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“Shrinking Smart” : Strategies and planning for Revitalization of Shrinking Communities

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Establishing a concept of shrinking smart for urban regeneration

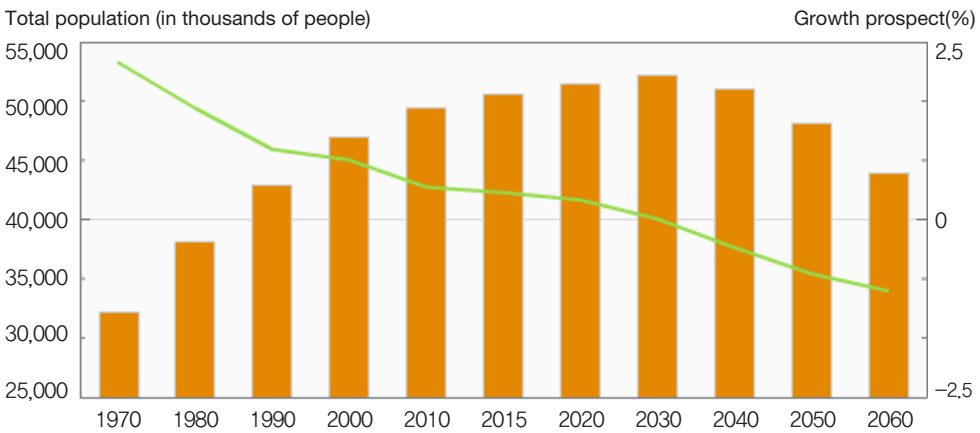
In general, despite ongoing urban obsolescence and decay, urban regeneration through development became a strenuous challenge due to the economic recession. In the case of Korea, development-oriented urban regeneration has been faced with limitations, and, as a result, Korea’s regeneration policy has been shifting in the direction of focusing on regional characteristics and values. Now is the time to establish appropriate strategies and plans incorporating the unique aspects of Korea, with a shrinkage-accommodating plan towards ill-matched scale and demand as well as low use of space.

Accordingly, a concept of shrinking smart for urban regeneration and its planning direction are newly established in this research based on a relationship with its relevant concepts, such as smart growth, compact cities, and new urbanism, that are found in a paradigm of urban planning. In this research, shrinking smart for urban regeneration is defined as an extended philosophy of existing concepts like smart decline and smart shrinkage, and it is more focused on improving the quality of urban life with less development of population, buildings and land use.

The concept of shrinking smart for urban regeneration entails a philosophy of urban regeneration for a shrinking community, an intensive use of land and networking facilities, restoration of empty space to its previous state of development, and afforestation as a way of spatial planning that lowers spatial density according to community demands.

Situational analysis of shrinking cities in Korea and future forecasting

When discussing urban regeneration of older cities, there is not much thorough analysis in terms of the level of urban and spatial decline. Hence, this study has reviewed the trend of shrinking cities by analyzing over 20 years of data in regards to the indicators of population, economic, and environmental shrinkage per administrative division as well as their residential stability. Also, the study has monitored the latest press coverage under a keyword of 'declining aspects of neighborhood' in order to identify trends of shrinkage and/or shrinking cities. Until now the total population of Korea has been declining, while its sluggish population growth rate was 0.38% in 2015. Furthermore, providing that this trend of stagnation continues, an era of population decline will ensue after 2030. Moreover, upon closer observation, this study isolated some distressing tendencies not only involving population but also of socioeconomic aspects depending on regions. On the other hand, some regions that have displayed high levels of spatial values due to the high degree of resident's settlement and a long history of urban development, even though there are signs of deterioration in the population and economy.



Change in Population Growth Rate and Estimated Future Population

※ Source : Statistics Korea (2011), Population projections for Korea: 2010 to 2060.

International Comparison of Population Growth Rates (Unit : person)

Year	Republic of Korea[1)]	Japan	China	India	France	United States	United Kingdom
'90~'95	1.01	0.36	1.20	1.91	0.41	1.04	0.27
'95~'00	0.83	0.20	0.68	1.73	0.41	1.20	0.33
'00~'05	0.48	0.20	0.58	1.57	0.74	0.93	0.45
'05~'10	0.52	0.06	0.62	1.35	0.57	0.92	0.58
'10~'15	0.48	– 0.08	0.61	1.24	0.55	0.81	0.57
'15~'20	0.32	– 0.23	0.44	1.08	0.48	0.78	0.54

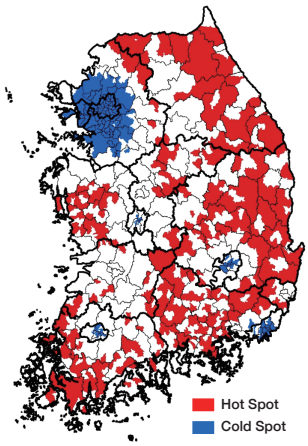
Footnote : 1) The UN documentation method for the population growth rate is employed for the international comparison (e.g. ln(Yn/Yo)/n*100)

2) The countries' population growth rate from 2010 to 2015 and 2015 to 2020 is based on the presumption of the medium fertility rate.

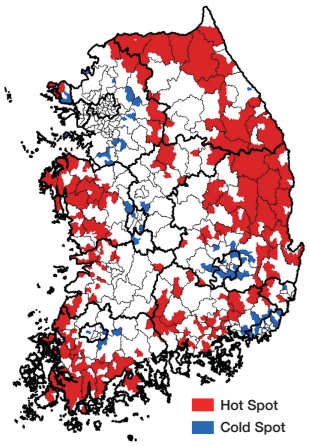
※ Resource : UN(2013). World Population Prospects : The 2012 Revision, Statistics Korea (2011) : Estimation of the future population from 2010 to 2060

On the other hand, through forecasting shrinking communities in the future, the study has attempted to extract required communities for shrinking smart of urban regeneration in Korea. It is an effort to identify the answers of one of the research questions; which places require emptying and/or reduction plans. The outcomes have been derived from LEAM analysis upon scenarios, where potentially shrinkable residences have been microscopically analyzed as a unit size of 90m×90m. As a result, over 70% of myeon, an administrative subdivision, mostly applicable to farming and fishing villages, are predicted to shrink, while 15% of similar subdivisions in urban settings are destined to see the same future. In addition, if 5% and 10% of respective residential areas are expected to shrink in the future, a preemptive response against shrinkage seems necessary to most regional, small- and medium-sized cities except for the capital area and provincial centers. Among regional areas, many shrinking hot spots of residential areas are dispersed in Gangwon-do, Gyeongsang-do (both South and North) and South Jeolla-do. Presumably, if 10% of residential areas are shrinking, the shrinking will affect areas in the capital region, and, then provincial centers may follow the same tendency. After all, none of the regions can be free from the issue of shrinking cities. Under the given circumstances, it is necessary to allow for regeneration approaches of shrinking smart cities and adoption of policies on a national level that are applicable to an era of low growth while selecting prioritized areas for management among shrinking cities.

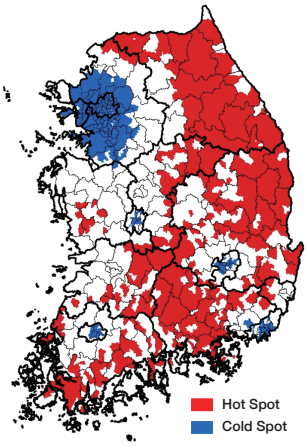
1) The ageing population reached 12.2 % in 2010, 23 % in 2030, and as result of this, it is predicted that the country becomes a super aged society in 2030 (Statistics Korea (2014), e-National Indicator); according to the US CIA World Facebook 2011, the total fertility rate of South Korea is 1.19 babies, and the figure is the lowest number followed by the countries: Singapore (0.8 babies), Macao (0.93 babies), Taiwan (1.11 babies), Hongkong (1.17 babies)



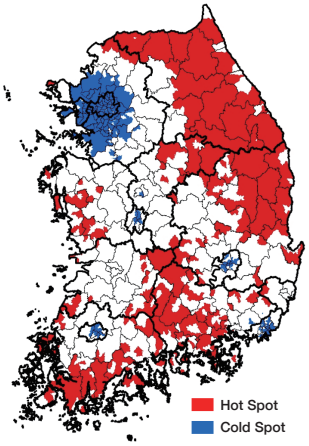
Moderate Scenario(5% shrinkage : based on area)



Active Scenario(10% shrinkage : based on area)



Moderate Scenario(5% shrinkage : based on proportion)



Active Scenario(10% shrinkage : based on proportion)

Population Density According to the Predicted Shrinkage of the Residential Area

Shrinking smart in shrinking communities as a spatial management

This study has predicted some of the potentially shrinkable regions in Korea through microscopic analysis. Along with the analysis, this study has inquired whether spatial management has been conducted over a reflection of the demand that has occurred from the shrinking communities defined in the previous section. Furthermore, the disparity of the spatial planning and the situation have been analyzed in terms of density and land use in this part. In addition, the study has defined the current state of spatial management and shrinking aspects in declining regions, and explored whether shrinking smart for urban regeneration is applicable to those regions. Briefly, this has illustrated a process of actual means that employed a direction of urban planning, factors of spatial planning that affected shrinking communities, and shrinking smart for urban regeneration.

A list of target regions for the analysis were Dong-gu in Busan as a metropolitan city, Naju-si as an old downtown in one of the regional small and medium-sized cities, Taebaek-si as a place facing severe urban issues of industrial decline and Yesan-gun as a farming village. Consequently, even though each place has been suffering from different aspects and causes of decline, authorities have established excessive aims and models of urban planning, pursuing growth-oriented urban planning without accepting the reality of shrinkage.

Also, the research is designed to identify what the physical and environmental factors cause in-occupancy of houses in Busan and Yesan-gun in order to figure out what spatial-planning factors cause the typical aspect from shrinkage: in-occupancy of houses. In short, when residential concentration and intensive land use have been higher, vacant housing has been occurred less. The variables of mixed land use and concentration of dwellings have exhibited statistical significances in all regions under analysis, whereas it was revealed that the variables of spatial planning have a bigger impact than other variables when evaluating influential differences among all variables with standardized coefficients.

Therefore, more active approaches with elaborated spatial planning are required for minimizing vacant housing and avoiding urban shrinkage. As higher mixed land use entails lower probability of vacant housing, mixed land use may be keenly encouraged to reduce the occurrence of vacant housing. Since concentration of dwellings has a high level of influence over vacant housing, efforts to retain an appropriate level of residential concentration may help avoid urban shrinkage. Furthermore, this may build the foundation for proceeding with projects for networking facilities and compact land use for shrinking communities.

Some of the typical ways of shrinking smart for urban regeneration to utilize functionally deteriorated and abandoned buildings and to employ lands that do not meet requirements and introduce greening. The study has itemized some of the actual best practices.

Planning Tasks on shrinking smart for urban regeneration

Drawing from the overall outcomes of the analysis in the previous sections, the current state of spatial planning for shrinking communities in Korea and search for solutions through various dynamics for shrinking smart for urban regeneration, the study has suggested some ways of required spatial planning subjects and policies in pursuit of shrinking smart for urban regeneration establishment.

One of the most urgent tasks of spatial management plan required by shrinking smart for urban regeneration is to select a prioritized management area in the shrinking cities and to plan. A series of conducting methods such as an indicator-based selection and spatial statistics technique can be carried out for the selection of prioritized management areas in the shrinking cities. Building of elaborated spatial data on shrinking communities enables planned execution

in various aspects. Above all, it ensures the forecasting of shrinking cities and likewise communities that are in need of prioritized execution plans, and develops a rational execution plan accordingly.

As the subject of spatial planning is not for the present but for the future, spatial planners may have to inevitably carry on with a prospect for the future.

In order to select and deliver prioritized management, it is necessary to set an area and manage the space under consideration of shrinking smart in reference to the existing urban planning and urban regeneration plan. Therefore, the research has proposed a review of current urban regeneration and urban development as well as a task of readjustment of designated areas. Furthermore, since shrinking smart for urban regeneration requires a separate planning system, the study introduced a subdivided task for spatial management plan for shrinking communities.

Spatial Planning Tasks for Shrinking Smart of Urban Regeneration

Classification	Details
Selecting the regions to implement the shrinking smart project for the urban regeneration	• To designate prioritized region for management and proactive measures • To forecast future land use in order to manage the regions after the shrinking smart project for urban regeneration • To gain data on the space in order to see the likelihood of shrinking the space of the neighborhood
Restructuring the urban space for smart downsizing	• To maintain the existing cities and adjust the development zones – To review projects on urban development and urban regeneration for existing cities – Issues on the designation of urban regeneration and development zones
	• To establish the systems related to the shrinking smart project for urban regeneration – To select prioritized regions for management of the shrinking smart project and to take a proactive measures through the space plan – To connect the existing plan for urban development and the urban regeneration plan
Mapping out the detailed plan on the management of the shrunk neighborhood	• To manage land use as well as the land-use density in the regions appointed as the object zone for shrinking smart project for urban regeneration • To make active use of all means of shrinking smart project for urban regeneration

Policy suggestions for the pursuit of shrinking smart for urban regeneration

As a principle of planning in shrinking smart for urban regeneration, this research has established 1) setting proper goals and levels in consideration of the size and composition of the residents, 2) retaining characteristics of the residents and their environment while preserving diversity, 3) prioritizing the quality of residents' lives when set upon a direction of a sustainable spatial structure-oriented plan in a socio-environmental framework. As a result, the study has suggested a setting of policies as below to boost shrinking smart for urban regeneration, based

on the following discussions as a basic direction of spatial plan; land use efficiency of the built-up area and intensive use of land, greening of abandoned space, expansion of public use, and enhancement of networking infrastructure.

Policies on Applying the Shrinking Smart Project for Urban Regeneration

Classification	Policies
To establish the plans on the shrinking smart project for urban regeneration	• (Urban planning) To distinguish the prioritized regions for management when establishing the management plan and the master plan • (Maintenance and urban renewal plan) To apply the maintenance plan on the urban and residential environment to the shrinking smart project for urban regeneration • (Urban regeneration) To select management areas for the shrinking smart project for urban regeneration when establishing strategies and plans on urban regeneration • To devise the measures of establishing the plan on the shrinking smart project for urban regeneration according to the urban planning system including the maintenance plan and the urban master plan
Objective and direction of urban master plans and the downsizing project	• To suggest guideline for adjusting the objective of populations and spaces: to avoid setting infeasible targets or goals for the project on shrinking neighborhood • To make efforts to rationalize goals and plans on development and populations • To set plans and goals to improve quality by accepting shrinking in quantity
To rationalize plans and measures for urban management	• To implement regulations on the limitation of uses and down-zoning to control the densities and uses based on the characteristics of each region • To establish medium- and long-term plans for the practical use of abandoned land in neighborhoods • To promote the various measures for the shrinking smart project for urban regeneration when conducting the project and establishing urban maintenance plans
To support the policies for the shrinking smart projects for urban regeneration	• To gain data on spaces by neighborhood unit in order to select the prioritized regions for management of the shrinking smart project for urban regeneration • To implement the project step by step for the operation and application of shrinking smart plan for urban regeneration • To actively promote the shrinking smart project for urban regeneration

Key words : Urban Shrinkage, Urban Decline, Shrinking Smart, Community Revitalization, Shrinking Community, Urban Regeneration

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