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Balanced National Development

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Tel. +82-44-960-0178 Fax. +82-44-211-4772

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Balanced National Development in the Republic of Korea: Experience and Challenges

Tae Hwan Kim

In the Republic of Korea, the history of balanced national development correlates in many ways with the country's rapid economic growth starting from the 1960s. In the course of economic development, large populations moved from the rural areas to cities, which resulted in gaps in development between the rural and urban areas. In particular, the increasing concentration of population in major cities caused many side effects. As such, a range of balanced development policies were pursued with the aim to curb the concentration of population in major cities and promote balanced development across the country. These involved building industrial infrastructure and new towns in many corners of the country and constructing high-speed transport infrastructure that connected the regions. Such policies yielded the foundations for people to settle in many regions and the bases for specialized industrial development.

In the 2000s, the Roh Moo-Hyun administration pursued more organized balanced national development policies. The Committee for Balanced National Development was

constituted as a Presidential Committee in charge of the balanced development of the country, coordinating different ministries' regional development projects and facilitating balanced development. The government also established the Special Account for Balanced National Development to narrow financial gaps among regions and underpin stable balanced development policies. In addition, with the aim to scatter the overcentralized functions of the capital region (Seoul metropolitan area), central government agencies and public institutions were relocated to other regions, and the New Multifunctional Administrative City and ten Innovation Cities were built across the country.

Recently, the overcentralization on the capital region has been more exacerbated, calling for a new approach to balanced national development. There also are demands for preparedness for structural changes toward fourth industries and potential imbalance in development among regions in the post-COVID-19 era. Major responses thereto include strengthening regional innovation, pursuing research and

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development, human resources development, and industry-academia cooperation in an attempt to achieve specialized development powered by technological innovation system. Areas experiencing continued population decreases are eligible for differential support programs to maintain the quality of life in lagging areas. Efforts are being made to establish foundations for self-reliant development. Korea is also active in raising the competitiveness of cities and regions to the global level by introducing an ultrawide metropolitan area strategy whereby the government pursues inter-regional cooperation and connections.

Korea's balanced national development policy will continue evolving and developing. Further efforts are warranted to make sure that no area is left behind following the changes resulting from low-birth rates, aging population, climate change, the new climate regime, and the accelerating digital economy, and to ensure that all areas have foundations for sustainable and self-reliant development. **Figure 1**

Tae Hwan Kim

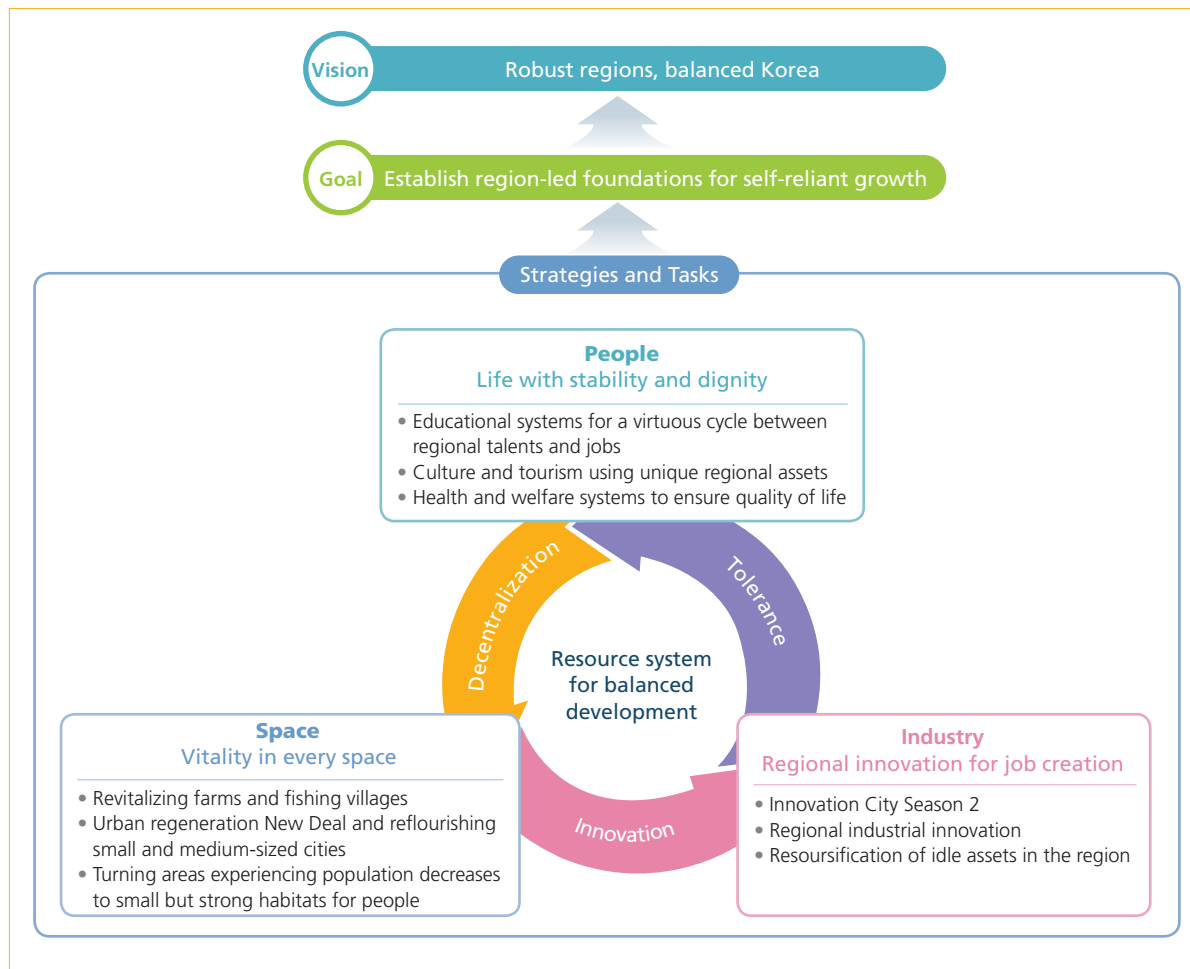
Director

(Senior Research Fellow)

National Balanced Development Research Center

thkim@krihs.re.kr

Figure 1. Vision and strategies for balanced national development



Source

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A Study on the Spatial Strategy for Balanced National Development

Seong Hee Min

Since the 2000s, balanced national development has been the most important issue in national land policies, and the spatial units and content range of related discussions have changed in complex ways and become more diverse, ranging from 1) the migrations from rural areas to urban areas following industrialization and urbanization to the resultant gap between urban and rural areas; 2) the gap between the growth and development axis centered on the Seoul-Busan axis and other areas; and 3) the gap between the capital area (Seoul metropolitan area) and the noncapital area.

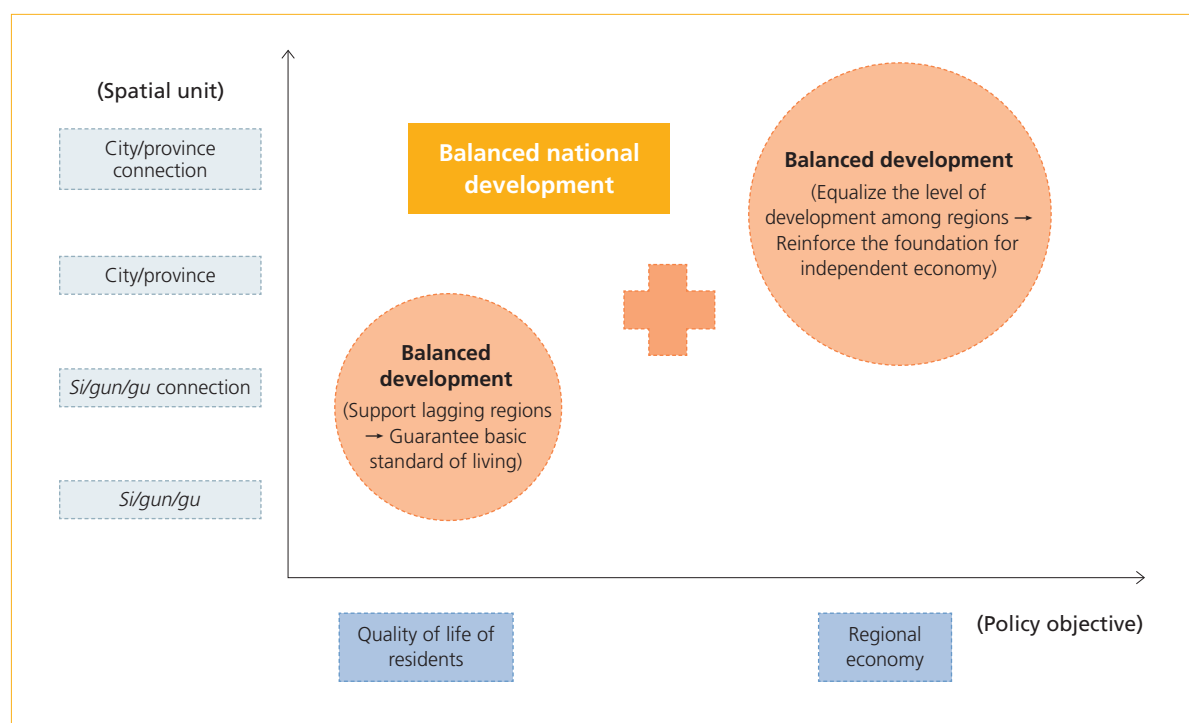
In particular, amid growing concerns that the imbalance of national land spaces is intensifying due to conditions such as intensified aging, population decreases, low economic growth, and the Fourth Industrial Revolution, a national land imbalance

is appearing as population and economic functions become more concentrated in large cities, including Seoul, and the decline of provincial small and medium-sized cities and non-urban areas is accelerated.

The decline of provincial cities, the decrease in rural populations and jobs, and the widening of gaps in welfare services such as education and medical care lower the socioeconomic vitality of the provinces, thereby driving people and businesses to the capital and metropolitan areas, eventually intensifying regional polarization.

In fact, local cities are shrinking, driven by changes in the population structure due to low-birth rates and aging. In some regions, even the supply, maintenance, and management of essential living infrastructure are difficult due to the lack of

Figure 1. Spatial units and policy objectives for balanced national development



Source
Min Seonghee, Lee Soonja and Hong Saheum et al. 2019.

the floating population necessary for maintaining such service functions.

Following the processes of aging and over-depopulation, life deserts occur as a result of the deterioration of basic living functions and the concentration of populations in metropolitan areas. Provincial small and medium-sized cities cannot maintain their functions as centers due to the lack of all living service facilities, leading to repetition of the vicious cycle of the concentration of populations in metropolitan areas.

To respond to various changes in conditions, the policy objectives of balanced national development should be multilayered. This is especially the case given the problems Korean society has recently faced, such as population decreases, aging, low growth, widening gaps between regions, and the restructuring of existing major industries, and the fact that resultant policy demands are different according to region and spatial unit.

At the same time, the spatial units of balanced development should also be multilayered to meet the policy objectives of balanced national development. Regions and places can be defined in multiple layers at various spatial levels, and it is important that the concrete targets of balanced development and the concrete contents related to them should vary according to which spatial level is assumed. The fact that the target and contents of balanced development should vary according to the spatial units suggests that deep introspection on the multi-layering of spatial levels is necessary when discussing balanced national development.

For balanced national development, it would be appropriate to set the spatial units of balanced development and the policy objectives to be achieved ultimately through balanced development in multiple layers. Moreover, the spatial units

of metropolitan areas (cities/provinces) and the spatial units that connect metropolitan areas (connecting cities/provinces) should set as their policy objective, the pursuit of balance through the reinforcement of the foundation for independent regional economic growth. On the contrary, basic units (*si/gun/gu* or *eup/myeon/dong*) should set as their policy objective, the improvement of the quality of life of residents and ensure that basic living standards can be guaranteed no matter which area residents reside in. That is, balanced national development can be said to be the setting of objectives differently according to spatial units and the achievement of those objectives by spatial unit. **Figure 1**

1. Multi-Layered Zoning

The multi-layered spatial structure connecting metropolitan areas to urban areas and life zones should be set as a spatial structure for balanced national development to promote balanced development on each layer. First, metropolitan areas (policy spaces) consisting of a metropolitan area (city/province) or a spatial unit that connects metropolitan areas (connecting cities/provinces) should be set as spatial units for balanced national development through reinforcement of the foundation of independent regional economies. Second, those of urban areas (functional spaces) should be set based on basic connections into areas that are economically, socially, culturally, and functionally connected as metropolitan areas centered on metropolitan cities separate from small and medium-sized urban areas, which are connections of general *sis* and *guns*. Third, basic-unit (*si/gun/gu* or *eup/myeon/dong*) life zones (administrative spaces) can be set as spatial units to expand the

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The multi-layered spatial structure connecting metropolitan areas to urban areas and life zones should be set as a spatial structure for balanced national development to promote balanced development on each layer.
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basic living base to improve the quality of life of residents.

The multi-layered spatial structure created through 1) the formation of urban areas (large, small, and medium-sized urban areas) as functional areas based on basic units of *sis* and *guns*, 2) the formation of metropolitan areas through connections between urban areas, and 3) the formation of life zones according to basic living-based services in urban areas is presented as a spatial structure for balanced national development. **Figure 2**

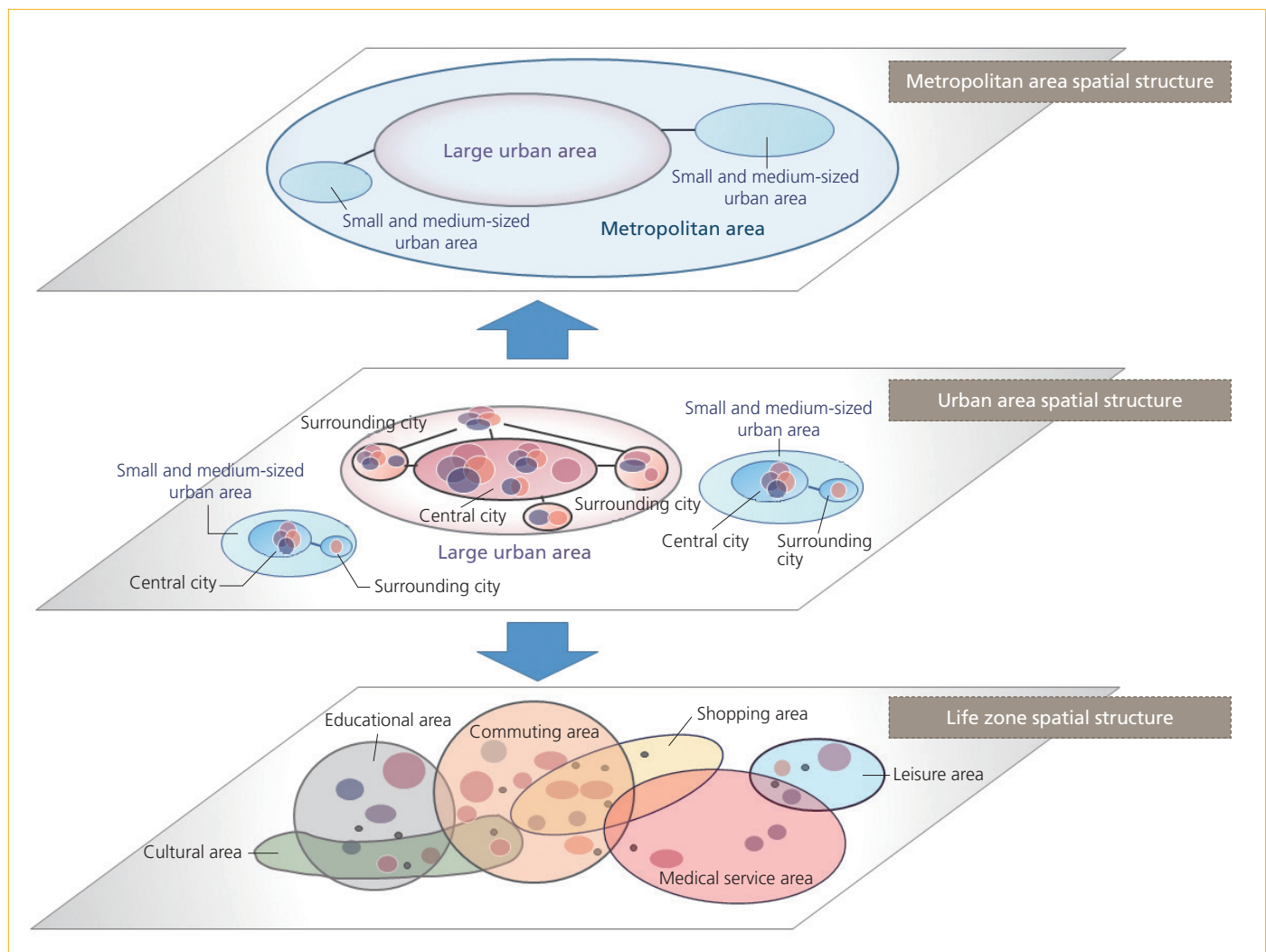
In order to primarily examine the functional aspects of urban areas, urban areas were partitioned utilizing network constraint analysis of data on commuting to work and school. Metropolitan areas were set centering on Seoul, Busan/Ulsan, Daegu, Gwangju, Daejeon/Sejong, respectively. Centering on cities other than those in the capital area and special/metropolitan cities, areas with high connectivity to surrounding areas were

partitioned to set 18 small and medium-sized urban areas.

Four metropolitan areas were set and presented as metropolitan area units for balanced national development as follows: 1) the central area that combines the capital area, Jeju Island, and Gangwon-do; 2) the Chungcheong area, consisting of Daejeon, Sejong, and Chungcheongnam-do/Chungcheonbuk-do; 3) the Honam area, consisting of Gwangju and Jeollanam-do/Jeollabuk-do; and 4) the Gyeongsang area, comprising Daegu, Gyeongsangnam-do/Gyeongsanbuk-do, Busan, and Ulsan.

The core of setting life zones is accessibility to various functions or facilities, such as medical care, education, commuting, shopping, and leisure, and the characteristics of individual facilities or functions should be set flexibly and with diversity. Since various facilities and spatial functions require

Figure 2. Multi-layered spatial structure for balanced national development



Source Min Seonghee, Lee Soonja and Hong Saheum et al. 2019.

different minimum population sizes and so forth to maintain themselves, life zones should be set flexibly based on the characteristics of the functional spatial units rather than being partitioned in a single form. **Figure 3**

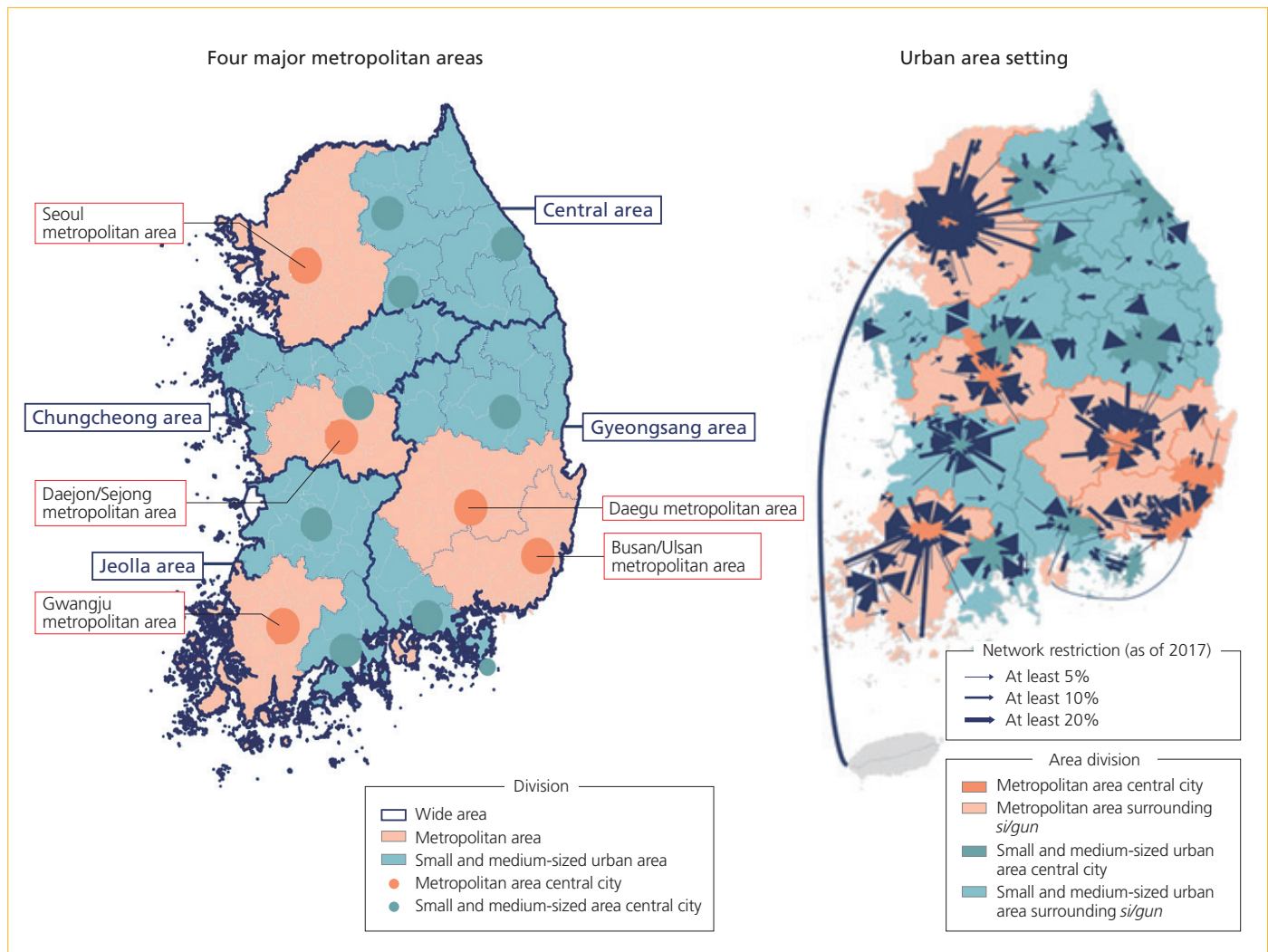
2. Spatial Strategies According to the Setting of Multi-Layered Areas

As spatial strategies to realize a multi-layered spatial structure for balanced national development, the division of roles and functions among cities, and the construction of a network system are necessary. Since the roles for balanced national development differ according to city hierarchy, the division of functions and roles among cities is important.

Metropolitan areas can contribute to balanced national development by dealing with wide area gaps, while small and medium-sized urban areas can contribute to balanced national development through the preparation of economic and settlement conditions via connections between small and medium-sized cities. Rural and vulnerable areas can contribute to balanced national development through the supply of basic living infrastructures and the establishment of wide areas to smoothly supply them.

In order for metropolitan areas to perform functions for balanced national development, the construction of metropolitan transportation networks based on connections among metropolitan areas is important. In order to solve common pending issues, such as the establishment and improvement of transportation systems in metropolitan areas,

Figure 3. Setting the four major metropolitan areas and urban areas



Source Min Seonghee, Lee Soonja and Hong Saheum et al. 2019.

the arrangement and utilization of wide-area facilities, and the linkage of functions, the necessity for responses in the wide-area dimension is increasing, further emphasizing the necessity of establishing network systems.

To foster large cities, it is important to strengthen economic competitiveness. Large cities must lead the revitalization of regional investments, job creation, and the specialized development of regions. Since not only economic competitiveness but also the preparation of foundations for competitiveness, such as the quality of life and inclusion, are important for metropolitan areas centered on large cities, along with the construction of infrastructure, functions in sectors such as administration, economy, welfare, culture, medical care, education, science and technology, and services should be established.

The fostering of small and medium-sized cities within metropolitan areas is required for balanced national development and the strengthening of national competitiveness. In order to minimize the additional loss of population and functions from local small and medium-sized cities, which are declining due to population decreases, aging, and so on, education and transportation services should be continuously provided so that local small and medium-sized cities can become bases for regional development.

In areas depopulated as a result of population outflow,

aging, and so on, policy efforts to expand the foundation for population settlement and to maintain and attract a greater population should be strengthened. In particular, education, medical care, welfare, participation, and culture, which are related to the quality of life of regional residents, should be sufficiently considered.

In order to efficiently execute spatial strategies based on the formation of a multi-layered spatial structure, improvements to laws and systems are necessary to develop the metropolitan area planning system and establish governance. In order to establish a metropolitan area planning system, it is necessary to review methods of changing the nature and role of metropolitan city planning in the current national land planning system and of establishing a new metropolitan area plan. As short-term alternatives to methods for establishing wide-area governance, there is a plan to form a wide-area council while maintaining the current legal system and an additional plan to introduce wide-area organization in the form of an administrative body in which planning and execution are integrated in the long term.

Seong Hee Min

Research Fellow

National Balanced Development Research Center
shmin@krihs.re.kr

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Network-Based Megaregion Strategies for Balanced National Development

Kyung Hyun Park

1. Crises in the Provinces and the Rise of Megaregions

Various countries in the world are pursuing network-based multi-centered spatial strategies from single metropolis growth models. The interest in the globalization and widening of economic spatial units, such as megacities, world cities (global cities), global city regions, megacity regions, superregions, megaregions, and polycentric urban regions, is increasing.

Korea has encountered problems in its balanced national development, which entail the intensified concentrations in the capital area and the crises in the provinces. While the concentration of the population, production, and incomes in the capital area is increasing, the crises in the provincial areas are so serious, to the extent that a regional economic downturn, the outflow of human resources, the collapse of local universities, and even the extinction of provinces are discussed. In order to

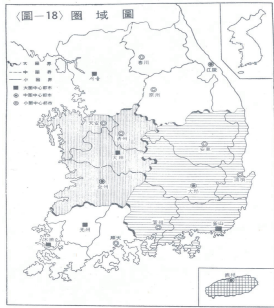
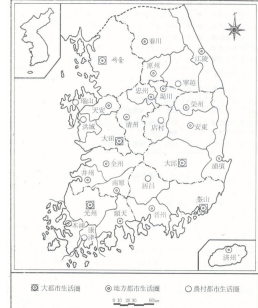
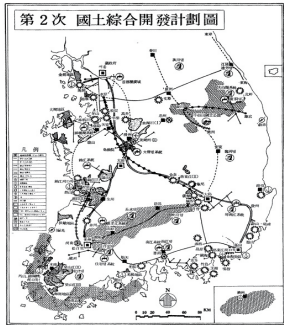
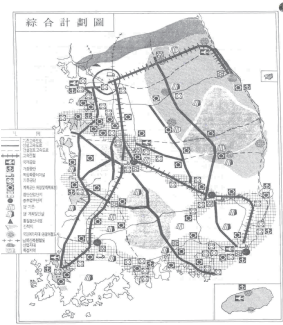
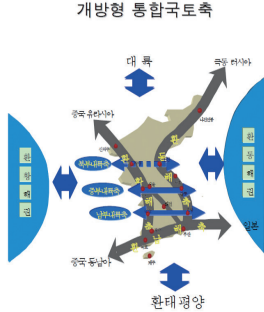
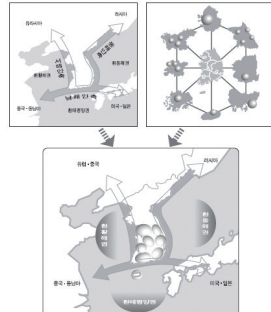
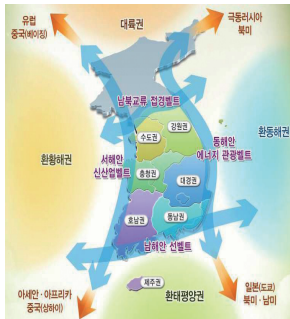
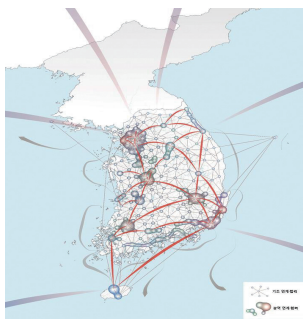
correct this imbalance, the mega-regional spatial strategy to integrate economic, administrative, cultural, and social functions by widening them, is emerging as a new alternative for balanced development policies. This paper is intended to diagnose the prior mega-regional spatial strategies and suggest the directions for mega region development in Korea.

2. Concept and Characteristics of Megaregions

In general, a megaregion refers to a spatial aggregation divided by administrative districts, but in which daily living or economic activities are functionally linked. The interest in megaregions began when the phenomenon of multiple cities and regions continually merging into one huge urban or economic region, as they mixed with neighboring regions through population growth and outward diffusion, was



Table 1. Transition of the mega-regional spatial strategies of the Comprehensive National Territorial Plan (CNTP)

Division	The 1 st CNTP (1972-1981)	The 2 nd CNTP (1982-1991)
Area setting	• 4 large areas, 8 medium areas, 17 small areas	• 28 regional life zones
Spatial conception		
Division	The 2 nd CNTP Revised Plan (1987-1991)	The 3 rd CNTP (1992-2001)
Area setting	• 3 regional economic zones	• Formation of 9 areas and 3 new industrial areas
Spatial conception		
Division	The 4 th CNTP (2000-2020)	The 4 th CNTP Revised Plan (2006-2020)
Area setting	• 3 coastal axes, 3 east-west axes, 10 wide regional areas	• Open type (π type) national development axis • 7+1 economic zone
Spatial conception		
Division	The 4 th CNTP Revised Plan (2011-2020)	The 5 th CNTP (2020~2040)
Area setting	• Mega-regional development zone • 5+2 wide regional economic zones	• Conception of smart national land • Formation of various spaces (areas)
Spatial conception		

Source CNTP, individual years.

observed. After Gottmann named the Boston-Washington corridor region (Bos-Wash) as a megalopolis in 1961, various discussions on megaregions developed.

Following globalization since the 1980s, the competence of core cities has been regarded as important, the concepts of a world city (global city) have rapidly emerged, and hereafter in order to explain the global spatial phenomenon of world cities' expansion into surrounding regions, the notions of megacity regions and megaregions have been diversified.

Meanwhile, in Europe, there was the phenomenon that certain regions in the global network were expanded to and restructured on a city-regional scale. Therefore, the concept of megacity regions which emphasizes the poly-centrality, covering not only world cities, such as London and Paris, but also regions, such as Randstad in Netherlands and Rhine-Ruhr in Germany, was developed. After the 1990s, the term megaregions emerged to explain the huge concentration of populations and wide regional growth patterns especially in Asia. Discussions on megaregions have developed in different forms in response to the demands of the times and internal and external changes at home and abroad.

Essential features of megaregions are the centrality and linkage structures. The central city and the surrounding cities form a region, forming a network on a global scale and within the region, a homogeneous region is formed through functional and cultural linkages between the central city and adjacent regions. In addition, in the case of megaregions, spatial demarcation is very difficult, and the divided areas do not coincide with the administrative districts. A megaregion is an 'edgeless city' (Lang 2003) with no boundary, and has the characteristics of a spatial aggregation that functions on a new economic and social scale, because cities and regions form region-wide spatial areas through diverse linkage activities such as, ① people (daily commuting to work, shopping, leisure; nondaily commuting for cultural, entertainment, and recreational activities; and migration), ② goods (manufacturing and semiprocessed materials between firms), ③ services (banking, educational, health, and business), ④ capital and assets (investment, taxes, land ownership, and property rights), ⑤ waste and pollution (solid waste, emission, and water pollution), ⑥ environmental resources (water and minerals), ⑦ knowledge (technical information, social ideas, and experiences), ⑧ social norms, values, lifestyles, and identities (Davoudi 2010, 51-52).

Over time, the competitiveness of a megaregion lies in the base of the area and the connectivity of various scales, not in

the size of the population. A megaregion is not an artificial space with political boundaries, which is why it cannot be created simply by combining several cities and regions.

3. Diagnosis and Tasks of Korea's Megaregion Policy Promotion

Since the 1970s, Korea's mega-regional spatial strategies have been among the policy tools promoted for balanced national development. In 1972, the 1st Comprehensive National Territorial Plan (CNTP) established four major areas centering on river basins and presented development plans for each area. During the 1980s, 28 regional life zones and three regional economic zones were promoted in the 2nd CNTP, and in the 1990s, nine areas, three new industrial areas, and 10 metropolitan areas were established with wide regional spatial strategies in the 3rd CNTP.

Since the beginning of the new millennium, as the globalization of economic activities and megalopolitan areas increased, development strategies for megaregions were introduced in earnest. The Participatory Government (2003-2008), suggested four mega-regional economic zones in 2006 and announced the conception of five major mega-regional economic zones in 2007. The Lee Myung Bak government (2008-2013) revised the previous suggestions to promote the 5+2 wide regional economic zones and the mega-regional development zones as government projects. To foster the 5+2 wide regional economic zones, leading projects were designated by region, and deregulation was implemented, such as the supply of land for development and the simplification of expansion procedures. The Park Geun-hye government (2013-2017) adopted happy living zones policy but abolished the means to promote the wide regional economic zones (Wide Regional Economic Zone Special Account, Wide Regional Economic Zone Development Committee) introduced by the previous government. [Table 1](#)

However, the outcomes of the mega-regional spatial policies did not meet expectations. The first reason for this was the lack of spatial strategies. Although the mega-regional spatial policies had expected a trickle-down effect of corporate growth on regional growth, the concentration on the capital area was intensified and balanced regional development could not be achieved. This is why a strategy to form homogeneous regions through linkages between the central city and adjacent regions is necessary, so that the policies can conform to the characteristics of the region.

Second, due to the central government's initiative, there was a lack of interest from cities and provinces. As the top-down approach to policy decisions was taken in the absence of cooperative governance between local governments, there was not enough time to discover mega-regional linkage projects, and local governments lacked motivation and incentives to cooperate with each other.

Third, the scopes of projects were artificially set and lacking in flexibility. Since the spatial scopes of the wide regional economic zones were established in units of administrative districts at the level of the central government, the wide regional economic zones did not match with regional economic zones.

The fourth reason was that budgets were allocated in the form of sharing. Local governments started to focus only on the so-called lucrative projects, so that similar projects were planned by different local governments, and overlapping investments were an inevitable consequence.

Lastly, large-scale civil engineering, short-term, or performance-oriented projects that were promoted in consideration of regional distribution did not much contribute to regional development. Moreover, the eagerness of trying to complete the projects within the period of the current regime due to the lack of a long-term support system for the megaregions, also hindered the success of the mega-regional spatial strategies.

4. Direction of Development in Linkage with Megaregions for Balanced National Development

The direction of mega-regional development should be revised drastically from the existing central government-led development to advancement led by regions. Local governments that want megaregions (*who*) should be empowered to solve the

problems that cannot be solved in a local administrative district (*what*), at a wider regional level (*where*), through a system of cooperation and communication (*how*). Support from the central government is certainly also necessary. The megaregions should be supported at the pan-government level so that they can lead nationally balanced and regional development.

The following five strategies should be introduced for the development of linkages with megaregions. 1) Compression: a megaregion has a multi-layered meaning as an international core base and an extensive living space centered around a metropolitan area. Therefore, the function of regional large cities as central strongholds that are comparable to the capital area should be reinforced first; 2) Network: mega-regional connection structures should be established so that large cities and surrounding areas can grow together. It is critical to prepare improvement measures to prevent blind spots in metropolitan transportation services in consideration of life zones; 3) Diversity: when considering changes in the industrial structure such as for the Fourth Industrial Revolution, it is essential to establish various industrial bases and to prepare an environment that young people want to settle in; 4) Governance: megaregions are prone to dynamic changes due to spatial challenges and other interests, not due to the combination of administrative districts. Therefore, it is very important to establish governance that can cope with these changes; and 5) Flexibility: it is necessary to flexibly establish megaregions according to purpose and need, and for these areas to jointly deal with challenges transcending administrative districts, such as transportation, environment, housing, economy, and disasters.

Kyung Hyun Park

Research Fellow

National Balanced Development Research Center
khpark@krihs.re.kr

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A Study on the Balanced National Development Monitoring System

Tae Hwan Kim
Hyo Ran Lee

1. Background and Purpose

Though Korea has pursued policies on balanced national development for the last 20 years, such as administrative city and Innovation Cities, there remains a prevailing perception that such policies are not that effective. Actually, the data from the Statistics Korea (as of June 2020) say that the capital area first experienced a net outflow of population in 2011, and this trend continued until 2017 when the trend was reversed.

Whenever a new administration takes office, it has attempted to amend the Special Act on Balanced National Development in line with its policy direction. However, hasty amendment to the Act has hampered the effectiveness of government policies on balanced national development; even when the policies on balanced national development shall be enforced from the mid- and long-term perspectives and remain consistent regardless of a change of government, such hasty amendment has always resulted in lack of policy continuity and fragmented implementation of policies (Song Wookyung 2018). Therefore, in order to improve the effectiveness and consistency of the policies on balanced national development in the future, such policies shall be systematically monitored.

A number of indicators of balanced national development have been developed so far. However, the focus has been on selecting indicators and not on the monitoring system that comprehensively takes into consideration the connectivity between the indicators and the policies. In particular, despite the significance of national territory where balanced development takes place, the approach in terms of “territorial space” from the perspective of balanced development has failed to take shape.

Therefore, this study intends to do the following to develop a draft proposal of balanced national development monitoring system as part of the efforts to advance the policies on balanced national development and improve those policies’ effectiveness: 1) determine the items to be monitored in line

with the prospect of change in national territory and the purpose of balanced national development; 2) select the key indicators by monitoring style and monitoring sector and then monitor the selected indicators on a pilot basis; and 3) develop the draft proposal of a system to operate and support the monitoring of balanced national development from a long-term and consistent perspective.

2. Basic Direction

Monitoring of balanced national development refers to a series of processes that 1) diagnose and predict the conditions of territorial space and 2) review and provide feedback on the objectives of balanced national development policies by implementing periodic observation and analysis of the balanced national development policies centered on territorial space. The basic direction of monitoring is to 1) identify the issues concerning balanced national development in territorial space with the fundamental premise that monitoring of balanced national development contributes to the policies on balanced national development; 2) present various units of territorial space that can effectively show the gap between regions and then analyze the gap with unique indicators and a variety of visualization techniques; 3) work complementarily with balanced national development plans and national comprehensive territorial plans, promoting the achievement of the policies on balanced national development to the public and local governments and contributing to reaching national consensus.

In addition, monitoring of balanced national development accomplishes the following: 1) policy analysis and evaluation in order to provide improvements in the plans and policies on balanced national development in territorial space after conducting issue-oriented analysis and assessment of whether the plans and policies have been implemented in accordance

with the intended objectives and direction and identifying regional situations; 2) support for decision-making by providing information that helps policy makers make decisions after assessment of the policies on balanced national development in territorial space; and 3) publication of annual and occasional reports that contain the results of monitoring the current situations of the plans and policies (such as the current trend and performance of the objectives). **Figure 1**

3. Monitoring of Targets and Key Indicators

In order to select the targets to be monitored and the key indicators for balanced national development, the study has reviewed domestic data such as the 'Balanced National Development Index and the Public Opinion Survey on Regional Development' by the Presidential Committee for Balanced National Development, the 'Monitoring of Territorial Conditions' by the National Geographic Information Institute and overseas data such as OECD reports on regional and urban development, monitoring of territorial spatial plans in Germany, the observation center for territorial balance in France (Agence Nationale de la Cohésion des Territoires - Observatoire des Territoires: ANCT-OT), and geospatial

monitoring in Japan.

Accordingly, this study has categorized the targets to be monitored for balanced national development into three groups: status, policy, and perception. Status monitoring means analyzing the status of territorial space by perspective and predicting future change in conditions; policy monitoring means diagnosing and assessing the progress of the plans for balanced national development by target region of the policies and by perspective; and perception monitoring means grasping the public's perception of the policies on balanced national development by perspective.

For status monitoring, the study determined the following key indicators as seen in Table 1 from two perspectives in terms of "balance": 1) population concentration and dispersion and 2) centrality of major cities, and three perspectives in terms of "development": 3) regional innovativeness, 4) connectivity between regions, and 5) regional competitiveness. **Table 1**

For policy monitoring, this study first comprehensively analyzed the purpose and necessity of each policy, relevant laws, contents of support, and designation status in the areas to which the government is paying special attention: special areas for responding to industrial crisis, employment crisis areas, administrative city, Innovation Cities, vulnerable areas, and

Figure 1. Basic direction and function of monitoring national balanced development

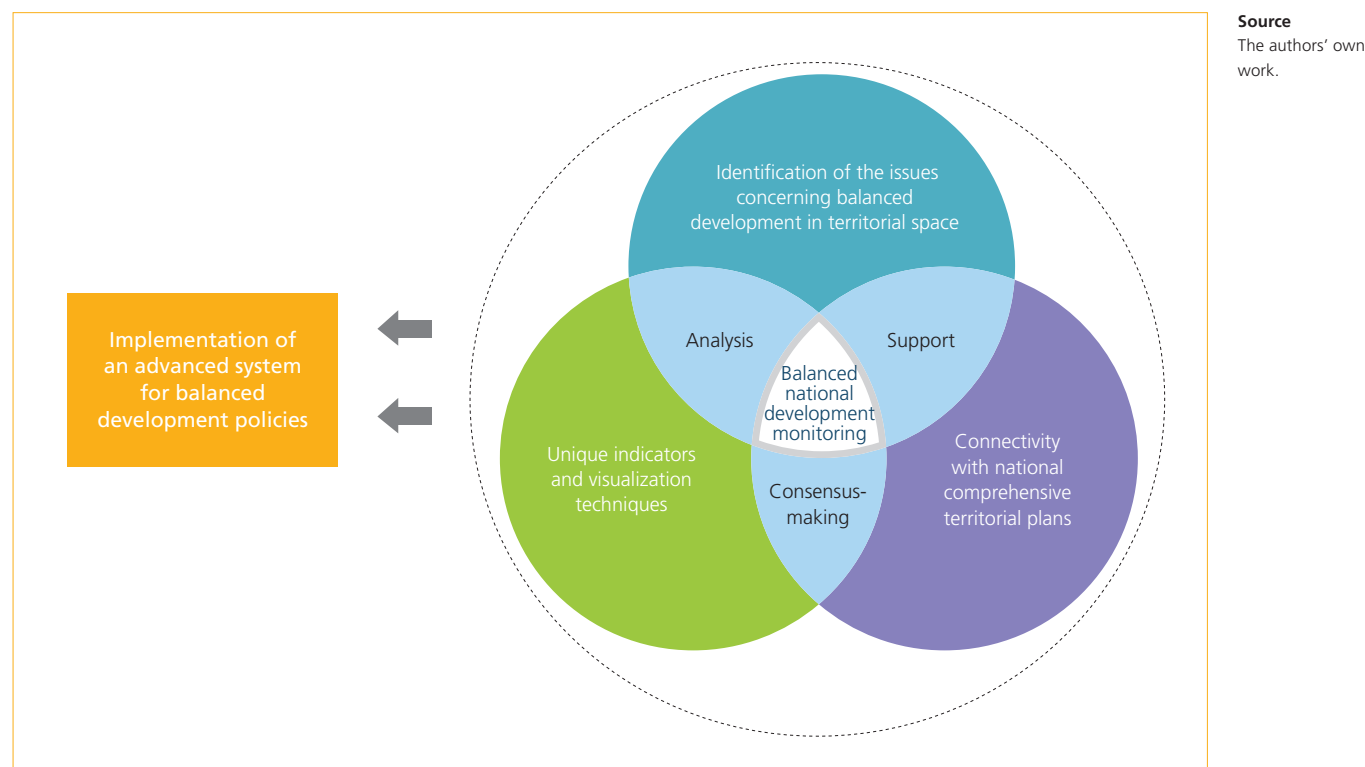


Table 1. Prioritized items and indicators of status monitoring

Monitoring	Perspective	Prioritized items and indicators	
Status of balanced development	Population concentration and dispersion	<ul style="list-style-type: none"> • Distribution of the regions with population increase and decrease • (New) local extinction risk index (women aged between 20 and 45) • Next-generation self-sustainability (or reproductivity) index • Number of residents in their 20s moving in 	<ul style="list-style-type: none"> • Population growth rate • Elderly dependency ratio • Number of single person households
	Is the population prone to concentration or dispersion?		
	Centrality of major cities	<ul style="list-style-type: none"> • Population growth rate • Population growth rate in the five major city areas, their central cities, and their neighboring cities. 	<ul style="list-style-type: none"> • Rate of population movement between central cities and neighboring cities • Weekly population index of central cities and neighboring cities
	Is the centrality of major cities increasing?		
	Regional innovativeness	<ul style="list-style-type: none"> • Number of startups • Number of newly employed by the R&D sector 	<ul style="list-style-type: none"> • Proportion of highly educated couples • Local employment rate of university graduates
	How is the region's human capital situation?		
	Connectivity between regions	<ul style="list-style-type: none"> • Volume of commuting • Number of floating population • Number of connective cooperation projects 	<ul style="list-style-type: none"> • Number of the population engaging in urban and rural exchange • Number of people leaving their home
	Are the connectivity and cooperation between regions being enhanced?		
	Regional competitiveness	<ul style="list-style-type: none"> • Income distribution and imbalance • Regional concentration of industrial sectors • Diversity of industrial structure • Gross Regional Domestic Product 	<ul style="list-style-type: none"> • Degree of space separation by income (using dissimilarity index) • Number of youth jobs created • Youth unemployment rate
	Is the region's economic vitality growing?		

Source The authors' own work.

Table 2. Prioritized items and indicators of policy monitoring

Monitoring	Perspective	Prioritized items and indicators	
Policies on balanced development	Special areas for responding to industrial crisis	<ul style="list-style-type: none"> • Proportion of a certain population such as youth workers and economically active persons in the total number of workers 	<ul style="list-style-type: none"> • Amount of value added per business in the manufacturing sector
	Is the area laying the foundation for sustainable industrial growth?	<ul style="list-style-type: none"> • Proportion of regular workers in the manufacturing sector (regular workers / salaried workers * 100) • Number of businesses in the manufacturing sector 	<ul style="list-style-type: none"> • Turnover rate at <i>si/gun/gu</i> (city/county/district) by industry • Rate of increase/decrease in foreign direct investment (by industry) • Current research expenditure by industry
	Employment crisis areas		
	Are the policies effective in employment stability and job creation?	<ul style="list-style-type: none"> • Proportion of regular worker (regular workers / salaried workers * 100) 	<ul style="list-style-type: none"> • Rate of increase/decrease in the number of workers planned to be employed (by industry/ scale)
	Is there any effort to boost employment of the unemployed?	<ul style="list-style-type: none"> • Number of programs provided by organizations supporting the unemployed 	
	Is there any proactive response to employment crisis?	<ul style="list-style-type: none"> • Number of employed by promising new industry compared with that by crisis industry 	

Monitoring	Perspective	Prioritized items and indicators	
Policies on balanced development	Administrative city		
	Is administrative city effective at population dispersion in the capital area?	<ul style="list-style-type: none"> • Number of residents moving to administrative city from the capital area 	<ul style="list-style-type: none"> • Population target attainment rate of administrative city
	Can administrative city play a leading role in enhancing national competitiveness?	<ul style="list-style-type: none"> • Current research expenditure by industry • Employment share by sector (public and private, etc.) • Female employment rate 	<ul style="list-style-type: none"> • Number of patent applications • Birth rate
	Is administrative city trying to provide various functions as a self-sufficient complex city?	<ul style="list-style-type: none"> • Number of tenant companies and workers at the industrial complexes in Sejong City • Public transport usage rate • Number of bicycle users • Number of registered eco-friendly vehicles (electric vehicles, etc.) • Number of electric vehicle charging stations 	<ul style="list-style-type: none"> • Number of library users • Number of public Wi-Fi hotspots per capita • Number of CCTV cameras per capita • Number of programs provided by cultural centers • Number of festivals held or festival attendees
	Innovation Cities		
	Are Innovation Cities effective at population dispersion in the capital area?	<ul style="list-style-type: none"> • Number of residents moving to administrative city from the capital area 	
	Are Innovation Cities playing the role as new growth hubs?	<ul style="list-style-type: none"> • Number of tenant companies at industrial clusters • Number of businesses and workers engaging in knowledge-based services 	<ul style="list-style-type: none"> • Number of young employees (age 15 to 39) • Number of patent applications
	Are Innovation Cities effective at mutual growth or win-win development with surrounding regions?	<ul style="list-style-type: none"> • Status of the goods manufactured by local companies and purchased by public institutions moved to the regions where the local companies exist • Status of the projects for spreading win-win development to others 	<ul style="list-style-type: none"> • Volume of commuting between Innovation Cities and their neighboring areas
	Vulnerable areas		
	Are the policies effective at improving residents' living conditions?	<ul style="list-style-type: none"> • Ratio of low-income persons in a 100m X 100m grid 	<ul style="list-style-type: none"> • Ratio of old buildings at risk of collapse in a 500m X 500m grid
	Underdeveloped areas		
	Is there any improvement in the regional conditions in a growth promotion area?	<ul style="list-style-type: none"> • Accessibility to SOC facilities for basic livelihood 	
	Are there sufficient grounds for designating an area as a growth promotion area again?	<ul style="list-style-type: none"> • Classification of regions by the proportion of the population within the national minimum standard 	
	Is there any improvement in the proportion of the elderly population in a growth promotion area?	<ul style="list-style-type: none"> • Proportion of elderly population 	

Source The authors' own work.

underdeveloped areas. After that, this study determined the following key indicators as seen in Table 2 from the perspectives tailored to each policy, centered on the sustainability of the tasks necessary for achieving the objectives and effectiveness of the policies. [Table 2](#)

For perception monitoring (monitoring the public's perception of balanced national development), the study determined the following key indicators as seen in Table 3 from three perspectives: 1) perception of the necessity for balanced development and regional disparity, 2) perception of the effects of balanced development policies, and 3) development prospects for the region. The study took these perspectives to make sure

that they could be used as data guaranteeing uniqueness of this research compared with other surveys on perception and supporting the necessity for balanced national development. The key indicators include the characteristics of the respondents, which are essential survey items. [Table 3](#)

4. Pilot Monitoring

The purpose of pilot monitoring is to show how the items and indicators mentioned above are applied in practice, thereby verifying their utility. The study selected the indicators that clearly

Table 3. Prioritized items and indicators of perception monitoring of balanced development

Monitoring	Perspective	Prioritized items and indicators	
Perception of balanced development	Perception of the necessity for balanced development and regional disparity	<ul style="list-style-type: none"> Importance of (necessity for) balanced development Key elements of balanced development 	<ul style="list-style-type: none"> Degree of perception in regional disparity (between the capital area and other regions, between urban areas and rural areas, within a <i>si/do</i> (city/province), within a <i>si/gun</i> (city/county), within a residential area, etc.)
	What is the degree of change in the public's perception of the necessity for balanced development and regional disparity?		
	Perception of the effectiveness of balanced development policies	<ul style="list-style-type: none"> Interest in the policies on balanced development Perception of the importance of the current administration's strategies for balanced development policies 	<ul style="list-style-type: none"> Perception of the current administration's balanced development policies and their effectiveness Obstacles to successful implementation of balanced development policies
	What is the degree of change in the public's perception of the effectiveness of balanced development policies?		
	Development prospects for the region	<ul style="list-style-type: none"> Current residence [<i>si/gun/gu</i> (city/county/district)] Residence period in the current residence 	<ul style="list-style-type: none"> Intention of continuous residence in the future Intention of moving to other regions
	Development prospects assessed through residents' intention of continuous residence or moving to other regions		
	Characteristics of respondents	<ul style="list-style-type: none"> Number of household members Political orientation Final academic background (educational level) Job 	<ul style="list-style-type: none"> Age Gender Income level
	-		

Source The authors' own work.

showed “status” and “effect of the policies” and that could use “new visualization techniques and data” as the indicators for pilot monitoring. Accordingly, during status monitoring, we monitored the “distribution of the regions with population increase and decrease” by using the techniques of a cartogram and choropleth map as seen in Figure 2 and succeeded in effectively grasping the inequality and change in the distribution of population in Korea from 1966 to 2019. **Figure 2**

5. Conclusion

As of today, many statistical compilations and annual reports on regional development published in Korea are judged to fail grasping the dynamic status of territorial space. In this context, the monitoring system for balanced national development are

urgently needed, which will help to guide the directions and strategies for balanced national development. Therefore, in order to monitor balanced national development in territorial space systematically and continuously, the Special Act on Balanced National Development shall be amended to include the provisions related to this issue, and an organization dedicated to this issue shall be established, thereby enabling continuous and professional monitoring of balanced national development.

Tae Hwan Kim

Director

(Senior Research Fellow)

National Balanced Development Research Center

thkim@krihs.re.kr

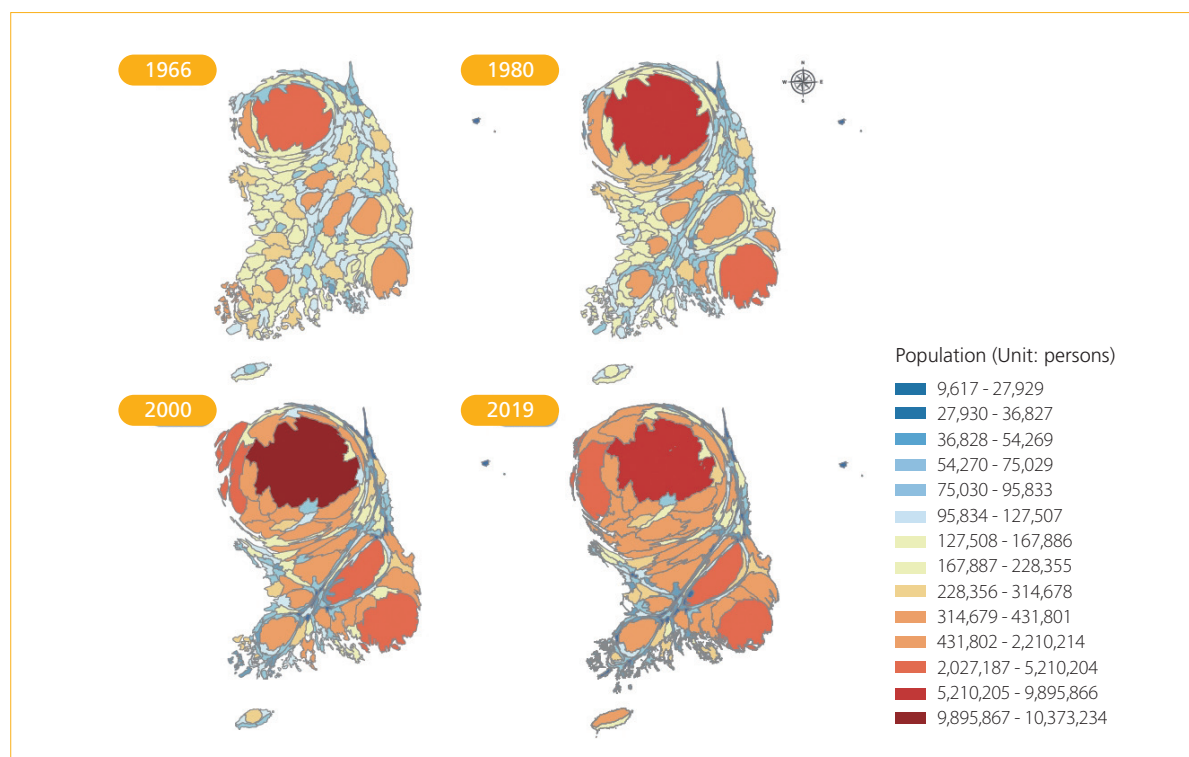
Hyo Ran Lee

Researcher

National Balanced Development Research Center

hyoran@krihs.re.kr

Figure 2. Distribution of regions with population increase and decrease



Source

Kim Taehwan, Kim Eunran and Min Seonghee et al. 2020.

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KRIHS-MOLIT Policy Research Conference 2021



KRIHS-MOLIT Policy Research Conference 2021

KRIHS held a policy research conference with the Ministry of Land, Infrastructure and Transport (MOLIT) at KRIHS in Sejong City on Tuesday, March 30th 2021, to seek ways to promote national territorial policies and research directions. The policy research conference is a meeting held twice a year by faculty from KRIHS and officials from the MOLIT to discuss major pending policy issues and cooperation plans.

Various experts attended this policy research conference, including the Minister of MOLIT Chang Heum Byun, ten directors of related offices and departments, the President of KRIHS Hyun Soo Kang, and the Vice President Jeong Ho Moon. During the Session 1 topic presentation slot, a total of five research plans concerning pending

policy issues were presented by the experts of KRIHS:

- “Housing Supply Expansion Plan of the Urban Regeneration New Deal,” presented by Jung Eun Park, Director of the Urban Regeneration Research Center;
- “Residential New Deal (social housing) Revitalization Plan,” presented by Mi Seon Park, Director of the Housing Policy Research Center;
- “Green Remodeling Activation Plan,” presented by Jong Soon Park, Director of the Green Infrastructure Research Center;
- “Real Estate Speculation Prevention Plan,” presented by research fellow Seung Jong Kim; and
- “Overseas Housing Policy Trends and Implications,” presented by research

fellow Chun Gyu Park.

In Session 2, the current states of support and proposals by division of KRIHS were presented, followed by the comprehensive discussions where measures to strengthen cooperation between KRIHS and the MOLIT were intensively discussed.

In concluding the event, the Minister of MOLIT Chang Heum Byun made the following request: “National land, infrastructure, and housing are not only basic requirements for human survival, but are also core elements that determine the national economy and the quality of life. KRIHS has greatly contributed to the development of national land policies. Please conduct studies that can remove imbalances in the country and support the sustainable growth and balanced development of our society, so that the quality of life of the people can be improved further.”



The Minister of MOLIT (left) and the President of KRIHS (right)

Launching Seminar of the KRIHS Geospatial Digital Twin Research Center

On Tuesday, February 9th 2021, KRIHS held a seminar in commemoration of the launch of the Future Country Leaders Forum and the Digital Twin Research Center. The President of KRIHS Hyun Soo Kang said in his welcoming remarks: "As the government regards the Digital New Deal and Digital Twin as the core of national policies, KRIHS has newly established the Digital Twin Research Center this year in response to the trend of the times, and we will conduct studies reflecting the opinions of various experts through the seminar of today."

There was a keynote speech by Tak Gon Kim, Emeritus Professor of the Korea Advanced Institute of Science and Technology (KAIST), on the "Digital Twin Communicating with the Real World." Prof. Kim explained the history and definition of the Digital Twin and introduced realistic development directions for the future Digital Twin. Further presentations were made on the trend of technological development and cases of utilization in the Digital Twin field. A total of five presenters appeared:

- "Cases of Utilization of Digital Twin for Construction of Smart Factories", presented by Seok Gyu Yoo, Vice President of VMS Solutions;
- "The Direction of Promotion of Digital Twin in the Field of Construction",

presented by Seong Min Cho, Director of Korea Expressway Corporation;

- "Cases of Utilization of Digital Twin by Space Scale", presented by Sang Hee Shin, CEO of Gaia3D;
- "Utilization of Digital Twins by Private Enterprises and their Role", presented by Jeong Min Lee, Director of Hancom Life Care; and
- "Conceptual Model of Digital Twin of the Country and Policy Direction.", presented by Dae Jong Kim, Director of the Geospatially Enabled Society Research Division of KRIHS.

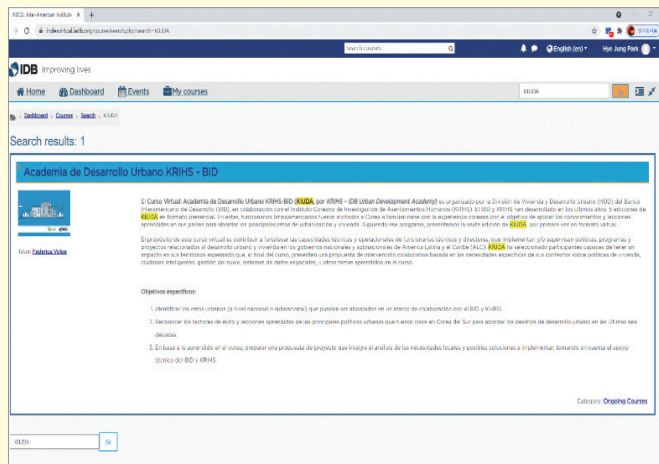
Lastly, a comprehensive discussion session was presided over by the Presi-

dent of KRIHS Hyun Soo Kang and the Senior Research Fellow of KRIHS Eun Seon Lim. Director General for National Spatial Data Infrastructure Policy of the MOLIT Young Woo Nam, President of the National Geographic Information Institute Hosang Sagong, Manager of the Spatial Information Office of the Korea Land and Housing Corporation (LH) Bong Cheol Lim, Director of IGIS Soon Han Kim, and reporter Jin Seok Choi of the Korea Economic Daily attended the discussion as debaters on the direction of Digital Twin construction in the field of national land development.



Group photo of Launching Seminar

KRIHS-IDB Urban Development Academy (KIUDA) Small Private Online Course (SPOC)



KIUDA SPOC Web portal



Real-time Q&A and discussion session (screen captured)

The Global Development Partnership Center of KRIHS held a four-week-long Small Private Online Course (SPOC) of the KRIHS-IDB Urban Development Academy (KIUDA) in collaboration with Inter-American Development Bank (IDB) from April 6th 2021. KIUDA is a core cooperative project of KRIHS and IDB, which is a capacity building program that seeks to collaborate and share Korean experiences in the territorial and urban development with public officials of Latin American and the Caribbean (LAC). A total of five training programs have been conducted since 2015, and about 70 persons from 18 LAC countries, including ministers and vice ministers, have participated in the programs.

Since face-to-face training can no longer be held due to the COVID-19 pandemic, IDB and KRIHS agreed to hold the 6th KIUDA online, and in April of this year, the 6th KIUDA became the first online course and was launched through INDES (IDB Online Education Platform). This course was attended by 27 persons from eight organizations in six countries in LAC (Argentina, Brazil, Colombia, Costa Rica, Dominican Republic, and Panama). In this course, top experts in the field, including former Vice Minister of the MOLIT Kyung Hwan Kim, participated as instructors.

Over the four weeks of the program, beginning with the lecture on Korean economic development and urban

growth processes, the participants learned about the processes of national land planning, urban/housing/land policy changes, smart cities, and the use of GIS and participated every week in real-time Q&As and discussions with lecturers to promote the sharing of more expert and detailed knowledge.

For two weeks after the end of the courses, the participants created action plans for cooperation projects in the land and urban fields of their own countries and institutions. The participants presented their action plans in the closing session on May 25th 2021, and thereafter sought ways to cooperate with KRIHS and IDB.

Publication of the National Balanced Development Series

As part of the balanced development policy support project, which aims to identify overseas balanced development policy trends and derive implications for policy alternatives suitable to the Korean context, KRIHS translated into Korean and published titles from the National Balanced Development series containing French national territorial policies. The first translation series, "National Territory Reform", and the second series, "Equality in the Territories: A French Passion (L'égalité des territoires: Une passion Française)", were planned by KRIHS National Balanced Development Research Center, and experts such as Soo Jin Lee, a lecturer at Nantes University in France, and former Kyung Sung University professor Jun Koo Bae participated in the translation.

Jean Felix De Vijadu, the author of "National Territory Reform", explains in detail the process of land improvement that has been carried out many times in France, from the era of ancient regime to the current era under the Macron government. In addition, he emphasizes that the role of the state is important in national territorial reform and that the state must also reform itself and promote constructive change. Philippe Estèbe, the author of "Equality in the Territories: A French Passion," critically reviews the French policies promoted

thus far in order to achieve the national ideal of equal development and suggests directions for future development. Since he presents the results of the introduction of various policy attempts at achieving the balanced development of France and suggestions for improvement, he offers major implications for suitable policy alternatives for the Republic of Korea.

The third series, "OECD Regional Outlook 2019", is a translation into Korean of the fourth work of the Organization for Economic Cooperation and Development (OECD); "OECD Regional Outlook 2019: Leveraging Megatrends for Cities and Rural Areas". This report emphasizes that place-based policies can effectively address the diversity of economic, social, population, institutional, and geographic conditions across entire areas and that multiple global megatrends will increase the importance of place-based policies hereafter.



The 1st Series - National Territory Reform



The 2nd Series - Equality in the Territories:
A French Passion



The 3rd Series - OECD Regional Outlook
2019 – Leveraging Megatrends for Cities
and Rural Areas



KRIHS (Korea Research Institute for Human Settlements) was established in 1978 in order to contribute to the balanced development of national territory and the improvement of the quality of life of people by conducting comprehensive policy-oriented research in the efficient use, development, and conservation of territorial resources.