the green building incentive in the District Unit Plan. The District Unit Plan gives incentives to buildings that carry out environment-friendly practices. These green building incentives account for about 30 percent of total incentives provided by the District Unit Plan. SMG should consider increasing their share. According to the expert survey, the number of respondents who approved the idea of placing greater importance on environment-friendly incentives was 3.5 times higher than those who disapproved.

The majority answered that it would be appropriate to raise the share to 40 percent.

SMG should revise the current assessment criteria for environment-friendly building incentive payment. At present, the criteria include items such as green building construction and energy efficiency enhancement, which require much larger investment costs than others. This raises a question as to their validity as assessment items. In this regard, the SMG should revise the criteria by adding new categories that can assess building's energy efficiency, energy consumption reduction plans and other areas of the energy performance.

Greater financial incentives need to be offered to existing buildings that struggle with improving their energy performance

Existing buildings are likely to experience more difficulty in improving their energy performance than new ones. To support them, the current financial incentive program must be revised accordingly.

SMG should extend the loan repayment period and increase financial support for interest payment. Extension on loan repayment period and increased financial support for interest payment, which are the two most well-known incentives offered to existing buildings, need thorough revision. When applying for a loan support program, the applicant has to put up their assets as collateral and pay interests. With such burdens, very few regard this loan service as a helpful financial incentive. In addition, while the loan recipients are bound to pay back their loans in seven to eight years, it takes longer to make a return on investment. Estimating precisely how long it takes to recover the investment costs is difficult. To make loan support system work effectively under such circumstances, a different payback period should be set for each building by reflecting the length of time required to recover the investment costs. To come up with accurate estimates, the SMG should run energy performance simulations and consult each building owner. Furthermore, it ought to work with banks to provide cash support for a certain portion of interest or introduce the Green

Deal program. This will allow loan takers to pay parts of interests and principal with savings accrued from reduced energy costs.

The scope of the existing financial incentive needs to be expanded through increasing the local tax reduction rate and extending the property tax benefit period.

Besides the loan support, property tax discounts are the only financial incentives given to owners of existing buildings. According to the expert survey, most people preferred tax cuts. Until 2009, the SMG ordinance allowed the current tax benefit of 3-15 percent to increase up to 20 percent. This rule was not being implemented. In the interview with experts, most gave negative responses to the current 5 year tax benefit period. To increase the effectiveness of tax incentive, the SMG should raise the current tax reduction rate of 3-15 percent to 20 percent, while extending the property tax benefit period to 10 years. Furthermore, it needs to consider publicizing the current status of incentive payout.

SMG should pay incentives through the Energy Performance Diagnosis Program. For the payment of small financial incentives, the SMG should use the Energy Performance Diagnosis Program. In order to do so, the SMG should first provide every existing building owner with an opportunity to apply for the program, and then share the result with the public. At the same time, the SMG should offer an eco-mileage incentive to buildings that are rated with a higher grade than the standard level in the Green Building Certification Program and the Energy Efficiency Rating Program. This incentive would encourage building owners to participate in the Energy Performance Diagnosis Program and improve the energy performance of their buildings.

In conclusion, a revised incentive program for new and existing buildings can be categorized into two types of support: institutional and financial. For institutional support, the SMG should establish a special unit exclusively dealing with building energy performance control, improve building energy performance assessment standards and models, and closely cooperate with related institutions. For financial support, on the other hand, the SMG ought to raise funds to pay financial incentives, offer greater tax benefits and loan services, and implement a greenhouse gas

emission offsetting platform. To improve the current building energy conservation incentive program, which comprises a large part of the government's financial support, the SMG first needs to establish a separate organization that can play a central role in overall management of the program. Lastly, funds should be raised from various sources so that the SMG can lessen its financial burdens.



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

Kim, Woonsoo

Summary

The degree of gas emission from diesel cars is proportional to its age. The Seoul Metropolitan Government(SMG) needs customized approach for worn-out diesel cars which emit an excessive amount of greenhouse gas.

1. Introduction

The recent Volkswagen's emissions scandal, in which the German automaker was excoriated for falsely selling cars fitted so-called "defeat devices." This offense has heaped attentions on the emission performance of diesel-fuelled cars. According to a recent study, diesels perform poorly in reducing auto emissions, failing to meet the emission regulation standards. Meanwhile, decrepit diesel cars, whose number is on the rise in Seoul, emit an excess of pollutants. Such issues pose a challenge to the management of Particulate Matter (PM) and Nitrogen Oxides (NOx), the harmful substances discharged by diesel cars. Under these circumstances, the Seoul Metropolitan Government (SMG) ought to introduce a diesel car emission control system. It would help eliminate threats to the public health, thus achieving an environmentally healthy city.

Decrepit diesel cars, whose number is on the increase, are the main source of excessive auto emissions

In Seoul, the share of diesel cars in Seoul is rising every year. Along with this trend, the share of battered diesel-fueled cars is increasing. It has been confirmed that the average emission density of vehicles increases as they age. Yet the owners

tend to be reluctant to fix their old cars to meet the expected standards for emission control. It is because of higher maintenance costs arisen from, for instance, the increased cost of replacing worn-out components. Concern grows over that it may trigger a vicious cycle of aggravating pollution. Meanwhile, the number of dilapidated diesels is growing. They release an excess of auto emissions, which are the primary air pollutants.

SMG does not adequately utilize information to diagnose the emission level of vehicles in Seoul and set the priorities for emission control

Every year, over one million vehicles registered in Seoul, including gasoline-fuelled and diesel-powered, are tested for exhaust gas emission. At present, the test result is only used to decide whether the emission level of a car is acceptable under the emission regulation standards. Meanwhile, the diagnosis of excessive exhaust gas emission only identifies vehicles that release auto emissions more than 150 percent of the permitted amount. These vehicles are called “high-density exhaust gas emitting vehicle.” The amount of pollutants discharged by diesel-powered cars reportedly accounts for 42.4 percent of total PM-10 in Seoul. Yet, SMG does not adequately use available information that can help assess the excess pollutant emission of diesels in Seoul.

This research develops methods for evaluating and managing emission from diesel vehicles.

2. Main Findings

The primary culprit of air pollution in Seoul is motor vehicle emissions

Motor vehicle emissions are the largest source of Particulate Matter (PM) and Nitrogen Oxides (NOx) in Seoul. In detail, out of 1,858 ton of PM-10 (excluding fugitive dust²¹), 793 ton (about 42.7 percent) comprises auto emissions. Cars

release 730 ton of PM-2.5, which represent approximately 44.1 percent of total PM-2.5 (1,657 ton). The amount of NOx emitted by vehicles stands at 27,652 ton, accounting for about 44.3 percent of total NOx (62,363 ton).

[Table 1] The Volume of Air Pollutants Emitted by Each Emission Source (As of 2012)
(Unit: ton)

Emission Source	PM-10		PM-2.5		NOx	
Non-Industry	234	12.6%	167	10.1%	19,693	31.6%
Energy Industry	13	0.7%	13	0.8%	599	1.0%
Manufacturing Industry	1	0.1%	1	0.0%	296	0.5%
Motor Vehicles on the road	793	42.7%	730	44.1%	27,652	44.3%
Non-Vehicles on the road	634	34.1%	583	35.2%	12,769	20.5%
Area Sources*	35	1.9%	32	1.9%	599	1.0%
Waste Disposal	17	0.9%	14	0.8%	743	1.2%
Natural Sources**	131	7.0%	117	7.1%	13	0.0%
Total	1,858	100.0%	1,657	100.0%	62,363	100.0%

*Area sources refer to pollution sources consisted of multiple, small-scale pollution sources that discharge hazardous air pollutants in a specified area, such as a residence

**Natural sources are ones emitting air pollutants without human involvement

Source : 2012 Report on the Volume of Air Pollutant Emissions, National Institute of Environmental Research, 2014

The larger and older the diesel cars are, the more the air pollutants

In particular, trucks and recreational vehicles (RVs) release a large volume of auto emissions: The amount of PM-10 and NOx discharged by trucks for 44.9 percent and 39.8 percent, respectively. RVs, on the other hand, is responsible for 44.6 percent of total PM-10 and 13.8 percent of the total NOx.

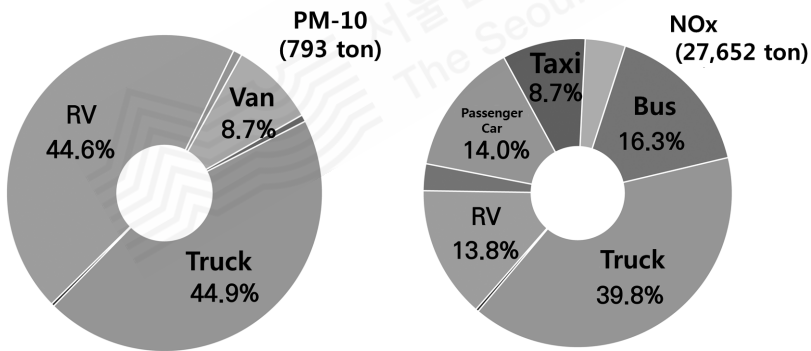
²¹ Fugitive dust refers to the sum of small airborne particles that directly spread to air without going through a certain vent. It is mostly hazardous and produced at construction sites.

[Table 2] Auto Emissions from Each Vehicle Type (As of 2012)

(Unit: ton)

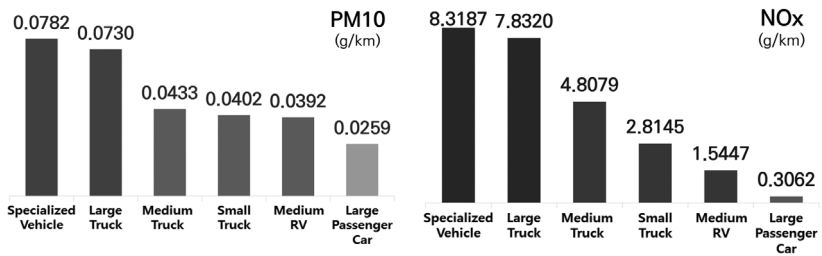
Vehicle Type	PM10		PM2.5		NOx	
Passenger Car	7	0.9%	6	0.9%	3,868	14.0%
Taxi	0	0.0%	0	0.0%	2,414	8.7%
Van	69	8.7%	63	8.7%	1,160	4.2%
Bus	5	0.7%	5	0.7%	4,514	16.3%
Truck	356	44.9%	328	44.9%	11,019	39.8%
Specialized Vehicle	2	0.3%	2	0.3%	92	0.3%
Recreational Vehicle (RV)	354	44.6%	325	44.6%	3,817	13.8%
Motorcycle	0	0.0%	0	0.0%	767	2.8%
Total	793	100.0%	730	100.0%	27,652	100.0%

Source : 2012 Report on the Volume of Air Pollutant Emissions, National Institute of Environmental Research, 2014



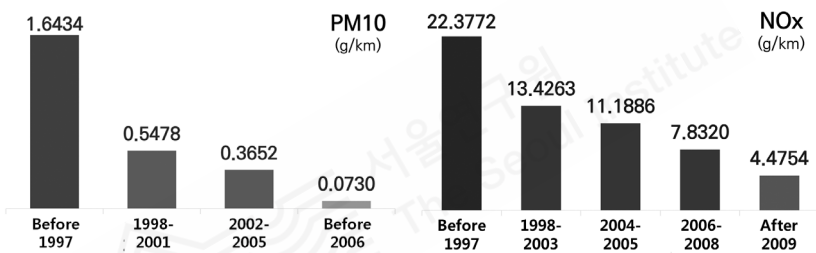
[Figure 1] Share of PM-10 and NOx Emitted by Each Vehicle Type in Total (As of 2012)

This study finds that larger and older cars release more harmful substances into the air. It has been confirmed that specialized vehicles and trucks of large and medium sizes emit more air pollutants than other types of motor vehicles of the same model years. According to this research, trucks of 1996 and 1997 model years discharge 22 times and 2.8 times more of PM-10 and NOx, respectively, than model year 2007 trucks.



(Source: *Report on the Performance of Air Quality Improvement Plan Implementation*, Metropolitan Air Quality Management Office, 2011)

[Figure 2] PM-10 and NOx Emissions from Each Vehicle Type (2007 Model Year Vehicles)



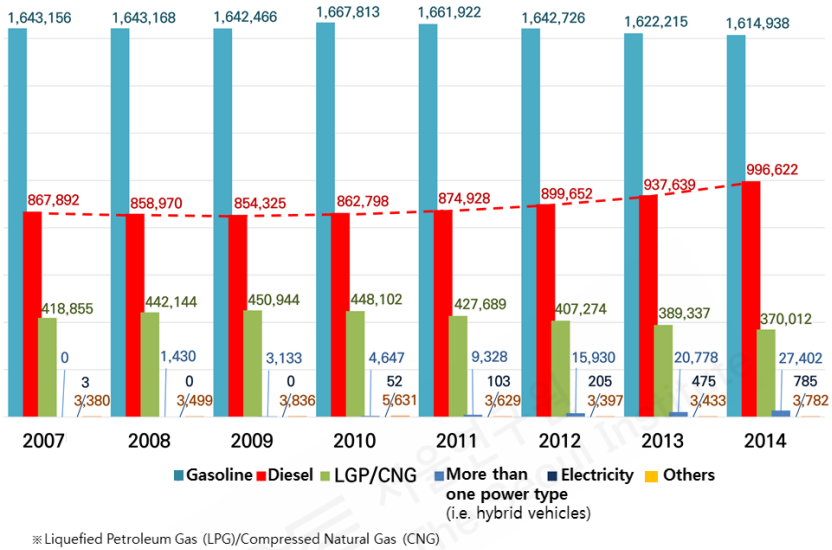
(Source: *Report on the Performance of Air Quality Improvement Plan Implementation*, Metropolitan Air Quality Management Office, 2011)

[Figure 3] PM-10 and NOx Emissions from Large Trucks of Each Model Year

While the number of registered diesel cars in Seoul is increasing, the deterioration of diesel-fueled cars is afoot

Seoul is witnessing a continuous rise in the number of registered motor vehicles. Total registered cars in Seoul (excluding motorcycles) numbered 2,933,286 in 2007, and then reached 3,013,541 in 2014. In particular, the number of diesel-powered cars had increased, representing 33.1 percent of total number of registered cars in Seoul as of 2014 (up from 29.6 percent in 2007). Since the implementation of a five-day workweek, which has raised the popularity of leisure

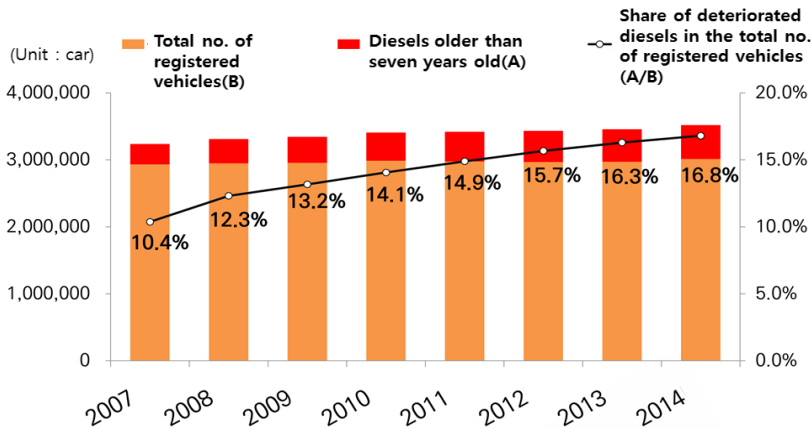
activities across the country, people have increasingly preferred diesel-powered recreational vehicles to others.



Source: Internal Data, The Ministry of Land, Infrastructure and Transport

[Figure 4] Change in the Number of Vehicles of Different Fuel Types in Seoul

The number of decrepit diesel cars that have been over seven years since they were manufactured has grown by 6.4 percent point over the past six years: from 10.4 percent in 2007 to 16.8 percent in 2014. We found that a medium-size van (with the capacity to carry 16-49 passengers) has, on average, 71.6 percent of its components worn-out. A large truck (with the capacity to carry over five ton of cargo), medium RV (of over 2,000cc), and medium truck (with the cargo carrying capacity between one and five ton) each has 70 percent of their components deteriorated. Regardless of the vehicle type, it becomes costly to maintain them as they age. Deteriorated cars also take a toll on environment. As a result, old vehicles form a vicious cycle of aggravating environmental pollution and work as obstacles to the government’s motor vehicle emission control.



[Figure 5] Change in the Share of Deteriorated Cars in Seoul (2007-2014)

The air quality of Seoul can only improve if that of Seoul's suburbs improve. Therefore, the SMG should work with the Gyeonggi Provincial Government and Incheon Metropolitan City Government, which both have a large number of decrepit diesel cars. The number of old diesel cars in Seoul, Gyeonggi, and Incheon each accounts for 16.8 percent, 25.7 percent, and 18.1 percent of total number of diesels registered in the three areas, respectively. SMG ought to support the Gyeonggi Provincial Government and the Incheon Metropolitan City Government in carrying out their Diesel Emission Control Projects while taking its own measures to control the exhaust gas emission from diesel cars in Seoul. In addition, it needs to control the extra hazardous substances discharged by diesel cars entering and exiting Seoul.

[Table 3] Share of Decrepit Diesel cars in Seoul, Gyeonggi, and Incheon(2014)
(Unit : Car)

Category	No. of Diesels Used for Over 7 Years (A)	Total No. of Registered Diesels (B)	Share of Decrepit Diesels in the Total (A/B)
Seoul	506,435	3,013,541	16.8%
Gyeonggi	985,179	3,838,213	25.7%
Incheon	225,458	1,247,485	18.1%

There exists a palpable difference in the density of auto emissions across vehicles of different models and model years

The density of exhaust gas emitted by a vehicle increases as the vehicle ages (refer to [Figure 6]). This is the case of every car model. This study has discovered that trucks and vans have a relatively high failure rate to pass the emission density test.

The current SMG's Diesel Emission Control Project²² needs to target more diesel-fueled cars heavier than 2.5 ton, considering that they emit a large amount of PM and NOx. Of 481,894 diesel cars registered before 2005, the emission level of 93,823 has been lowered.

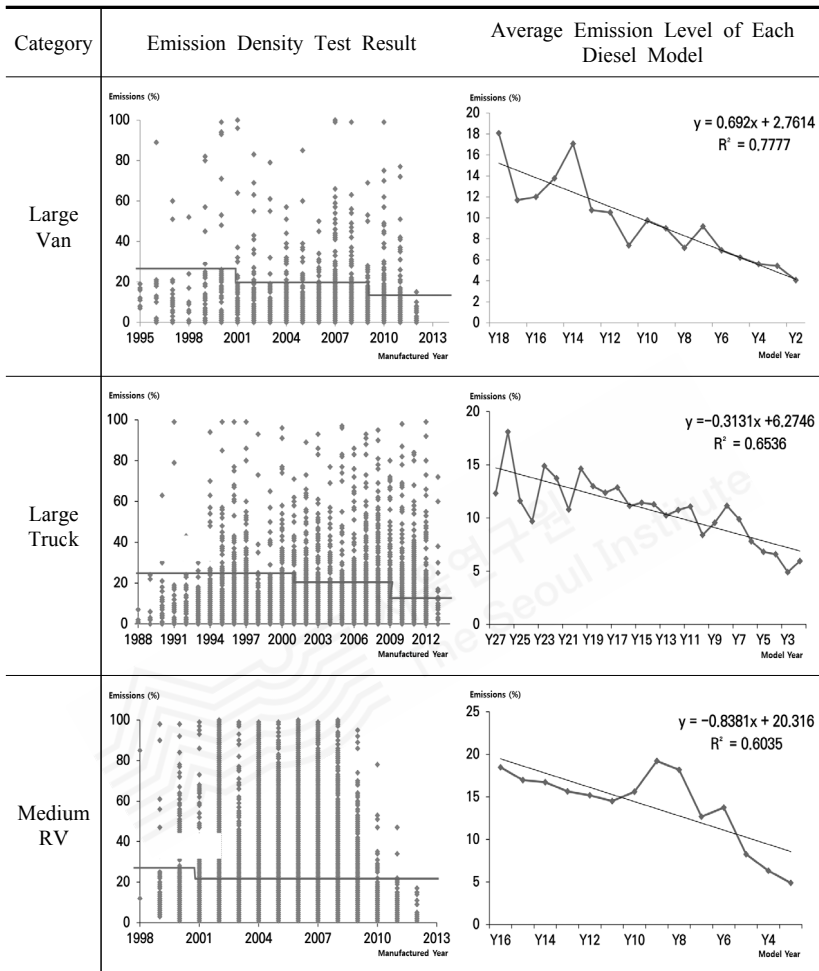
[Table 4] Current Status of the Diesel Emission Control Project (As of 2013)

Category	No. of Registered Diesels (A)	No. of Diesels Completed with the Project (B)	No. of Diesels Not Completed with the Project	Share of Diesels Completed with the Project in the Total (B/A)
Diesels heavier than 2.5t	269,803	27,169	242,634	10%
Diesels lighter than 2.5t	212,091	66,654	145,437	31%
Total	481,894	93,823	388,071	19%

Note : As of 2013, the total number of registered diesels was 937,639. The total number of registered diesels stated in the table (481,894) represents ones registered before 2005. Diesels that have been registered after 2006 number 455,745.

Source : "SMG Will Complete the Diesel Emission Control Project by Late 2019", SMG Press Release (Feb. 26, 2014)

²² SMG's Diesel Emission Control Project aims to protect the health of Seoul citizens from hazardous substances emitted by diesel-fuelled vehicles by installing a Diesel Particulate Filter (DPF), retooling a LPG engine, and inducing the discarding of a decrepit diesel.



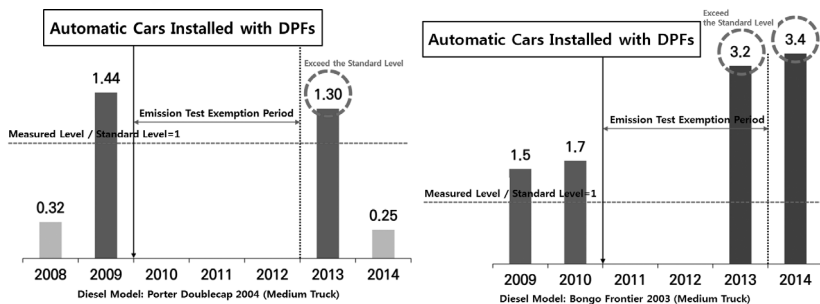
Source: Above measurements are made based on the result of diesel emission test conducted by Korea Transportation Safety Authority in 2014.

[Figure 6] Emission Density Test Result and Average Emission Level of Diesels (Sample Results Based on Certain Car Models and Model Years, as of 2014)

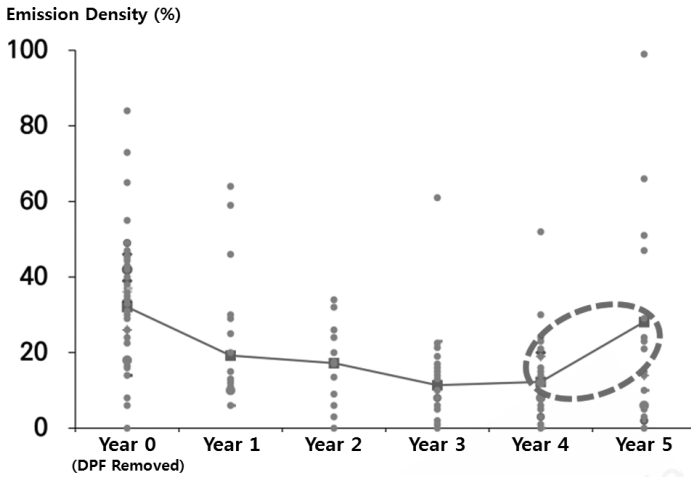
At present, the performance of the Diesel Particulate Filter (DPF) is not up to the expected standard, while the Diesel Emission Control Project does not comprehensively monitor the emission performance of diesel cars

Under the Diesel Emission Control Project, the SMG sets stringent emission standards for diesel-fueled cars whose emission performance warranty period expired. Then it installs a Diesel Particulate Filter (DPF) to diesels that release more auto emissions than the permitted level. SMG also subsidizes the cost of discarding old, pollutant-spewing vehicles.

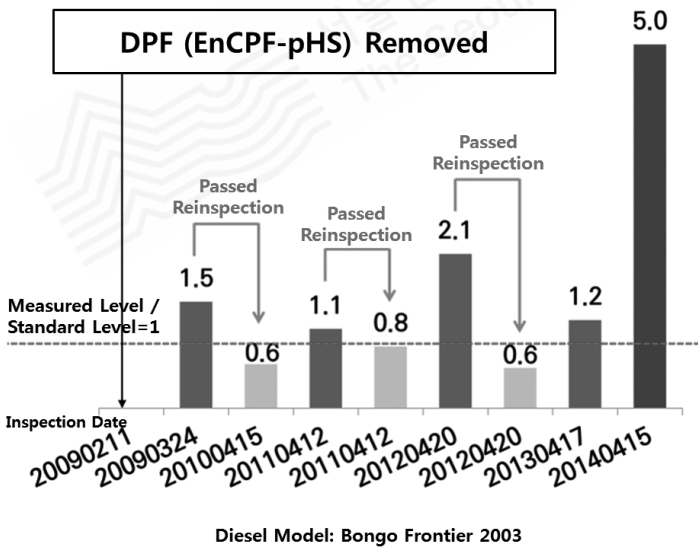
There needs a special management of diesel cars that have been four to five years since DPF installation. According to the study, diesels installed with a DPF release 1.3 ~ 3.4 times more auto emissions than earlier when they reach the fourth year (the three years of emission test exemption period is not counted) since the installation (refer to [Figure 7]). SMG should pay special attention to diesel cars of which the emission density increases by a substantial amount as they reach the fourth or fifth year after DPF installation (refer to [Figure 8]). Diesels discharging more auto emissions than the standard level after a DPF is removed should be managed with special care (refer to [Figure 9]). After installing DPFs to diesels, SMG ought to check their emission density on a regular basis rather than randomly.



[Figure 7] Change in the Emission Density of Diesels after DPF Installation



[Figure 8] Change in the Emission Density of Diesels after DPF Removal







[Figure 9] Cases in Which the Emission Density of Diesels Exceeded the Standard Level after DPF Removal

Some other countries in the world have adopted the hazardous Particulate Matter and Nitrogen Oxide control system, in which diesels are rated according to their emission level and managed accordingly

The Berlin City Government restricts the operation of vehicles that emit an excessive amount of PM. The emission grade is given to cars according to the European (Euro) Emission Standards at the time of vehicle registration. There are three emission grades and the government issues a sticker of red, yellow, and green colors, which are equivalent to Euro Emission Standard Two, Three, and Four, respectively. Vehicles of the Euro Emission Standard One are not given any sticker as their emissions exceed the standard level.

[Table 5] The Emission Rating System of Berlin City Government

Sign	Euro Emission Standard	Emission Grade	Engine Type	First Registration Date (Passenger Car)	First Registration Date (Truck)
None	Euro 1	1		Before Jan. 1, 1997	Before Oct. 1, 1996
	Euro 2 Euro 1 + filter	2		Jan. 1, 1997- Dec. 31, 2000	Oct. 1, 1996- Sep. 30, 2001
	Euro 3 Euro 2 + filter	3	Diesel	Jan. 1, 2001- Dec. 31, 2005	Oct. 1, 2001- Sep. 30, 2006
	Euro 4 Euro 3 + filter	4		After Jan. 1, 2006	After Oct. 1, 2006
None	Lower than Euro 1	4		Before Jan. 1, 1993	Before Jan. 1, 1993
	Higher than Euro 1	5	Gasoline	After Jan. 1, 1993	After Jan. 1, 1993

Source : Berlin's Environmental Zone Information for Foreign Tourist.

France will be implementing the emission rating system in which it will issue an environmental label called a “CRIT’air Label.” Different labels will be given to vehicles according to the level of their PM, Carbon Monoxide, and Hydrocarbon emissions. From 2016, district offices will be autonomously using the rating system to restrict pollutant-spewing cars from driving.

[Table 6] CRIT’air Labeling System of France

Sign	Euro Emission Standard	Qualification
		100% electric cars Benefit: Allow free parking by the roadside and driving at no passing zones
	Euro 5 & 6	Gasoline-fuelled cars registered after January, 2011
	Euro 4	Gasoline-fuelled cars registered between 2006-2010
	Euro 5 & 6	Diesels registered after January, 2011
	Euro 2 & 3	Gasoline-fuelled cars registered between 1997-2005
	Euro 4	Diesels registered between 2006-2010
	Euro 3	Diesels registered between 2001-2005
	Euro 2	Diesels registered between 1997-2000
	Euro 1	Gasoline-fuelled cars and diesels registered before 1997

Source : Press release (Jun.4, 2015), The Ministry of Ecology, Sustainable Development and Energy, France

The city government of Paris has categorized vehicles registered in the city into four types (refer to [Table 7]), and is planning to gradually disallow their operation in the city by 2020. Until the enactment of the Energy Conversion Act, the city of Paris will be issuing a warning to vehicles that violate the emission regulation. Upon the enactment, it will charge them a penalty (22 euro).

[Table 7] Vehicle Categorization System of Paris

Category	Passenger Car, Small Truck	Motorcycle	Trucks, City Bus, Tour Bus
Grade 1	Gasoline & Diesel (Euro 1), registered before Jan. 1, 1997	(Euro 1), registered before Jan. 1, 2000)	Gasoline & Diesel (Euro 2), registered before Jan. 1, 2001)
Grade 2	Diesel (Euro 2), registered before Jan. 1, 2001	Smaller than 50cc (Euro 2) & Larger than 50cc (Euro 1), registered before Jan. 1, 2004)	Diesel (Euro 3), registered before Jan. 1, 2006)
Grade 3	Diesel (Euro 3), registered before Jan. 1, 2006)	Smaller than 50cc (Euro 2) & Larger than 50cc (Euro 1), registered before Jul. 1, 2015)	-
Grade 4	Diesel (Euro 4). registered before Jan. 1, 2011)	-	Gasoline & Diesel (Euro 4), registered before Jan. 1, 2009

Source : "France's CRIT'air, Unfavorable System to Diesels," KOTRA Foreign Business Information Portal, KOTRA (2015)

In order to control the excessive auto emissions of diesel cars, a rigorous emission test should be carried out with stringent emission standards

This research has found that each country has their own emission test methods and standards: The US runs the Inspection and Maintenance (I/M) Program, and the California state, in particular, has implemented its own program called Smog Check Program; Vancouver, Canada has the Air Care Program; Australia runs IM240·

DT80; and Japan, Germany, and China all have implemented Vehicle Mass Analysis System (VMAS).

Some countries and cities are utilizing Remote Sensing Devices (RSDs) to supplement their emission tests. In detail, the RSDs are used to screen vehicles with very clean emissions (clean screening) and identify vehicles that release an excess of air pollutants (gross emitter identification). They continue to collect and analyze emission data for assessing the emission characteristics of diesel cars. Such an action is necessary to prove the validity and effectiveness of emission policies, and developing other policies for transportation and the environment protection.

3. Conclusions & Policy Recommendations

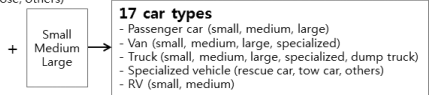
SMG should take the lead in controlling diesel cars that emit an excess of PM and NOx

It is necessary for the SMG to set the “Excessive Emission Standards” to assess the emission performance of diesel-powered vehicles. At present, the diesel emission test measures auto emissions of diesels in terms of density. Therefore, it is difficult to use the test results in checking the excess emission level relative to the permitted level. SMG should develop a rating system for diesel cars that release more emissions than the permitted level. The system needs to score such diesels by factoring in the amount of emissions larger than the standard level. Next it should calculate the total scores for excess emission by adding weighted points based on the assessment criteria of the Clean Air Policy Support System (CAPSS). Based on the total excess emission scores, the SMG needs to rate diesel cars on the grade scale of one to five (level one is given to diesels releasing the most excessive amount of auto emissions).

01. Assessment Subjects

Categorize assessment subjects

- Categorize vehicles according to the vehicle model classification standards of the Automobile Management Act
 - Passenger car (standard, one for both passenger use and freight, multi-purpose, others)
 - Van (standard, specialized type)
 - Truck (standard, dumping, van, special-purpose)
 - Specialized vehicle (tow vehicle, rescue vehicle, special-function)
- Categorize according to the CAPSS standards
 - Passenger car, van, truck, specialized vehicle, RV



02. Assessment Criteria

Revise the assessment criteria for excess emission rating

- No. of diesels emitting more hazardous substances than the permitted level, No. of diesels assessed → % of diesels discharging an excess of emissions
- Emission density exceeding the permitted level, Emission density → % of emission density higher than the permitted level
- Emission level per unit (emission coefficient x distance travelled per annum) → a weighting to be given to diesels discharging an excess of emissions

03. Assessment Methods

Check the excess emission rating score distribution

$$G=f(A, B, C)$$

- A = % of diesels discharging an excess of emissions
- B = % of emission density higher than the permitted level
- C = a weighting to be given to diesels discharging an excess of emissions

Excess emission %	0~10%	10~20%	20~30%	30~40%	40~50%	50~60%	60~70%	70~80%	80~90%	90~100%
A, B scores	1	2	3	4	5	6	7	8	9	10

04. Rating

Rate diesels according to their total excess emission scores

- Compile statistics on excess emission and analyze them
- Rate diesels on the grade scale of one (most excessive) to five (least excessive)


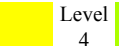
[Figure 10] Process of Rating Diesels for Excess Emission

There needs a customized control mechanism for diesel-powered vehicles rated with high excess emission grades

This study has found that large trucks are given either level one or two excess emission grades, discharging more hazardous substances than any other types of vehicles. In particular, large trucks of model year before 2005 emit an excess of PM. SMG should evaluate the excess emission grades of diesel cars based on the results of emission test that Korean Transportation Safety Authority has conducted to cars registered in 2014. It is estimated that medium trucks, specialized trucks, dump trucks, and specialized vehicles (rescue cars and tow cars) release an excessive amount of PM given their level one and two excess emission grades.

[Table 9] Excessive Emission Rating Score Distribution among Diesels Driving in Seoul

Category	Before 1995	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Small passenger car	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Medium passenger car	X	X	X	X	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Large passenger car	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Small van	3	3	3	3	X	3	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Medium van	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Large van	X	X	3	3	3	5	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Specialized van	X	X	X	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Small truck	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Medium truck	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Large truck	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Specialized truck	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Dump truck	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Specialized vehicle - rescue car	3	X	X	X	X	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Specialized vehicle - tow car	3	3	3	3	X	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Specialized vehicle - other	3	3	X	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Small RV	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Medium RV	X	X	X	X	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

Excess emission grade :  Level 1  Level 2  Level 3  Level 4  Level 5

Local governments can implement the emission control system tailored for each type of vehicle only if the excess emission rating system is available

The national government should be in charge of emission rating of new cars, while local authorities should take the responsibility for controlling the excessive emission of vehicles already operating in their areas. To successfully implement the excessive emission rating system, local governments must build their capacities in identifying cars that should be placed under the Diesel Emission Control Project, carrying out the auto emission inspection and maintenance (I/M), and operating low emission zones (LEZs).

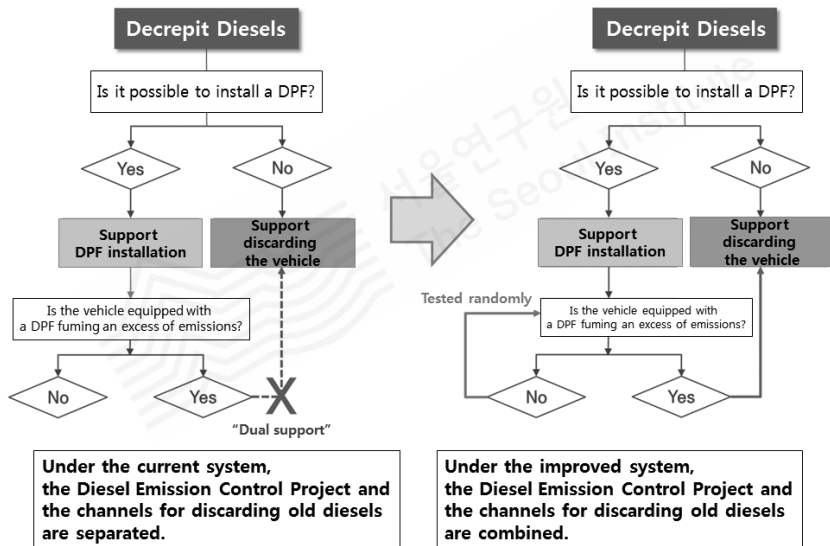
SMG should set the priorities for the Diesel Emission Control Project pursuant to the excess emission grades of vehicles. While large trucks of every model year are assessed to emit a highly excessive amount of air pollutants, the Diesel Emission Control Project (the DPF installation and engine retooling) primarily targets small and medium trucks at present. SMG should address this problem. It needs to pay attention to specialized vehicles (rescue cars and tow cars) that are rated with high excess emission grades, yet have no DPF specifically designed for them.

SMG should control the emission performance of diesel cars by applying different emission control standards and methods in each stage of their “life cycle”

In each stage of managing the emission performance, the government, vehicle owners, and auto manufacturers should play their given roles. Based on the excess emission rating results, the SMG needs to select vehicles for the Diesel Emission Control Project. Due to the emission test exemption period (three years) applied to diesel cars upon the installation of DPFs, the SMG cannot measure their auto emissions for a certain length of time. In addition, while the SMG often evaluates the emission performance of intra-city and shuttle buses, it does not assess that of trucks and passenger cars. As a result, it is difficult to ensure that DPFs installed in

non-tested vehicles perform up to the expectation. SMG should set the priorities for the Diesel Emission Control Project by comparing first, the amount of emissions released by vehicles before and after the emission performance warranty period, and second, the emission level of vehicles of each model and manufactured year.

At the same time, the SMG should establish a one-track support system by combining the current Diesel Emission Control Project and the channels for scrapping battered diesels. With the one-track support system based on the excess emission rating results, the SMG would be able to check the feasibility of installing DPFs and the excess emission level of vehicles.



[Figure 11] Diesel Emission Control Project Combined with Channels for Discarding Decrepit Diesels

SMG should connect the LEZ management with the excess emission rating system

SMG needs to restrict vehicles that release an excess of hazardous substances beyond the permitted level in the Low Emission Zone (LEZ). It should be stipulated in the related legislation. In particular, the SMG should urge vehicles carrying children

that are rated with high excess high emission grades to stop operating in the zone.

Incentives need to be offered to induce the owners of old, emission-spewing diesel cars to scrap their cars

SMG should institute an incentive system to induce the disposal of deteriorated vehicles. Although it is most efficient to make the owners of diesel cars rated with high excess emission grades to discard their vehicles, the current decrepit vehicle disposal inducement system does not admonish them to do so. In this regard, the SMG should subsidize the cost of discarding old, pollutant-spewing cars. The amount of financial incentive should be set by weighing the model and manufactured year of the vehicle and its excess emission levels. In addition, the SMG ought to identify low-income families owning vehicles emitting an excess of air pollutants. As an attempt to alleviate the burden of purchasing a new car (that qualifies the Euro Emission Standards Three and Four), the SMG may offer them subsidies or tax benefits to cover the cost of disposing their previous cars and buying new ones.

SMG ought to improve the vehicle emission test and ensure its reliability

SMG should improve the assessment criteria of vehicle emission test. The current emission test only examines the level of PM emitted by a diesel car and, depending on the level, the SMG decides whether the vehicle passes or fails the test. This study shows that adjusting the fuel injector or Exhaust Gas Recirculation (EGR) device of a diesel car to reduce its emissions cannot be a solution: It decreases the PM emissions, yet substantially increases NOx emissions, raising the density of NO2. SMG should set the emission standards for NOx and NO2 emissions of diesel cars, and add such standards to the vehicle emission inspection. In accordance with the emission standards, the SMG needs to draw a plan to manage

the performance of NO_x measurement devices.

At the same time, the SMG should ensure the effectiveness of diesel emission test. According to a recent test, the proportion of vehicles releasing excess auto emissions was 7.2 percent and 9.5 percent in 2013 and 2014, respectively. To ensure the reliability and relevance of test results, SMG should carry out the test on a regular basis. Moreover, the SMG needs to implement On-Board Diagnostics (OBD) and the vehicle emission inspection system for diesel cars that satisfy the criteria above the Euro Emission Standard Four. In addition, it should consider carrying out a performance inspection for OBD II category in testing the emission performance (including NO_x and PM emission) in the future.

SMG needs to keep vehicle emission data in a database, while building governance in which it can collaborate with the national government, auto manufacturers and Seoul citizens

SMG should establish a database for the efficient management of PM and NO_x emissions. The database should contain data that show the emission characteristics of vehicles, vehicles registered in Seoul (assorted by a model and a manufactured year), and the distance travelled, emission level, emission test result, and modification information of vehicles. Excess emission rating results should also be collected and kept in the database. SMG should utilize the data in establishing a customized management plan containing the emission characteristics of vehicles, and the environmental grade of vehicles.

There should be established governance in which the SMG, the national government, citizens, and car manufacturers can work together for vehicle emission control. The national government needs to provide SMG with legal and institutional support so that it can build the capacity necessary for controlling the PM and NO_x emission from vehicles driving in Seoul. In detail, the SMG must ensure that the diesel emission test inspects NO_x and NO₂ emissions as well as PM emissions of

vehicles. This means that the government should add NOx emission standards and assessment criteria for diesels with implementing the OBD monitoring test and the I/M test.

SMG, on the other hand, needs to adopt a differentiated management plan for each excess emission level, while encouraging vehicle owners to reduce auto emissions by paying them financial incentives. At the moment, the SMG subsidizes the cleaning cost. Taking a step further, it should foster and support social organizations advocating environmental protection. SMG needs to consider financially supporting car owners with emission test by connecting the test with the vehicle eco-mileage program.

Meanwhile, Seoul citizens should participate in improving the city's air quality by making necessary improvements to the emission performance of their cars. They need to engage in the vehicle eco-mileage program.

Lastly, auto manufacturers should provide services for the emission diagnosis of vehicles, as well as for old component exchange and repair. This way, they can take their parts in discarding decrepit vehicles spewing an excess of pollutants.

Environmentally friendly Urban Management Using Biotope Maps

Song, In-Ju

Summary

The Seoul Metropolitan Government (SMG) should adopt quantitative and systematic biotope assessment criteria to better evaluate the conditions of each ecological space, while making necessary improvements to related guidelines. The biotope assessment criteria should be utilized in the government's ecological urban management.

1. Introduction

The environment-friendly management of urban spaces has become increasingly important as land planning is carried out in tandem with environmental planning

In recent years, the national government has conducted national land planning with considering environmental aspect. This is to develop an environment-friendly plan for land management. As a result, the need to collect and manage information on environmental matters has grown. In this regard, the SMG has produced a biotope map containing information on ecological spaces in Seoul. SMG has been utilizing the map in various areas of urban management, such as in setting the development permission criteria, Environment Impact Assessment (EIA), and environmental review of urban planning. A biotope refers to an area of certain environmental conditions that provides a specific assemblage of plants and animals with a living space. It is a biotic habitat clearly distinguished from other areas in the region. In the field of urban management, a biotope is regarded as a spatial unit with the least possible condition to maintain the natural ecosystem for the survival of living organisms.

According to their conditions, biotopes are classified into five types, each assigned with a level from one to five: Level one is given to a biotope whose entire area must be preserved at all cost; Level two goes to a biotope of which the whole area should be preserved with priority; Level three is given to a biotope of which some areas need to be preserved with priority, while the rest are subject to land use restriction; Level four goes to a biotope with some area subject to land use restriction; Level five is given to a biotope where improvements should be made in some areas.

Since 2000 when SMG first introduced the biotope map of Seoul, it has widely been used in the urban management. For instance, the SMG has availed itself of the biotope map for preserving Seoul's natural ecology, land sustainability assessment, and EIA. To secure reliability of the information, the map is updated with new data every five years. Yet its main usage is currently limited to a means of directly regulating or managing biotopes with respect to their biotope levels. In other words, the potential of biotope map is not fully realized in the city's environment-friendly urban planning and management.

In addition, the development standards applied to level-one-type biotopes, which have been used in the SMG's environmentally friendly urban management, are different to the current environmental planning standards. Consequently, it is difficult and inappropriate to use them together. Moreover, the SMG's urban management plan does not provide specific evaluation methods and necessary criteria for constructing a biotope. In recognition of these issues, this research draws up a plan as to what approaches the SMG should take to more effectively use the biotope map in tandem with the current urban management system. Furthermore, it provides information requisite to lay the foundation for ensuring the practicability of the existing urban management system, and developing a more effective ecological plan in the future.

2. Main Findings

This study presents herewith the findings from the evaluation of current urban management systems, including the environmental review of urban planning, the Environmental Impact Assessment (EIA), and Green Building Certification systems

SMG has implemented various urban management systems by making reference to the biotope map for the sake of the city's sustainability. Among them include the environmental review of urban planning, EIA, and Green Building Certification systems. Urban planning mandated and implemented by the law may impinge on environment, climate pattern and urban ecosystem, while affecting the public health and energy consumption. The environmental review of urban planning is conducted in anticipating these influences on the lives of Seoul citizens. This is essential to develop a solution for the eradication or restoration of such damage. Through these efforts, the SMG aims to create an environmentally healthy and sustainable city. The review criteria include items for biotope assessment. Within the SMG, ideas should be collected from departments responsible for each segment of biotope assessment, and then reported to the division, which is in charge of environmental review of urban planning.

EIA, on the other hand, assesses the impact of urban development projects on the environment nearby the designated project sites. Total 26 projects in 11 fields such as housing site development projects (occupying land in the total size of 90,000-300,000m²), are subject to EIA. The assessment criteria comprise 20 items spanning over 6 areas, including ones assessing impacts on air quality and the lives of animals and plants. The assessment report is reviewed by the Seoul Institute or other expert bodies, and then deliberated by the Environmental Impact Review Deliberation Committee. SMG also carries out a regular investigation twice a year, checking whether deliberations are properly carried out.

Lastly, the Green Building Certification system evaluates the environment-friendliness

of buildings. If it is up to the standard, the system can certify green buildings. With the system, the SMG aims to create a healthy environment by reducing environmental burdens produced in the course of construction. They include the excessive consumption of energy and pollutant emission that may occur in building design, construction, maintenance, and waste discard. SMG applies different certification criteria to different structures with varied purposes, such as apartment buildings, multiplex buildings and accommodations. SMG carries out the Green Building Certification System in pursuit of creating green spaces and habitats such as a biotope within the construction site. It is to create an environment for living organisms, and securing the ecological function of spaces outside the building.

As of 2015, the total size of level-one biotopes was 9,829ha, occupying 16 percent of total Seoul area

In detail, green belt zones have the most level-one-type biotopes (approximately 85 percent), and residential areas have 15 percent. It should be checked whether level-one biotopes are present in a project site before permitting development activity. Recognizing the need to thoroughly investigate the condition of each biotope and growing requests from the citizens to adjust the level of biotopes in their neighborhoods, SMG has revised the relevant guidelines. And a system has been established for regular maintenance of biotopes.

The environmental review of urban planning covers biotope assessment, yet the assessment criteria are mostly non-specific. There are also no guidelines for post management of biotopes upon the completion of urban development projects

Environmental review reports of 51 urban development projects carried out in 2013 and 2014 have been analyzed. They comprise 13 reconstruction projects, 12

district unit development projects, and 26 urban planning facility construction projects. The environmental review with biotope assessment was carried out in 43 projects. However, the environmental review without the biotope assessment was conducted in 5 projects. The rest had neither environmental review nor biotope assessment. The biotope assessment criteria in the environmental review are too general at present: It merely states the level of a biotope and describe its condition upon the completion of development project as “no need to alter the current level-type,” “only minimal damage is made” or “improvement is likely to be made upon the initiation of future development project.” The criteria do not assess the specific condition of biotopes. Therefore it is difficult to derive any solutions for improvements.

All the 51 urban development projects subject to the environmental review reportedly have biotopes in their designated project sites: 9 have the level-one-types; 15 have the level-two-types; 14 have the level-three-types; 13 have the level-four-types; and 21 have the level-five-types. Some of them have more than one biotopes.

[Table 1] Number of Urban Development Projects (Subject to the Environmental Review) with Biotopes

Biotope Level-Type	Level 1	Level 2	Level 3	Level 4	Level 5
No. of Projects	9	15	14	13	21

Note: Only included projects where the biotope assessment was conducted with the environmental review

The current EIA does not give directions as to how biotopes that have been damaged in the course of urban development should be restored

In general, urban development projects subject to the SMG’s EIA are required by the EIA deliberation committee to build terrestrial and aquatic biotopes within their project sites. This process ensures the biodiversity in the areas. In case there exists a level-one or level-two biotope close to the project site, the project planner should

consider connecting them with green spaces. When the designated development site contains a level-one biotope that should be preserved, but are likely to be damaged in the course of development, alternative green space must be set aside. It is the EIA's mandate that the size of alternative green space to be larger than the size of damaged biotopes. Yet the EIA gives no standards regarding to what should be done to restore damaged biotopes.

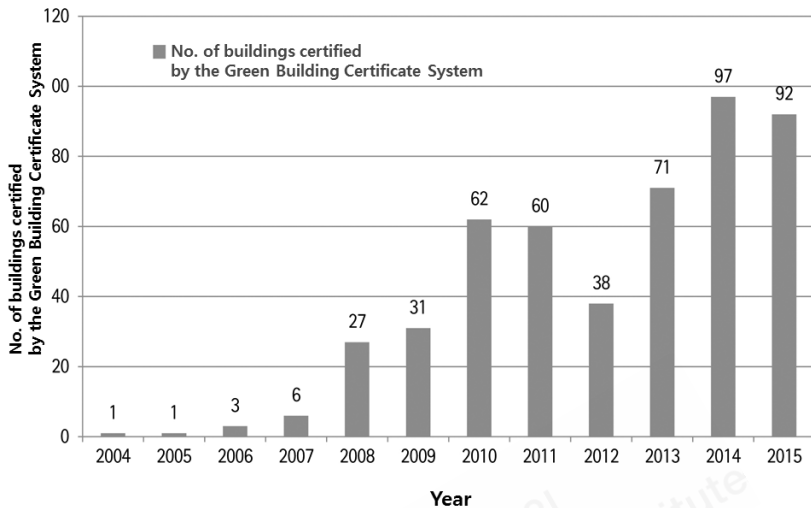
For this research, the alternative green space plan of 5 urban development projects with accessible EIA data have been investigated. It has been found that every designated project site has enough space to build alternative green area. The size of spare area is, on average, over twice larger than the size of damaged biotopes; in some cases, a difference between the two is over three to one. However, it has been found that such space is not entirely spared for alternative green. For example, Oksu 13 and Bugahyeon 3 development sites have the largest space (relative to the size of damaged biotopes) available for alternative green space among other urban development project sites. Yet the given space is not reserved specifically for alternative green: The area spared for alternative green comprises just a small part of a large space previously reserved for park. Excluding such cases, spare spaces available for greenery within the project sites is approximately 1.7 times larger than the size of damaged biotopes. In the case of Godeok Jugong Apartment Complex 2 development sites, the SMG has changed the location of an alternative green space, considering ongoing road and trail construction and the location of a nearby green space (Bangjuk Park). With the change, the government aims to create wider alternative green space adjacent to well-preserved biotopes at the development site, while connecting with other biotopes near the site. In addition, the SMG plans to transplant every 120 damaged tree in level-one biotope (1,085m²) to the alternative green space.

[Table 2] Damaged Biotopes and Alternative Green Spaces at Each Designated Project Site

Project site	Site size (m ²)	Biotope size (m ²) (Level-one-type)	Damaged biotope size (m ²)	Alternative green space size (m ²)	Alternative green space size relative to damaged biotope size (%)
Cheonwang 2	278,887	72,895	18,168	18,213	100
Oksu 13	124,465	5,451	5,451	19,404	356
Bugahyeon 3	263,101	3,888	3,888	11,398	293
Godeok Jugong Apt. Complex 2	246,210	3,783	1,086	3,005	277
Seoul Samsung Hospital	157,005 (actual development site size 48,727)	1,389	1,389	1,714	123

The Green Building Certification system encourages building owners to adopt energy conservative and environment-friendly practices in building construction and maintenance, offering various kinds of incentives

SMG makes it compulsory for apartment buildings with more than 500 residential units to acquire the Green Building Certificate. Other types of building structures may apply for the certificate voluntarily. The Green Building Certification system provides various incentives. They include property tax exemptions, support for obtaining the Green Building Certificate, environmental improvement charge discount, and relaxed regulations regarding the floor area ratio, building height, and the size of landscape area. Between 2004 and the third quarter of 2015, total 489 structures were certified as green buildings by the SMG's Green Building Certification system: 12.9 percent were rated with the "Excellent" ; 70.1 percent received the "Good" ; 11.9 percent obtained the "Fair" ; and 5.1 percent were given the "Ordinary". The amount of incentives is different across the rate of certificates.



[Figure 1] Number of Buildings Certified by the SMG's Green Building Certification System (2004-2015)

The condition of urban development site should be carefully weighed when establishing a biotope management plan

To come up with an effective biotope management plan for environment-friendly urban management, development sites subject to the environmental planning review and the EIA, and structures that must be certified by the Green Building Certification system have been examined. This report categorizes urban development project sites subject to the environmental planning review into three types: reconstruction sites, district unit development sites and urban planning facility construction sites. Among them, it specifically looks at the sites with level-one and level-two biotopes. In regard to development sites subject to the EIA, this study examines ones in which level-one biotopes have been damaged or new biotopes have been built in the course of development. Lastly, building structures that have biotopes within their building sites or received outstanding grades in the certification have been studied.

This report explains how to distinguish a biotope “nearby” the designated development site from one “adjacent” to the site. The former refers to the biotopes that are situated in close distance from the project site, yet separated from it by a paved road running between the two areas. In the case of the latter, there is no such paved road. This study confirms the necessity of not only restoring damaged biotopes, but also improving the condition of undamaged biotopes. Moreover, we delineate factors that should be considered in the biotope assessment, such as what is required for an area to be accepted for alternative green space. This research also explains what details must be included in the environmental review report prepared upon the project execution. Lastly, it supports the idea that a well-organized management system should encompass a plan for post management.

Eighty eight percent of experts claim that not only biotopes within the development site, but ones located nearby the site should be taken into consideration for preservation

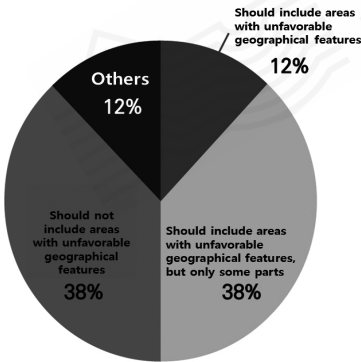
The survey of experts has been conducted on the issues regarding the preservation and restoration of biotopes, and the construction of alternative green spaces. It serves the following two purposes: One is to organize the biotope assessment methods and criteria by making reference to the results of the research and field study. Another is to secure additional objectivity in contents that may impose burdens to project managers.

To the question whether biotopes nearby development sites should be considered for preservation along with those located within the site, the large majority of experts answered in the affirmative: “Absolutely yes (42 percent)” and “Yes (46 percent).” The rest responded “Maybe (8 percent)” and “No (4 percent).”

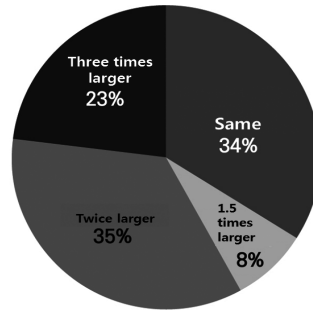
If biotopes near development sites are to be considered for preservation, there should be made a clear distinction between ones “nearby” the site and others “adjacent” to the site, said 84 percent of respondents. To the question as to what is

the appropriate range of nearby biotopes, the largest number of respondents (40 percent) answered “Biotopes located within 50m from the project site.”

Regarding the construction of alternative green spaces, the field study has found that, in many cases, such spaces are created in areas with unfavorable geographical features, such as steep slopes and rocky lands. Recognizing this trend, the survey asked experts whether they consider if it is appropriate to include such kinds of areas in the list of desirable sites for alternative green space. 38 percent responded that it would be appropriate to count only some part of such areas, whereas the same proportion of respondents answered that it would be inappropriate to consider such areas at all. To the question concerning the size of alternative green space, the biggest number of respondents (35 percent) answered that it should be twice larger than the size of damaged biotopes. Slightly less number of experts (34 percent) said that it should be the same size as that of damaged biotopes. The rest responded “three times larger (23 percent)” and “1.5 times larger (8 percent).”



[Figure 2] Responses Regarding to the Location of Alternative Green Space



[Figure 3] Responses Regarding to the Size of Alternative Green Space (relative to the size of damaged biotopes)

Biotope assessment methods and criteria regarding the location, size, type, and planting of alternative greenery should be developed and implemented

We propose herewith a revised version of biotope assessment methods and criteria as [Table 2] below. Based on the analysis of both research and field study, this the first draft of such methods and criteria was first drawn. Next, they have been modified through the expert survey and consultation.

[Table 3] Revised Biotope Assessment Methods and Criteria

Criteria	Details
Location	<ul style="list-style-type: none"> • Create a biotope in the place where monitoring is convenient, while human interventions are minimal and various kinds of environmental pollutants and noise sources (e.g. vehicles, bicycles) are distant • Aquatic biotopes are to be created in the place with no risk of soil loss by rapids in the time of heavy rain • Terrestrial biotopes are to be constructed in an open space and connected to nearby green areas • Alternative green spaces: <ul style="list-style-type: none"> - Select a desirable site near the biotopes damaged in the course of urban development project for alternative green space construction - Only count some part (maximum 30%) of the areas featured by undesirable geographical characteristics (e.g. slopes, rocky lands) for alternative green space construction - The spatial scope of alternative green space is better be within a close range of designated project site (e.g. a destructed forest adjacent to the site) - Allow alternative green space created in the area obtained through contributed acceptance (i.e. a land contributed to the government by the private owner)
Size	<ul style="list-style-type: none"> • An aquatic biotope: minimum 90m² • A terrestrial biotope: 180m² (at least 3% of the total size of development site) for the minimum size of construction site, 3m for the minimum width • In case if an alternative green space need be created, propose its size to be at least 1.5 times larger than the size of damaged biotopes • The size of aquatic biotopes, terrestrial biotopes, and alternative green spaces may be included as part of an green area
Type	<ul style="list-style-type: none"> • Provided that every other condition is the same, build a round-shape biotope instead of long, narrow one (the former is more effective) • Aquatic biotopes: <ul style="list-style-type: none"> - A pond-shaped biotope does not have be created in a single form, yet should have various curves. It is necessary to ensure the diversity of aquatic ecosystem - If it is difficult to secure a large area within the development site, small ponds should be created in large quantities and they need all be connected with one another to enhance the biodiversity

[Table 3 continues] Revised Biotope Assessment Methods and Criteria

Network building	<ul style="list-style-type: none"> • Build a green network by connecting green spaces and biotopes created within and outside the project site and existing natural habitats nearby the site to each other. It would help ensure the stability of local ecosystems that may be damaged in the course of urban development
Planting	<ul style="list-style-type: none"> • Draw a planting plan by identifying the species of living creatures inhabiting a biotope. The plan should be prepared for planting local plants in a multi-layered structure • Select a plant species that can contribute to maintaining and enhancing the ecological function of a biotope. Focus on species that inhabit or used to inhabit the development site or places nearby the site • Need to construct vegetation zones on the periphery of a biotope as a buffer from external influences • In case if the vegetation of a level-one-type biotope has to be transplanted to other area due to its low density and dearth of plants, regard the area as an alternative green space • Transplant a certain number of damaged trees to a new designated area and if they successfully adapt to the new ecosystem, increase the planting volume of such a tree species. When additional trees (or other types of plants) need be planted, avoid ornamental tree species as much as possible • Plant shrubs or creeping plants as well as high trees to provide target animal inhabitants with food sources • Planting tree species do not have to be equal to ones inhabiting the biotope, yet do not plant naturalized plants (e.g. Acacia trees) or foreign plants. Select appropriate ones from the Seoul's native plants, and plant them in harmony with other plants in the biotope
Inhabitants	<ul style="list-style-type: none"> • Aquatic biotopes: Construct perches on which birds and insects can rest • Terrestrial biotopes: <ul style="list-style-type: none"> - Construct nests, feed buckets, water sources, etc - Build animal burrows (e.g. a mound of stones, a pile of logs) • Alternative green spaces: <ul style="list-style-type: none"> - In principle, select a single species of living organism as a target species - Choose a target animal and plant species after carrying out the research and field study of natural habitats damaged by urban development, surveying the residents nearby the project site, and consulting experts

[Table 3 continues] Revised Biotope Assessment Methods and Criteria

External influence	<ul style="list-style-type: none"> • Use various means (e.g. building fences, growing hedging plants) to minimize external influence
Maintenance	<ul style="list-style-type: none"> • Regularly check and improve the condition of biotopes and alternative green spaces with the consideration of the ecological characteristics of target living organism species. Block the light of street lamps, noise of cars, etc • Write an annual report on the post management of biotopes and alternative green spaces. Make reference to the findings when carrying out the post management in the following year • Construct direction (sign) boards <ul style="list-style-type: none"> - Inform guidelines regarding to biotopes - Inform guidelines regarding to the biotope management - Inform guidelines regarding to the code of conducts and precautions that should be taken by managers, residents, etc

3. Conclusions & Policy Recommendations

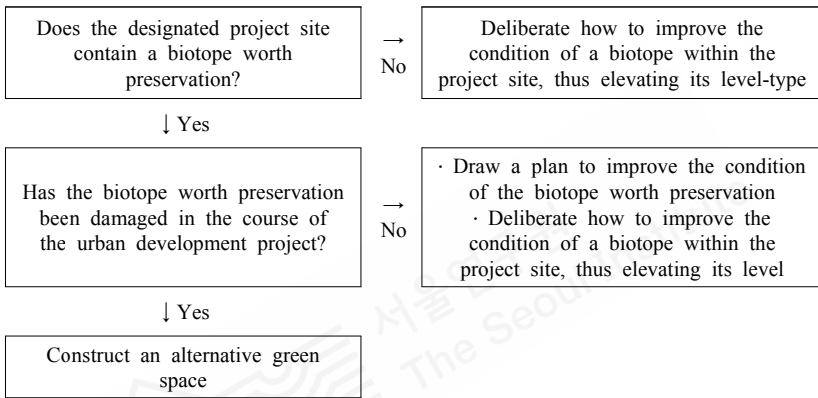
The revised biotope assessment methods and criteria suggested in this report are expected to enhance the practicability of the existing biotope assessment system and be usefully utilized in establishing the city's ecological urban management plan

We proposed a revised version of the biotope assessment methods and criteria for the environmental planning review, the EIA and the Green Building Certification system. The following is the summary of the biotope assessment system improvement.

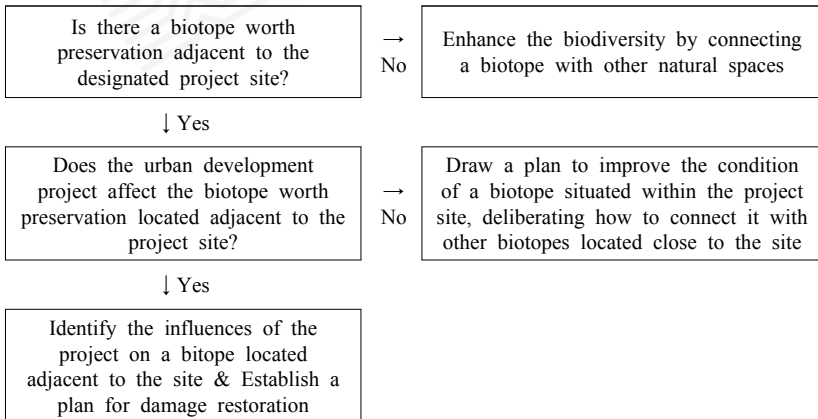
For the environmental planning review, the biotope assessment methods and criteria should be objectified so the results can be quantified. If there exists a biotope worth preserving within or close to the designated urban development site, the project manager should examine the condition of biotope in the project plan. If the biotope that should be preserved is damaged in the course of development, the manager is bound to prepare a plan for restoring damaged biotope or creating alternative green space by complying with the biotope assessment methods and criteria. This plan should be submitted to the relevant department within the SMG for revision. In regard to the biotope assessment method, two different improvement

plans should be drawn separately for biotopes located within the project site and those found outside the area. The diagnosis on biotope conditions is to be prepared to identify the current biotope conditions and develop solutions for improvement, if necessary. This report would be able to assist reviewers who make reference to the report to better comprehend it, thus supporting their decision making.

Biotope Assessment Method (for biotopes situated within the project site)

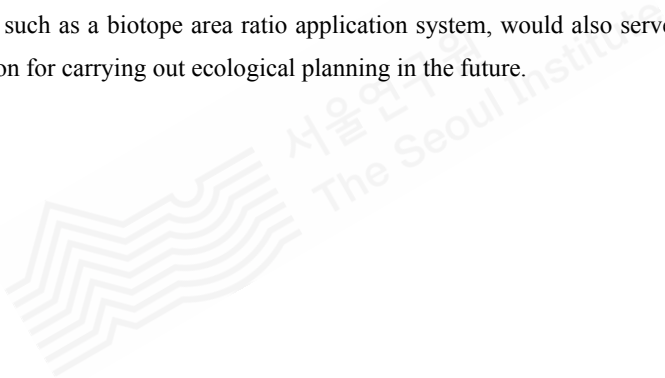


Biotope Assessment Method (for biotopes situated outside the project site)



The size of alternative green space should be defined and included in the SMG's EIA standards. Tree planting methods should be specified as well. For instance, plants of various heights and sizes need to be planted together, while plants should be selected from native and indigenous species. It is strongly recommended to create vegetation zones nearby the designated project site as a buffer from external interventions. In regard to the biotope maintenance, specific methods for managing its location, size, type, inhabitants, external influence, and maintenance have been described in this research.

It is expected that a newly improved biotope assessment scheme will ensure the practicability of the existing environment-friendly urban planning and management system. The scheme combined with other environmentally friendly urban planning systems, such as a biotope area ratio application system, would also serve as the foundation for carrying out ecological planning in the future.



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