

Space & Environment

is a quarterly English magazine intended to disseminate research output and international activities of Korea Research Institute for Human Settlements

The 5th Comprehensive National Territorial Plan

*Our Land, Shared Future :
Towards Balanced, Smart and Innovative
Cities and Regions for All*

- Vision and Strategy of The 5th Comprehensive National Territorial Plan in KOREA
- Facilitating Distinctive and Decentralized Regional Development and Strengthening Solidarity and Collaboration
- Invigorating Regional Industrial Innovation and Promoting Culture and Tourism
- Building Safe and Livable Places Embracing Different Generations and Classes
- Creating Dignified and Environment-Friendly Territory
- Constructing Efficient Infrastructure Management and Smart National Territory
- Building Peaceful National Territory Connecting the Continent and the Ocean
- Action Plan for the 5th Comprehensive National Territorial Plan



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1

Vision and Strategy of The 5th Comprehensive National Territorial Plan in KOREA

Mi Sook Cha

1. The Fifth Comprehensive National Territorial Plan entering into effect this year⁰¹

The Comprehensive National Territorial Plan (CNTP) has played an important role since 1972 in facilitating and nurturing national economic growth during Korea's industrialization and modernization, and in improving residents' quality of life.

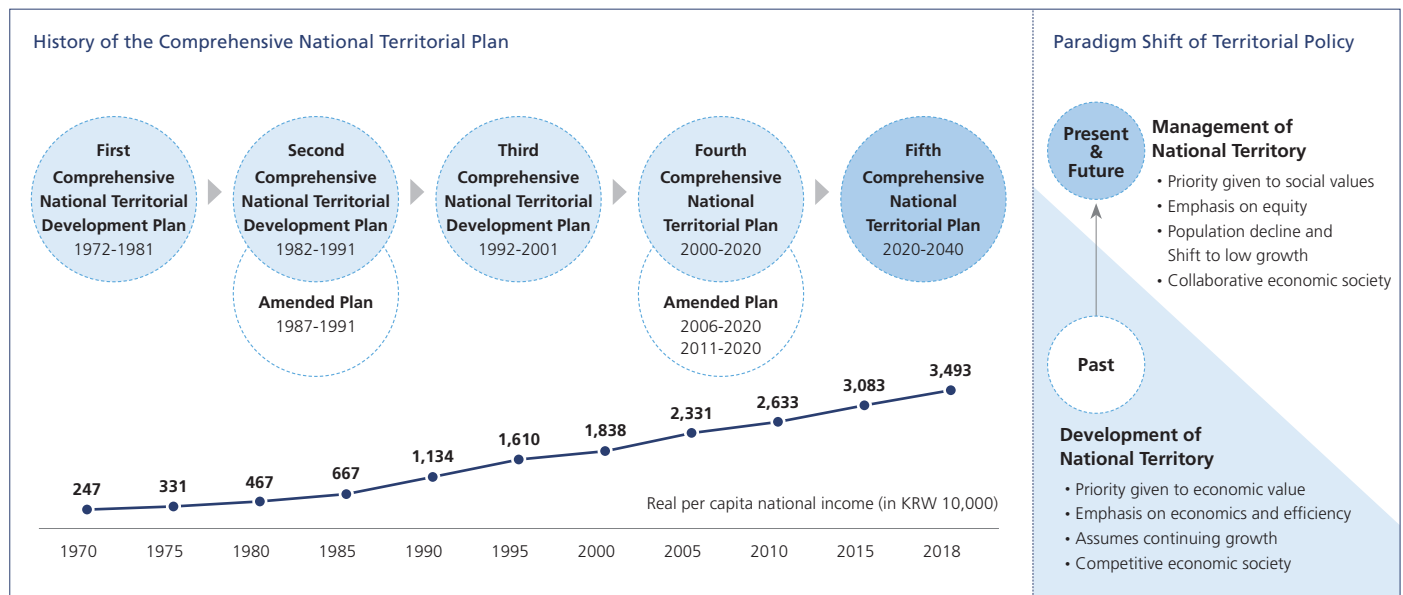
From 2020 to 2040, the Fifth Comprehensive National Territorial Plan will be at the highest-level national space plan providing directions for the central government's mid- and long-term sectoral plans and regional governments' development plans as well as for the future national territorial policy. **Figure 1**

2. Seeking directions of national territory policy to effectively respond to changes in circumstances such as population decline and low growth.

Domestic and international changes - such as population decline, low growth, climate change, and technological advancement etc. - affect the national territory in complex ways. These megatrends will present challenges to the national territory management, but also will provide opportunities to open new horizons of better future. Thus we need wise responses and selection. Population decline and low growth are new to us. In the past National Territorial Plans, population increase and continued growth were taken for granted. However, from now on, population decline and low growth must be taken as inevitable realities that we must be prepared to deal with. ⁰²

The Fifth Comprehensive National Territorial Plan will be the first plan that will face the era of population decline during its planning period. Therefore the policy paradigm needs to be shifted from development to management. **Figure 1**

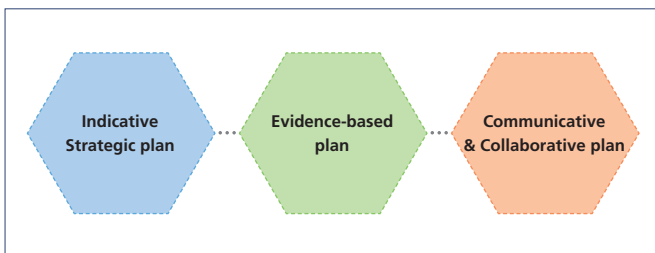
Figure 1. History of the Comprehensive National Territorial Plan and Policy Paradigm Change



3. Developing plan through public participation and collaboration between central and local governments.

While the First Plan (1972-1981) was designed by foreign experts, the second and later plans were formulated by domestic experts and policymakers. From the view that a plan is a policy, the previous plans were limited in reflecting the voices and sensibilities of the public. The Fifth Comprehensive National Territorial Plan developed a national planning model enhancing citizens' direct participation in and buy-in to the process. **Figure 2** At the early stage of the planning process, the core values for the future of the national territory were shared with the Public Participation Group consisted of 170 volunteers from around the country. Through a heated deliberation process on current policy issues, the National Territory Planning Charter was drawn up. **Figure 3** It delivered the values to be pursued by future land policies and shaped goals, objectives, strategies, and policy tasks.⁰³ To pursue the goal of sustainable land use management balancing development and environment preservation, Departments of central government developed collaboration plan and actionable strategies - the Ministry of Land, Infrastructure and Transportation and the Ministry of Environment collaborated⁰⁴ to draw up integrated management strategies of national territory and agreed to implement it.

Figure 2. New Role and Characteristics of the Fifth Comprehensive National Territorial Plan



4. Vision and Strategy : "Our Land, Shared Future : Towards Balanced, Smart and Innovative Cities and Regions for All"

The Fifth Comprehensive National Territorial Plan drives long-term national territorial planning for all present and future generations, and created "Our Land, Shared Future" as the goals of the plan. "Our Land, Shared Future" means building a safe national territory with good jobs and a balanced national infrastructure that embraces diverse generations, classes, and regions; also it means building a dignified territorial environment that realizes the core values important to the public - such as quality of life and environment-friendliness - in any places in the national territory.

For the realization of these values, three objectives - balanced national territory with livability across the country, safe and sustainable smart national territory, and active and healthy innovative national territory - were presented, as were the six National Territory Development Strategies consisting of: ❶ Facilitate distinctive and decentralized regional development and Strengthen solidarity and collaboration; ❷ Invigorate regional industrial innovation and Promote culture and tourism; ❸ Build safe and livable places embracing different generations and classes; ❹ Create dignified and environment-friendly territory; ❺ Construct efficient infrastructure management and smart national territory; and ❻ Build peaceful national territory connecting the continent and the ocean. **Figure 4**

The major policy tasks for each of the Six National Territory Development Strategies are as follow:

Strategy ❶: Facilitate distinctive and decentralized regional development and Strengthen solidarity and collaboration

The current issues identified include the continuation of inter-regional imbalance and the occurrence of new disparities; the increase in demand for wider area administration that exceeds administrative boundaries of local governments and inadequate responses; the weak foundational conditions

01. The Fifth Comprehensive National Territorial Plan (2020-2040) entered into effect by undergoing the legally mandated processes and the approval of the President at the end of 2019.
02. According to an estimation of future population distribution in 2040 based on the population prediction by Statistics Korea, 81.03% of populated regions are expected to experience a decrease in population compared to 2019 levels, while 18.96% are expected to experience an increase (The Government of the Republic of Korea, The Fifth Comprehensive National Territorial Plan 2020-2040, p. 15)
03. An online platform (<http://cntp.kr>) was built and operated to share the process of citizen suggestions and planning
04. A cross-department cooperative planning system for the integrated management of land and the environment (National Planning Consultation Conference) was created, and five land-environment integrated management strategies were drawn up, a mutual monitoring system built, and implementation actions presented.

of a base for balanced development; the socioeconomic vulnerabilities of rural, mountainous, and fishing villages and their poor accessibility to services; and the emerging regions of national interest such as industrial crisis regions and regions of vulnerable living social overhead capital.

In addition, there are strong needs to respond to newly emerging issues including decentralization and localization; emergence of new lifestyles such as increased demand to settle in rural, mountainous, and fishing villages, and increased number of households who reside in multiple regions. The followings are the policy tasks to deal with issues mentioned above.

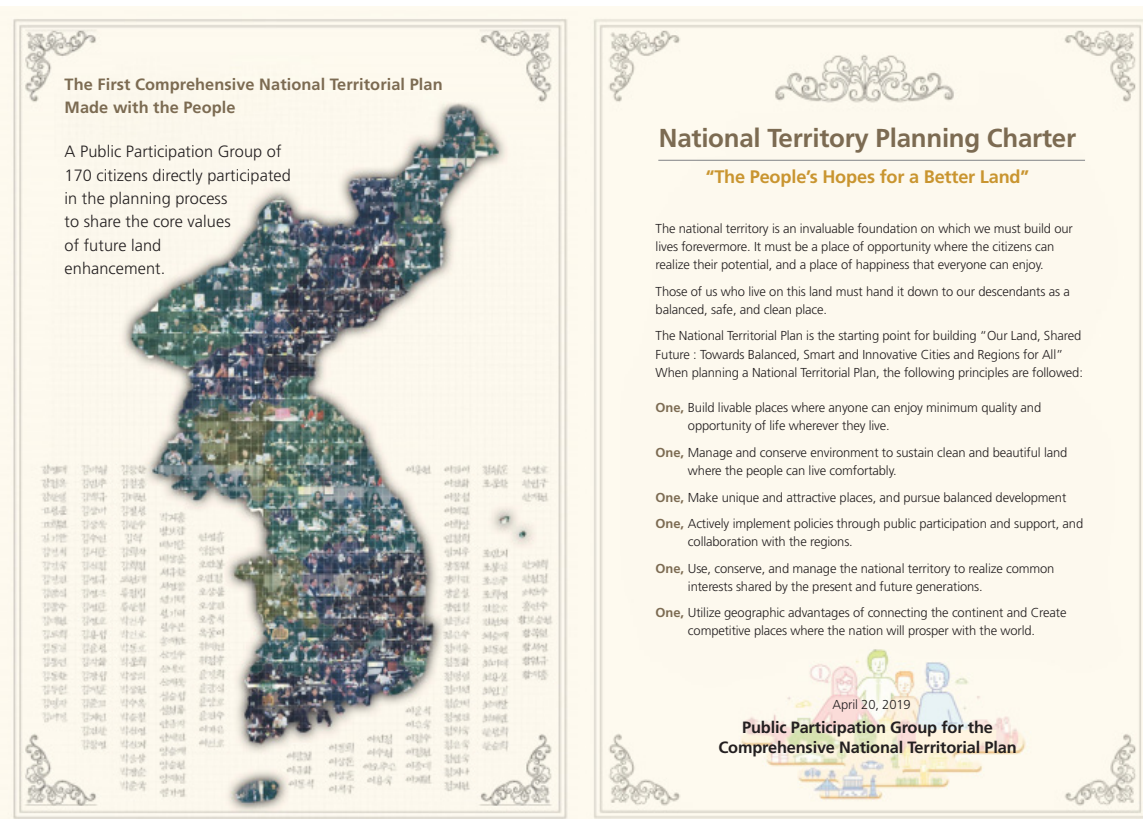
On the one hand, mutually beneficial balanced development needs to be pursued by making use of the distinctive characteristics of each region including the capital metropolitan area, regional large city areas, small and medium-sized city areas, and rural, mountainous, and fishing villages. On the other hand, the national and regional development system needs to be constructed through inter-regional liaisons and collaboration responding to local needs such as industry, tourism, and culture. In particular, the plan's suggestions include expanding the operation of cooperative systems between the central and

local governments and between regions in order to promote autonomous inter-regional collaboration, and the establishment and expansion of program and financial support systems such as the discovery and pursuit of regional collaboration programs, and regional development investment agreements. While increasing residential and exchange populations and enhancing regional economies and consumption activities by increasing the attractiveness of rural, mountainous, and fishing villages and making of regional resources to maximize the advantages of low-density economies, the state must preemptively discover regions likely to become vulnerable or fall into crisis due to the occurrence of new conditions and must increase support for prevention.

Strategy ②: Invigorate regional industrial innovation and Promote culture and tourism

Current issues identified include the increasing instability of employment and regional economies due to a slowdown of economic growth, the vulnerable bases for the growth of new industries and aged industrial complexes, the regional imbalances of international and domestic tourism, the disparities in the enjoyment of cultural facilities, and the

Figure 3. National Territory Planning Charter: The Public's Hopes for a Better Land



increase in aged tourist sites.

In order to address pressing issues above mentioned and to obtain objectives of creating new employment and invigorating national-regional economies, the plan presented the following major policy tasks. These include making the nurturing system for new industries in the era of the fourth industrial revolution; creating innovative spaces; constructing industrial ecosystem supporting local identity; promoting structural transformation of declining industrial cities and enhancing recovery capabilities; and facilitating revitalization of aged industrial complexes.

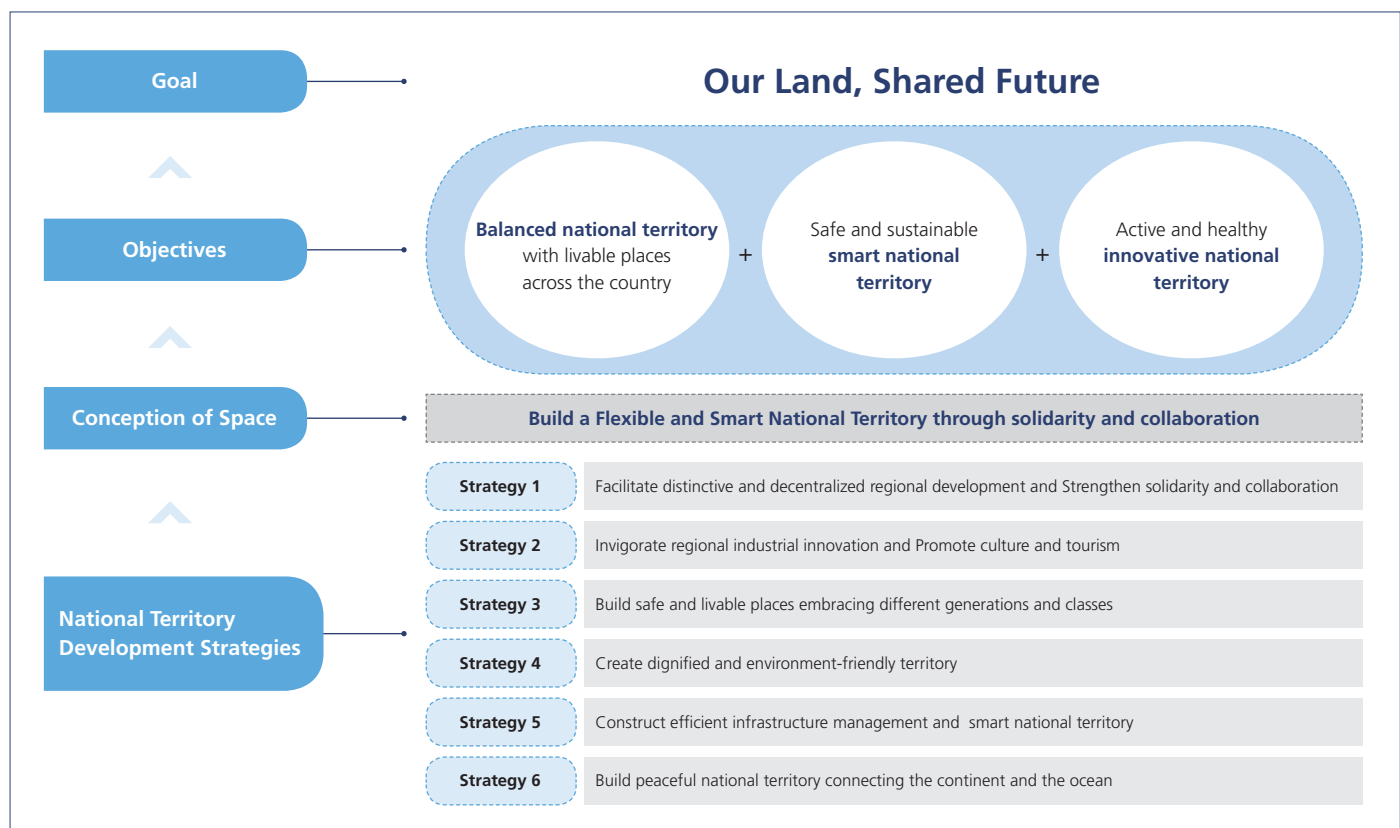
The ways of increasing the attractiveness and usage of regional culture and tourism resources should be sought as a new growth engine and sources of jobs creation in an age of low growth. Policy tasks to these ends include creating unique and distinctive cultural spaces through the use of regional assets, supporting innovations in regional culture and tourism industry, discovering tourism resources by regional collaboration, and enhancing tourism competitiveness through the revitalization of aged tourist sites and facilities. Furthermore, in order to realize a livable and enjoyable places by all through the pervasiveness of everyday cultural life, policy

tasks presented include reducing regional gaps in cultural facilities; nurturing regional tourism node cities connected to airports, ports, and train stations; enhancing convenience and accessibility to tourism sites; making Korean cultural assets into global brands and creating and expanding new Korean cultural wave.

Strategy ③: Build safe and livable places embracing different generations and classes

The physical, economic, and social deterioration of cities and residential areas continued and population is declining. However inappropriate growth management such as the over-zoning of planned urbanization areas in non-urban areas led to an increase of vacant lots in urban centers and disorderly development of non-urbanized areas. The aging of housing, buildings, and major infrastructure including railroads, dams, and underground facilities, increased development of underground spaces, the increase in natural disasters and large complex disasters, and the inadequacy of integrated responses are threatening residents' safety and lives. The major policy tasks to address these current issues are as follow:

Figure 4. Foundations of the Fifth Comprehensive National Territorial Plan: Goals, Objectives and Strategies



The first one is a flexible development and management of cities responding to a decrease in population. Detailed actions include the enhancement of appropriate urban development and management, the compact restructuring of urban spaces in consideration of local identities, the invigoration of old urban centers through the urban revitalization, the planned management and use of aged buildings and empty houses, flexibility and decentralization in operating zoning systems, and reinforcement of environmental functions in development restricted regions.

The second is the formulation of urban, living, and residential spaces responsive to the changes in population structure. Actional items include the creation of socially integrative urban and living spaces that accommodate single-person households, elderly households, multicultural households etc., the formation of convenient living spaces by enhancing infrastructure accessibility such as reducing areas that fall short of the minimal national standards for basic living infrastructure, and the expansion of residential spaces responsive to new residential needs including one- and two-person households.

The third is the establishment of an all-embracing residential welfare. Detailed actions include the expansion of residential services tailored to life stages and income levels including youths, newlyweds, and low-income; institutional system supporting enhanced residential conditions for vulnerable classes and the settlement of the right to housing, the formation of desirable, community-based residential environments that support “aging in place” and “active aging”, and the expansion of future-oriented residential services such as smart homes, environmentally friendly homes, and energy-saving homes.

The fourth is the formation of a stable national territory that is safe and resilient. Detailed actions include expanding disaster response scope to all stages to establish and implement a full-time disaster response national territory management and integrated climate change response system, the establishment of a foundation for intelligent national disaster response using smart technologies such as National Territory Lifeline, and smart maintenance and management using IoT, drones robots, and other cutting-edge technology.

Strategy ①: Create dignified and environment-friendly territory

The current issues identified are - the inadequacy of

an integrated and planned national territory environmental management from the axis of national territory economy, including the lack of connection between development and use on the one hand, and conservation and restoration on the other, the inadequacy of the response to climate change and fine-particle dust, the hindrance to the creation of an attractive national landscape due to the emphasis on quantitative growth, and the inadequacy of the use and management of national resources including land, mountains, and oceans. The major policy tasks to respond to these issues and to create dignified national territory spaces that befit the increase in national income are as below:

The first is the formation of a clean and eco-friendly national environment. Strengthen the connectivity of the national ecological axes such as mountains, rivers, and oceans, and strengthen the networks between national ecological axes and urban green spaces. Promote the enhancement of the public’s health and quality of life by expanding green infrastructure and the provision of high-quality environmental services. The detailed actions presented are the environmental-friendly restoration and revitalization of polluted and abandoned places including abandoned industrial places (brownfield land) resulted by industrial deterioration and discarded installations, the creation of environmental-friendly national territory places using cutting-edge technology, and the continuous implementation of policy collaborations in land and environment. In particular, an integrated management strategy for national territory and environmental planning was to be established and the Ministries of Land, Infrastructure, and Transportation and of the Environment to build a system for mutual implementation and evaluation.

The second are responses to climate change and efforts to decrease fine-particle dust, issues that are increasing the public’s sense of environmental anxiety. Detailed actions were set including the implementation of greenhouse gas reduction goals under the new climate regime including the implementation of the Paris Agreement, the formation of urban space structures optimized for the reduction and diffusion of fine-particle dust, and efforts to expand inter-national collaboration and mutual aid systems.

The third is the creation of future values from national resources and the enhancement of usage. Detailed actions include the realization of the public interests of land, the enhancement of social values and fairness, the use of national and public land and unused land, the restoration of forest

ecologies and their transformation into ecological and cultural spaces, around-the-year response to flood disaster and stronger water services, the sustainable conservation and use of coastal and ocean environments, the formation of urban structures with optimized energy consumption, and stronger management of conflicts for the efficient management of national resources.

The fourth is the creation of dignified and beautiful national landscapes. Detailed action plans include the formation of beautiful national landscapes through unique local characteristics and harmony, the multipurposing of major SOC facilities including roads and railroads and the enhancement of landscape dignity, the enhancement of urban and architectural landscapes through the enhancement of public architecture designs, the enhancement of the attractiveness of rural, mountainous, and fishing villages, and the improvement of everyday landscapes experienced by the residents.

Strategy ⑤: Construct efficient infrastructure management and smart national territory

Although the framework of a national transportation network has been formulated through continuous investment in roads and railroads, there are ongoing problems including disparities between regions in facilities and transportation services, increased congestion in metropolitan areas, and decreased global competitiveness of transportation and logistics services and in smart cities. The following policy tasks are presented to resolve these problems, to establish a basis for innovation in global transportation and infrastructure responsive to changing conditions, and to formulate a smart national territory:

The first is the enhanced efficiency of the underlying transportation network and the reduction of metropolitan congestion. The transportation service infrastructure should be built to support for an average of two hours access to anywhere in the country through the construction of a dense transportation network and greater connectivity with high-speed services, and a networked, cyclic national arterial transportation network should be completed through the supplementation and stronger connections in the missing links in national road and railroad networks to increase mobility efficiency. Furthermore, the congestion in metropolitan areas should be resolved through metropolitan transportation governance based on innovations in metropolitan mass transit including metropolitan express rail (GTX), collaboration, and coordination, connecting major nodes in metropolitan areas

within 30 minutes, and the public's mobility convenience should be enhanced by increasing the convenience of connections and transfers.

The second is the strategic operation of infrastructure and an inclusive transportation policy. Detailed actions include the enhancement of safety through the timely improvement of aging infrastructure, the elevation of infrastructure maintenance and administration through smart technologies such as AI and IoT, the elimination of traffic accident fatalities through the conversion of road transportation environments from automobile-centered to pedestrian-centered, and the formation of tailored transportation conditions for areas of transportation vulnerability.

Third is the construction of a future-oriented innovative transportation system. Transportation systems should be overhauled in response to emerging transportation technology such as autonomous vehicles, hyperloops, smart ships and ports, and automated logistics. Mobility as a service (MaaS) and demand-responsive O2O services that meld diverse transportation modes and mobile platforms should be expanded to increase the convenience of transportation users.

Fourth is the enhancement of the global competitiveness of the logistics industry. While securing the foundation for the growth of everyday urban logistics and supporting the development of shared distribution facilities in response to conditions such as the increase in single-person households, the connection to regional development should be promoted through the enhancement of airport functions as logistics hubs, the nurturing of airport economic zones, and the acceleration of airport urban complexes (Air-city). Innovation in logistics services and competition should be enhanced through smart ports and the spread of logistics technology.

Fifth is the formation of smart national territory spaces and the innovation of national territory management. While forming smart cities to solve urban problems and using them as innovation platforms to transform the everyday lives of citizens, smart city spaces should be built tailored to development stages and regions. Further detailed actions were presented including stronger smart national territory management based on data, the construction and operation of digital twin virtual national territory, and systemizing the security of spatial information.

Strategy ⑥: Build peaceful national territory connecting the continent and the ocean

Despite the fluctuations of the relationship between South

Korea –North Korea due to changes of internal and external environments, the exchange and collaboration have been increased in various fields including economics, culture, sports, etc. Yet visible results are not sufficiently increased. Meanwhile, there have been meaningful efforts for inter-national collaboration in East Asia including Northeast Asia for the formation of peaceful and collaborative environments through varied forms of collaboration, including the proposal and pursuit of the Northeast Asia Plus Community of Responsibility and the East Asia Railway Community Initiative. Major policy tasks in response to the situation of inter-national competition and collaboration to address these current issues and seize initiative in the Northeast Asia economic area are as follow:

The first is the establishment of a foundation for peace and prosperity on the Korean peninsula. While continuing stage-by-stage approaches to build trust and foundations in preparation for South-North Korea exchange and collaboration in earnest, emphasis should be placed on building the bases of exchange and collaboration including the implementation of the government's new economic plans for the Korean peninsula, the peaceful joint use, management, and development of

the de-militarized zone(DMZ) bordering South and North Korea, and the progressive connection and modernization of transportation infrastructures connecting the two Koreas, especially the Gyeong-ui and Donghae Lines.

The second is a stronger profile as a gateway country connecting the continent and the ocean. While pursuing an integrated network of transportation and logistics connected to the continent, a basis for the joint prosperity of Korea and East Asia should be built through the progressive implementation of the East Asia Railway Community, an Asia-Pacific-Europe logistics corridor complex should be constructed, and Northeast Asian economic collaboration and new Northern and Southern policies should be aggressively pursued to form the framework of a continentally connected and open national territory and to form the foundation for national competitiveness at a global level.

The third is Korea's enhanced global networking capacity. Inter-national collaboration addressing global issues –such as participation in cooperative programs of global environment management – should be strengthened. Supporting system needs to be created to export the Korean models of urban

Table 1. Major Policy Tasks for Each of the Six National Territory Development Strategies

National Territory Development Strategy	Major Policy Tasks
Strategy ① Facilitate distinctive and decentralized regional development and Strengthen solidarity and collaboration	<ul style="list-style-type: none"> • Construct the system for regional development through solidarity and collaboration • Design mutually beneficial and balanced national development by utilizing regional unique characteristics • Strengthen competitiveness of rural, mountainous, and fishing villages, and Respond to new crisis regions • Expand the management of new collaboration system between the central government and the regions.
Strategy ② Invigorate regional industrial innovation and Promote culture and tourism	<ul style="list-style-type: none"> • Nurture new industrial places responding to the fourth industrial revolution • Enhance the resilience of regional industries through the transformation of industrial ecologies • Construct attractive cultural spaces and Promote cooperative tourism • Generalize cultural daily life and Enhance global cultural competitiveness
Strategy ③ Build safe and livable places embracing different generations and classes	<ul style="list-style-type: none"> • Manage flexible urban development in response to population decline • Design urban, living, and residential spaces responding to population structure changes • Settle down inclusive residential welfare • Build safe and resilient places
Strategy ④ Create dignified and environment-friendly territory	<ul style="list-style-type: none"> • Create clean and eco-friendly environment • Prepare for climate change and Reduce fine-particle dust • Create and utilize future values of national land resources • Create dignified and beautiful landscapes
Strategy ⑤ Construct efficient infrastructure management and smart national territory	<ul style="list-style-type: none"> • Construct efficient transportation networking system and Reduce metropolitan congestion • Develop strategic plan of infrastructure management and inclusive transportation policy • Construct innovative transportation system for next generation • Enhance global competitiveness of the logistics industry • Construct smart territory and innovative management system
Strategy ⑥ Build peaceful national territory connecting the continent and the ocean	<ul style="list-style-type: none"> • Build infrastructure for the peace and prosperity on the Korean peninsula • Make stronger roles as a gateway country connecting the continent and the ocean • Enhance networking capacity for Global Korea

development and smart cities, and to aid developing countries' land development planning. The boundary of global economic area needs to be expanded through more overseas infrastructure construction, entry into foreign markets, and support. [Table 1](#)

5. Envisioning a Flexible and Smart National Territory through Solidarity and Collaboration.

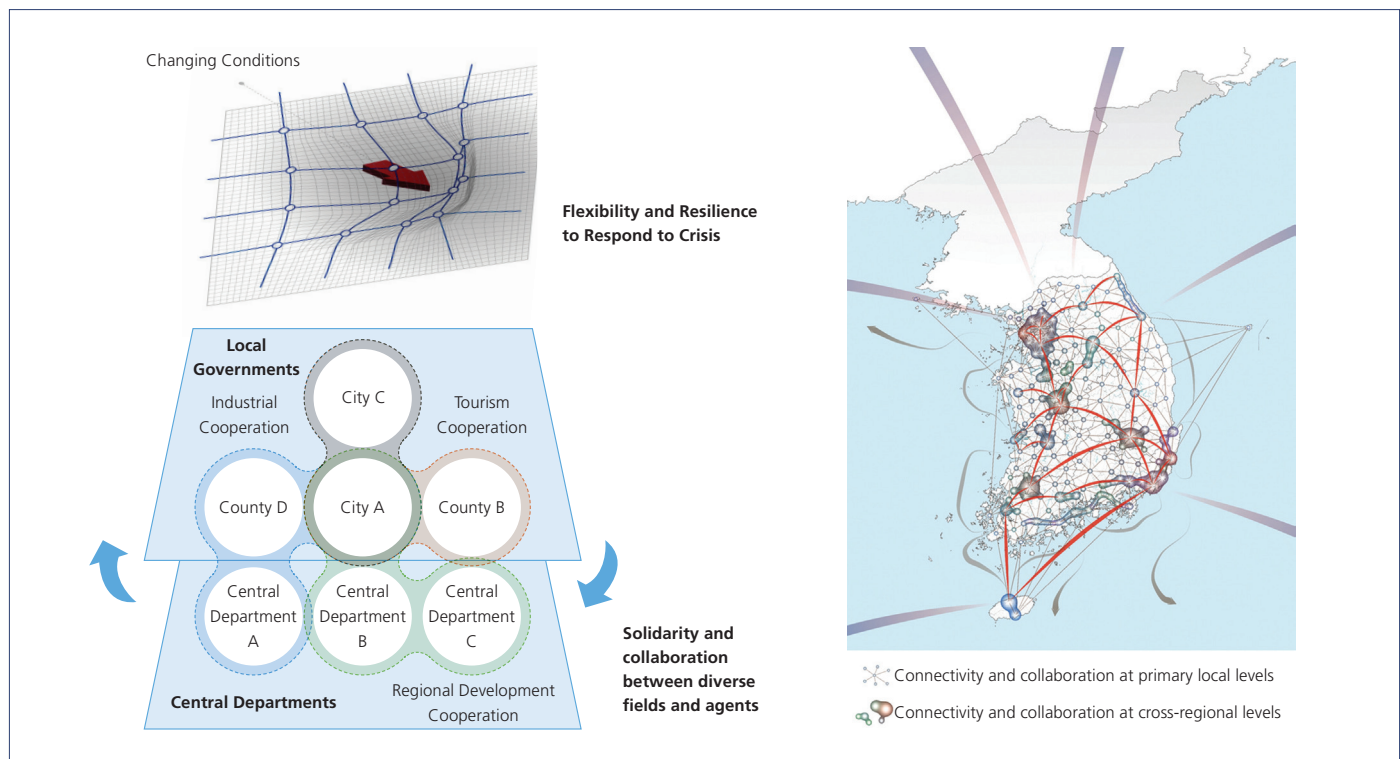
Future images of the national territory are presented to meet diverse public needs and respond to the paradigm shift of national territory policy, and to react to environmental changes such as population decline, low growth, and technological innovation.

Breaking boxes of conventional monolithic and rigid spatial strategies led by the central government, the plan proposed flexible spatial strategies to resolve the mismatch between the public's living spaces and policy spaces, and to enable varied solidarity and collaboration between the central government thus enhancing the immediacy of future policies in consideration of the disappearance of borders due to technological development, or the expansion of borderlessness.

Also, governance operations were proposed to promote the foregoing. [05](#)

The plan presented the following strategies to realize the future image of national territory spaces: First, build a firm basis in solidarity among central government, regional government and local community to make a balanced national territory where no citizen and no region would be excluded or alienated; second, build creative and flexible collaboration systems in varied fields including industry, transportation, and tourism for the formation of a healthy and active innovative national territory; third, build a safe and sustainable smart national territory by actively utilizing technological developments responding to the fourth industrial revolution, and through democratic and communicative governance; and fourth, through varied inter-regional connection and collaboration, respond flexibly to the environment change including population decline, low growth, and technological advances. At the same time, overcome upcoming crises with strong solidarity and enhance the sustainability and resilience of the national territory. [Figure 5](#)

Figure 5. Future Images of the National Territory: A Flexible and Smart Territory Through Solidarity and Collaboration



05. Diversity and connectivity are the foundational principles of forming national territory spaces.

6. Strengthening Plan Implementation and Policy Feedback.

As the highest-level national space plan, the lynchpin to enhance feasibility and practicality of the Fifth Comprehensive National Territorial Plan is to secure consistency with mid and long term plans developed by central and local governments in the next 20 years. This plan, unlike prior plans, presented planning guidelines by policy task. These planning guidelines will serve for National territory plan evaluation and monitoring; serve for the management of the integrated implementation evaluation system; and serve for policy feedback.

They further enhance implementation through the creation of five-year detailed implementation plans⁰⁶ centering on policy tasks strategically considered by the central government, and by the discovery and pursuit of empirical projects that adhere to the goals, objectives, and strategies.

The Fifth Comprehensive National Territorial Plan is innovative in the process of national planning as it is the first national plan that founded directly by the public. To carry on such intent through plan implementation process, public participation should be promoted and conflict management systems needs to be built to rationally coordinate and manage conflicts that may arise in the process of implementing national territory and regional development policies.

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06. The heads of central administrative agencies and Mayors/Do Governors shall reflect the contents of the Comprehensive National Territorial Plan in the policies and plans related to their competent duties and shall formulate implementation plans by competence in order to execute the Comprehensive National Territorial Plan, as prescribed by Presidential Decree, and submit such plans to the Minister of Land, Infrastructure and Transport. (Article 18(1) of the Framework Act on the National Act, Formulation and Evaluation of Implementation Plans)

References

- Government of the Republic of Korea. The Fifth Comprehensive National Territorial Plan 2020-2040.

2

Facilitating Distinctive and Decentralized Regional Development and Strengthening Solidarity and Collaboration

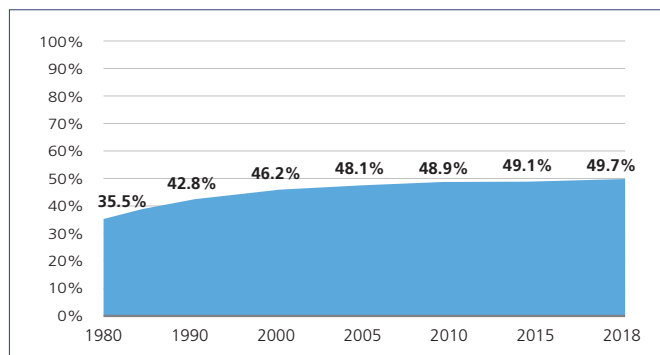
Mi Sook Cha, Wooseong Jeong

1. Current Status and Issues

1) Continuation of inter-regional imbalance

Korea has been continuously pursuing policies for balanced development and as a result, the gap between the Seoul Metropolitan Area (SMA⁰¹) and the regions outside is in a loosening trend in an aggregate level, such as population. However, the concentration in the SMA is intensifying for economically active population, employment, investment and corporate activities, and high-value-added knowledge-based industries. **Figure 1, 2** The qualitative gap between the SMA and the regions outside is continuing in terms of opportunities of cultural enjoyment such as performing arts and exhibitions⁰² and access to services such as emergency medical care. In addition, new regional gaps are arising, such as the widening gap between the cities and provinces within the SMA and those outside the SMA.

Figure 1. Trend of population concentration in the SMA

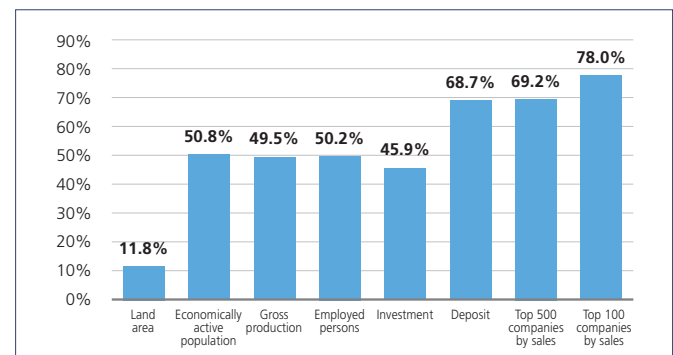


Note Sejong Special Autonomous City in 2015 is included in the Chungcheong region
Source Statistics Korea (each year), Population Census; Statistics Korea. 2019. Future Population Projection.

2) Increase in demand for inter-local government administration and inadequate responses

With the increasing demand for inter-local government administration covering the wider area that exceeds administrative boundaries of local governments, efforts such as the establishment of metropolitan traffic management and urban plans and promotion of liaisons and collaboration projects between regions are not leading to visible effects of regional development. In particular, while citizens of metropolitan areas are engaged in commuting to work and school, and production and consumption activities across administrative districts, urban management is carried out in units of these districts, resulting in large inconvenience and inefficiency. There is an increasing need to reorganize the service delivery system for efficient provision of administrative service, as a response to the mismatch between living space and administrative district as well as concerns about regional

Figure 2. Concentration of economic activities in the SMA



Source Statistics Korea. 2016. KED Big Data.

01. In this manuscript, the Seoul Metropolitan Area was used in the same meaning as the capital region, which includes Seoul city, Incheon city and Gyeonggi province.
02. Cultural event attendance rate (2018): Metropolitan cities (85.2%) > Small- and medium-sized cities (82.1%) > Rural areas (71.7%) (Ministry of Culture, Sports and Tourism)

decline due to population reduction and aging, With the development of metropolitan areas and widening scope of service supply, there is also a growing demand for governance for regional land management and flexible liaisons and collaboration between regions.

3) Weak policy effect of balanced national development

The first phase of balanced development project has been completed including the relocation of central administration and public institutions, and the second phase of attracting the industry, academia, and research institutes is in progress. The construction of the Multi-functional Administrative City (Sejong city) and innovation cities (Naju city, Jeongju city, etc.) led to an increase in the population and jobs in the nearby regions and some effects of regional development are becoming visible, such as expansion of employment opportunities for graduates of regional universities and attraction of companies to regions. However, the satisfaction level of settlement conditions in the bases of balanced development such as Sejong City and innovation cities is not high. In addition, the leakage of population from surrounding areas to these base cities is causing the emergence of regional imbalances, such as the hollowing out of old towns and conflicts with neighboring cities. Particularly, the issues of aging population and underpopulation in rural, mountainous, and fishing villages are rapidly progressing due to the selective migration of youth population in the process of rural to urban migration.

4) Emerging regions in crisis

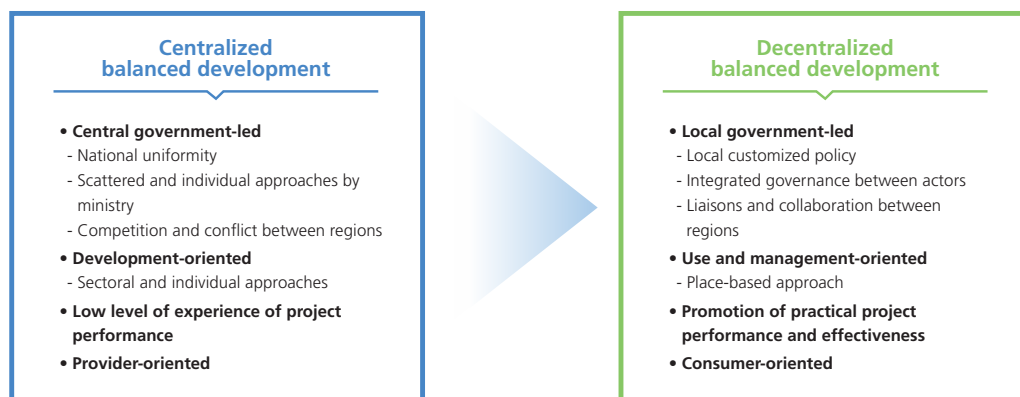
In addition to the crisis of regional decline due to a decrease in population, there are areas where jobs and settlement bases are declining due to industrial downturn. Such areas include industrial crisis regions due to the decline of conventional flagship industries such as shipbuilding and steel, employment crisis regions where employment situation is significantly deteriorated or is likely to worsen, and blind spots due to the inadequate service delivery of living social overhead capital (SOC). It is urgent to preemptively identify these regions and prepare countermeasures at the national level.

2. Changing Conditions and Prospect

1) Growth of global metropolitan areas and intensifying competition

Mutual competition between the metropolitan areas is intensifying as the metropolitan areas with global competitiveness and political autonomy appear on the world stage as a new competitive unit on behalf of the countries. A metropolitan area is an organic economic space where a large central city or cities are functionally closely connected to the neighboring small- and medium-sized cities and rural areas. Strategies to foster metropolitan areas with global competitiveness are being pursued in both developed and developing countries in the world such as the city regions of the

Figure 3. Paradigm shift of balanced development policy



United Kingdom, Grand Paris of France, European metropolitan regions (EMR) of Germany, megaregions in the United States, metropolitan areas of Japan, and city clusters in China.

2) Decentralization and increase in demand for inter-local government administration

Based on the limitations and reflections of the policy outcomes of the central government-balanced development, there is a growing demand for transition to a policy paradigm of decentralized balanced development. It is necessary to promote consumer-oriented policies by fostering autonomous and customized development strategies led by regions with the support of the central government. [Figure 3](#)

In response to the widening of metropolitan areas, it is necessary to establish a governance system that facilitates collaborative establishment of urban plans and cooperative decision-making that transcend administrative districts. The establishment and operation of a new governance system is expanding to efficiently respond to the demand for wider area administration. Projects based on autonomous liaisons between regions and collaboration among sectors are spreading in various areas such as transportation, tourism, urban planning, and the provision of living SOC.

3) Emergence of new lifestyles and increased demand in residence in rural, mountainous, and fishing villages

Urban to rural migration is increasing as the countryside provides new opportunities for people seeking new lifestyles such as work-life balance and “Half Farmer, Half X⁰³”. These people tend to prefer countryside near their previous residence, and this is leading to increasing polarization in rural areas as more remote regions become hollowed out and suburban regions gain population. On the other hand, if more people start to see rural, mountainous, and fishing villages with low-density economy as a new industrial space, demand for stay or residence is expected to increase for leisure and recreation purposes.

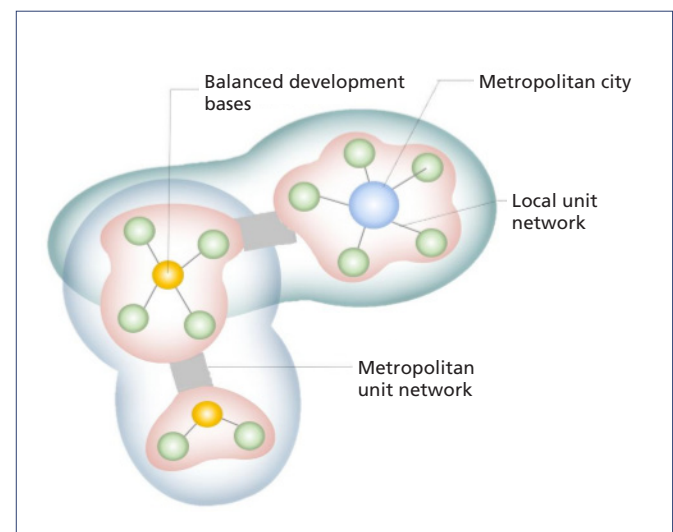
3. Major Policy Tasks

1) Mutually beneficial balanced development by making use of the distinctive characteristics of each region

First, there is an urgent need for a balanced development strategy that can strengthen the global competitiveness of the SMA and promote its mutual growth with the regions outside SMA. Improving the quality of life in the SMA to a world-class level require maintenance and expansion of metropolitan facilities such as transportation, water and sewage, environmental conservation and management such as air and water quality, and systematic management of development projects and population concentrating facilities. The SMA needs a plan to strengthen its competitiveness and grow into a center of high-tech and innovative industries in an increasingly competitive international community by measures such as building industrial clusters specialized for regions.

Second, regional metropolitan cities should be fostered as competitive hubs by connecting economic, social, and cultural projects with neighboring regions. [Figure 4](#) It is important to induce the dispersion of population and functions concentrated in the SMA to other regions by establishing a base for job creation, such as revitalization of old towns through urban regeneration, introduction of new industries, and creation of urban regeneration innovation districts. The aim is to establish future-oriented collaborative urban areas where industries, academia, research institutes, and the government of regional metropolitan cities cooperate with one another. This can be achieved by expanding public transportation facilities between regional metropolitan cities and surrounding areas and strengthening the economic base of regional metropolitan

Figure 4. Concept map of regional liaisons and collaboration network



03. Refers to a lifestyle in which half is engaged in agriculture and the other half is doing whatever that pleases regardless of agriculture

areas through the construction of wide area, local, and high-speed transportation infrastructure.

Third, the regional bases of balanced development, such as the Multi-functional Administrative City (Sejong city), innovation cities, and Saemangeum, can be promoted into various types of areas of liaisons and collaboration suitable for regional conditions and used as bases for regional growth and provision of living services.

Fourth, rural, mountainous, and fishing villages can be fostered as attractive and valuable spaces for all people and the areas of population decline can attract exchange and resident population through intensive reorganization of the settlement system and tackling of unused facilities, creation of attractive spaces using local assets, and strengthening of urban and living services. The government can designate underdeveloped and crisis areas in various dimensions such as income, environment, and disaster as regions of national interest and strengthen preemptive response and support.

2) Creating a base for regional development through liaisons and collaboration

The competitive base can be strengthened through the liaisons and collaboration among various fields such as industry, tourism, transportation, environment, living, and urban planning beyond the administrative districts. The connection of living services with surrounding areas should be strengthened by expanding the functions of high-level

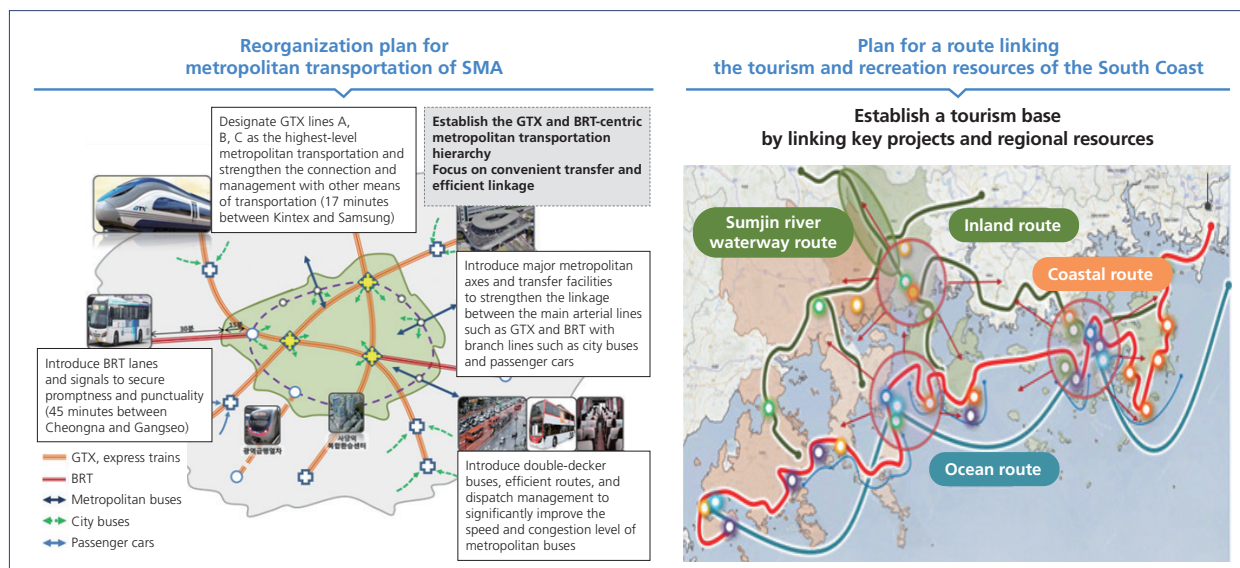
living services centering on the base areas. In addition, public transportation should be shared, and the transfer system should be strengthened to enable convenient and quick access to metropolitan transportation facilities such as airports and KTX stations from the regional centers. **Figure 5**

Metropolitan matters should be dealt with comprehensively by through a new system, including a wider area plan that transcends the administrative districts and the agreement for regional development investment.⁰⁴ New zones can be established through consultation among local governments, institutions and facilities can be jointly used, and systems such as special local government can be used.⁰⁵ Local government can lead the planning of “multi-department bundle projects” in various fields such as regional development and science and technology and promote these by signing an agreement with the related ministries in the central government.

3) Building a new collaborative system between the central and local governments

It is also important to establish a governance system of liaisons and collaboration between the central and local governments. There is a need for a governance system that can secure the efficiency of public service operation and investment through strengthening liaisons and collaboration among regions. Institutions that can solve metropolitan issues such as Metropolitan Transport Commission should be expanded by sector and a governance system in which the

Figure 5. Types of liaisons and collaboration between regions



Source
Cha, Mi Sook,
Lee, Baekjin,
Hwang,
Myeonghwa
2017; Ministry
of Land,
Infrastructure
and Transport
2018.

central government and local governments can cooperate, such as local government collaboration meetings, should be introduced. It is also important to introduce a “place-based integrated regional support system.” The support for regional development projects promoted by multiple central ministries and regional support policies for underdeveloped and crisis areas can be integrated into the unit of living spaces to enhance the effectiveness.

To promote region-led development and strengthen the central-local cooperation, the “Korean model of planning contract system (Investment Agreement for Regional Development)” can be operated for balanced development projects in which the central and local governments have a common interest. To this end, the budget and support system of the central government can be modified. Local governments should prepare plans to integrate regional development projects promoted by multiple central ministries and support policies for various underdeveloped and crisis areas as well as provide essential living infrastructure that guarantee a minimal quality of life for all citizens.

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04. Prepare the basis for diversification of the composition of local governments such as special local governments to give autonomous choices to form institutions to reflect differentiated resident demand (Full Amendment of “Local Autonomy Act”. Article 2, 3, and Article 176-189.)
05. Promote the formation of administrative councils through streamlining the process of establishment and establish the basis for administrative and financial support (Full Amendment of “Local Autonomy Act”. Article 147 and Article 152.)

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3

Invigorating Regional Industrial Innovation and Promoting Culture and Tourism

Seung Han Ryu, Soonja Lee

1. Foreword

For the next 20 years, Korea will be faced with conditions that differ markedly from those that prevailed in the past. Low growth is expected to be a long-term trend in the global economy. According to the long-term projections of the OECD, the annual average increase of Korean GDP will continuously decrease to around 1.8% in the 2030~2040 period (OECD 2019). In particular, the decrease in the productive population and aging will catalyze corporations to transition away from labor, and accordingly the availability of jobs in the vulnerable regions avoided by the productive populations will also see a continuous decrease.

Meanwhile, with concerns that rapid population decrease and urbanization will destroy unique regional cultures and characteristics, the gap between regions in the level of cultural enjoyment is not easily closed amid the threat of regional

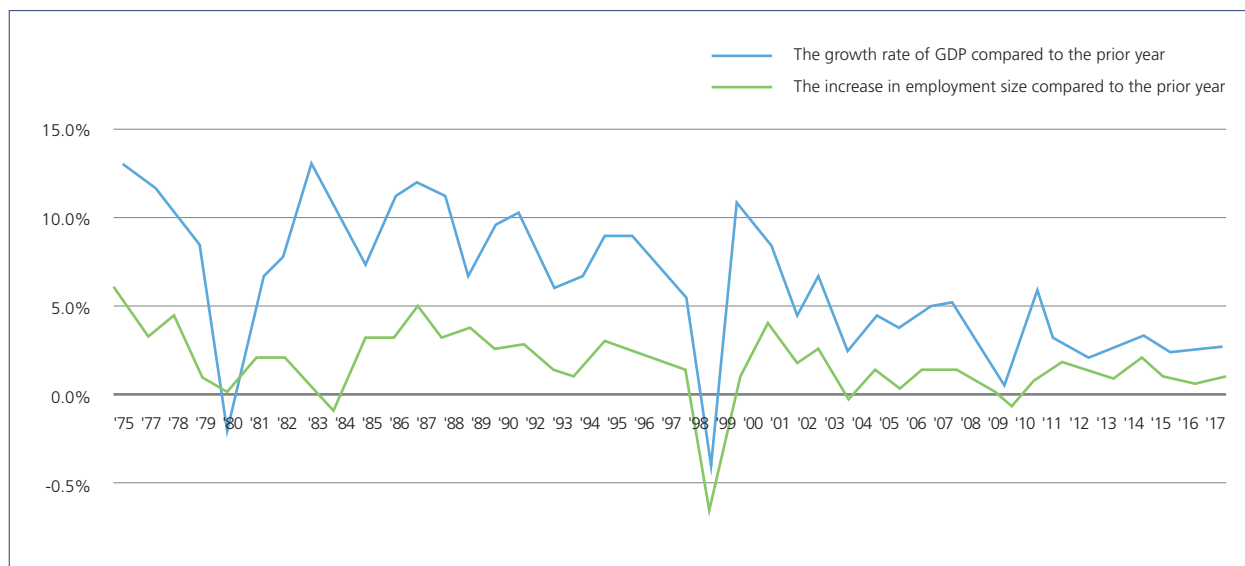
extinguishment. While demands and trends in tourism and recreation are rapidly changing, the tourist attractions that were mostly built in the 1980s~1990s are ageing. There is a low level of variety and attractiveness in regional culture and tourism contents, and the regions' response capabilities are showing their limits due to the lack of professionalism, know-how, and experience.

Under these circumstances, this article seeks to provide an overview of the current status, problems, projections of changing conditions, and policy tasks in invigorating regional industrial innovation, culture, and tourism.

2. Current Status and Issues

1) Increased Instability in Manufacturing-Based Regional Economies Due to Slowing Economic Growth

Figure 1. The Trend in Growth Rates of Korean GDP and Employment Compared to the Year Prior



Source
Statistics Korea
(KOSIS).

As the rate of economic growth is blunted, the rate of increase in the number of employees is decreasing as well. The potential growth rate of the Korean economy is estimated to decrease below the rate of OECD and EU countries in 2040, and if current trends persist, the rate of employment increase will decrease all the more. **Figure 1**

The creation of jobs, particularly good jobs, is emerging as a national challenge. One point of interest in the discussion about jobs is the changing status of the manufacturing industry as a source of economic development and jobs. Of course, manufacturing still features importantly in the absolute scale of employment and in job quality. The employment increase rates in the past 10 years reveal that the rates of manufacturing employment increases in Chungcheongnam-do, Chucheongbuk-do, Gwangju, and Jeollanam-do far surpass the rate of increase for industries overall, and there are notable rates of increase in Gyeongsangnam-do Gyeongsangbuk-do and Jeollabuk-do as well. **Figure 2** However, as the main sector the manufacturing industries shifts to automobile and other equipment industries, the creation of high-quality jobs through growth in manufacturing is gradually decreasing. The number of jobs per manufacturing industry added value is steadily decreasing, and the rate of decrease is more rapid than in other developed economies.

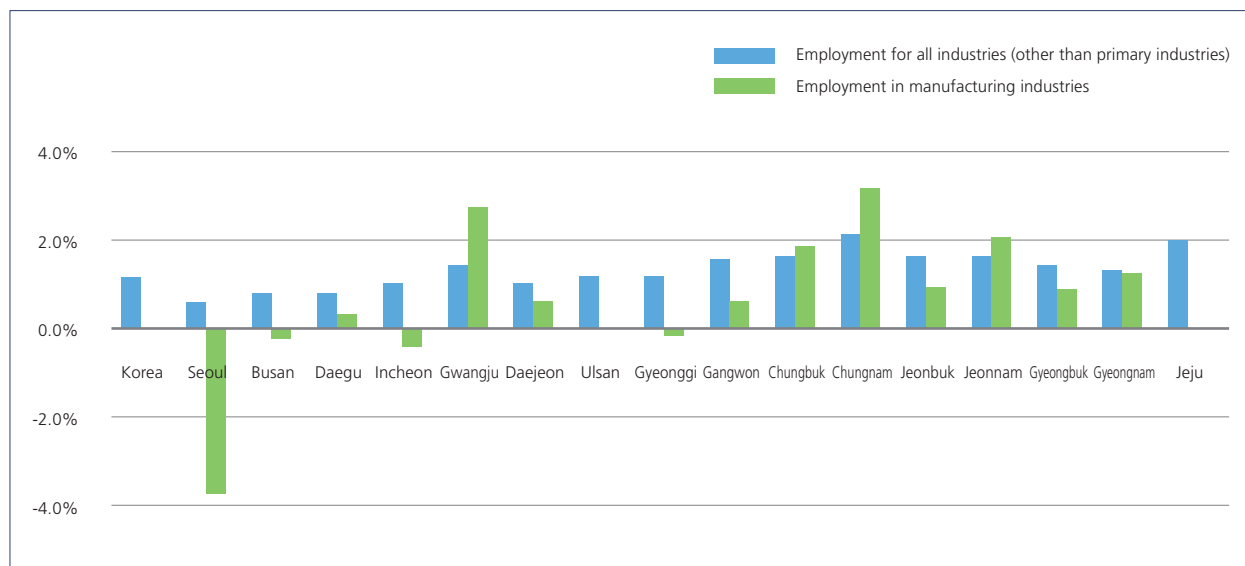
It is no exaggeration to state that the engines of Korean economic growth for the past half century were the equipment industries based on large-scale investments and an economic

structure centered around conglomerates. However, as economic growth slows and economic conditions change in complex ways, these characteristics are also being blamed for hindering the flexibility and resilience of regional economies. Due to the structure where a small number of large companies were responsible for regional economies, the industrial infrastructure of the regions was heavily weighted toward the businesses operated by these few large companies. The regions where large-scale equipment industries account for a high proportion of the economy and who rely heavily on large companies, are faced with a situation where the rise and fall of the regional economies depend on the business fluctuations of their major industry.

2) Structural Vulnerabilities Persist in the Regional Service Industry

The role of the service industry is key in order to supplement job creation by manufacturing. And in fact, service jobs in Korea are steadily increasing. Service jobs, however, are growing in fields that are comparatively weak in terms of pay and other conditions. The leading service fields in Korea which account for a higher proportion of workers compared to other countries are the accommodation and restaurant industries, which are some of the most vulnerable in terms of the number of full-time workers and the level of compensation. In contrast, employment in advanced services such as “professional, science, and technical services” and public services such

Figure 2. Comparisons of the Average Annual Increase in Employment by City and Province (2003~2017)



Source
Statistics Korea
(KOSIS).

as “health and social welfare services” are not meeting expectations.

The job problem takes on different dimensions by region. The service industry is increasingly concentrated in the Seoul metropolitan regions, while manufacturing is moving to the peripheral regions. While about 63% (by workplace) of the increase in service industry employees for the past 10 years (2005~2015) took place in the Seoul metropolitan area, about 83% (by workplace) of the increase in manufacturing employees took place in regions outside the metropolitan area.

Initial expectations that the development of manufacturing will lead to the development of the service industry are weakening. Despite the growth of manufacturing in the regions, the growth in related services is negligible; in the regional counties, in particular, manufacturing jobs account for most of the increase in jobs. Although nurturing the manufacturing industry is important in that it may be accompanied by a growth in services, the development of the service industry in the regions is still quite weak.

3) The Regional Disparity in Cultural Enjoyment and the Decline in Local Tourism

While unique regional cultures are being damaged due to rapid urbanization and globalization, a vicious cycle has been established wherein the acceleration of commercial use leads to the loss of cultural authenticity, the destruction of traditional regional social structures, and economic drain from the regions due to the dominance over cultural production and consumption by a few corporations and outside capital. Furthermore, as low birth rates and ageing exacerbate the deterioration of the regions, the unique cultures that were built on a foundation of the regions and the diverse living they supported over time are in danger of being extinguished as well.

Furthermore, regional disparities in cultural, artistic, and sports services persist because the related infrastructure is not at the level of developing countries despite expansion over the years, made worse by problems of access. This has caused many rural, mountainous, and fishing villages outside of urban areas to be categorized as vulnerable in social overhead capital (SOC); residents in 20.9% of the country live in areas where they cannot access any SOC within 10 minutes.

The regional disparities are seen in tourism as well, as foreign tourist visiting Korea have a heavy preference for certain destinations. Although instabilities in the world tourism

market is increasing due to disease, THADD, and interstate conflict, both domestic and international travel needs are still on the rise due to consumer trends that focus on work-life balance and the Korean Wave. However, 78.8% of visitors to Korea are concentrated in Seoul alone, with under 10% visiting other regions with the exceptions of Gyeonggi (15.6%), Busan (15.1%), and Jeju (10.8%). Exacerbating difficulties for the regions, 62.8% of tourism destinations, complexes, and special zones across Korea were built prior to 2000 and have aged since then, lowering the capability of regions to adapt to the rapidly changing field of culture and tourism and resulting in the lack of attractiveness of the content and noticeably low revisiting rates.

3. Changing Conditions and Prospect

1) The Crisis and Opportunity Changing Technologies Bring to Regional Industries

Technological progress such as the Fourth Industrial Revolution and the complexity of value chain will have important effects on the growth of regional industries and job creation. Advances in the Internet of Things, artificial intelligence, and robotics encourage automation, which is expected to deeply impact jobs and regional labor markets. In spite of the potential of long-term job creation due to technological advances, in the short term jobs are projected to decrease due to automation, and in particular this decrease is likely to have discriminatory effects that only increases social and spatial disparities. Despite anticipation that technological advances will have positive effects in the long term, there will be a mismatch between the regions that benefit and the regions that are worse off. The OECD (2018) expects that the effects of automation will be unequal between regions, and that regions with a high rate of people without higher education or a high rate of non-urban populations will see more negative effects. In order to respond to this trend, policy interventions are necessary to enhance the resilience of regional economies, such as an enhancement in the skill level of regional labor markets, encouraging the coexistence of productivity and inclusiveness.

2) Raising the Value of the Tourism Industry as the Engine for National and Regional Development in an Age of Low Growth

Due to an increase and diversification in the demand for recreation, together with the expansion of transportation networks and advances in technology such as IT, the regions are being demanded to discover their unique cultural and tourist contents, to increase their attractiveness, to enhance their capacity and to be responsive and creative. At this time, ideas and attempts are desperately needed to turn culture and tourism assets into engines for growth.

Future condition changes in the fields of national culture and tourism can be summarized into four major trends: First, as potential for growth decreases due to the decline of manufacturing which was formerly a centerpiece of growth, culture and tourism are emerging as engines for growth in an age of low growth. Second, demands for culture and tourism will increase due to increases in income and leisure time, changes to values, and the development of transportation and technology, while consumption trends will be more diversified. A leisurely and healthy life, consumption alone, environmentally friendly tourism and other small-scale, content-oriented leisure activities are some of the trends that herald an age where ideas, rather than facilities or landscapes, are the true competitive edge in culture and tourism. The transformations in the culture and tourism industries will accelerate as advances in technology such as ICT and developments in transportation networks

decrease the special limits of travel and expand mobility. Third, Hallyu(the Korea Wave), which began in the mid-1990s and is expanding and diversifying in recent years, is leading to an increases in Korean tourism, consumption of Korean products, interest in and admiration of Korean culture, and increases in exchanges with Koreans in consumption of pop culture, and is ultimately contributing to the enhancement of national brand value. According to the British organization Brand Finance's report of the World's Most Valuable Nation Brands in 2018, Korea has a brand value of \$2 trillion, placing it at 10th place after the U.S., China, Germany, Britain, and Japan. Fourth, demand for international tourism connected to cultural, artistic, and sports exchanges between South and North Korea and to the continent will increase. Exchanges in these fields are expected to increase because they have many ripple effects, are communicated easily, and are affected less by political factors in the course of exchanges for peace and coexistence on the Korean peninsula.

4. Major Policy Tasks

1) Nurturing New Industrial Spaces for the Fourth Industrial Revolution

As the importance of top-tier talent increases in regional development, there are increasing predictions that the regions preferred by such talent will be the sites that corporations locate. This is why the Fourth Industrial Revolution emphasizes

“
Policy interventions are necessary to enhance the resilience of regional economies, such as an enhancement in the skill level of regional labor markets, encouraging the coexistence of productivity (automation) and inclusiveness (labor market participation rates)
”

the importance of cities. In order for urban spaces to be reborn as hubs for innovative growth, industrial spaces must be nurtured based on the resources and vitality of cities. Idle lots of national/public lands must be provided as spaces of entrepreneurship and start-ups growth, turning them into basis for growth. Functions with a large agglomeration effect should be encouraged to concentrate in these bases, and to this end the necessary physical bases, economic assets, and network assets should be allocated in a focused way. In order to nurture urban avenues and streets as spaces of innovation and job creation where production and consumption combine, it is necessary to move past the perspective of these spaces as places to pass by on the way to the thoroughfares or spaces of consumption, but rather to introduce ways to develop them as linear agglomeration of manufacture, commerce, and services and as integrated clusters. In this framework, spaces should be secured to support idea-based businesses, entrepreneurship, and corporate growth.

Corporate growth and the creation of good jobs are not possible merely through the provision of spaces desired by corporations. The roles of institutions with fundamentals for innovations, such as universities and research institutes that can support entrepreneurship and corporate growth, should be strengthened. The roles of universities should be expanded as core agents of regional innovation, and university campuses should be the basis for these strategies. In addition, connections with regional colleges, Meister high schools and corporations

can train professionals needed by the corporations and support entrepreneurship, and regional human resources and education ecosystems can be built and supported administratively and financially by central and local governments.

2) Support for the Restructuring of Regional Industries and Enhancement to their Resiliency

In addition to the formation of new urban innovative spaces, efforts are necessary to convert industrial parks, which were instrumental in propelling Korea's industrial development, into footholds for innovation. The government is already pursuing the development of small high-tech industrial parks to provide urban spaces for entrepreneurship and corporate growth, and instituted campus innovation parks to turn campuses into new innovative spaces. These trends will be important in industrial positioning. The nature of industrial parks will shift from "lands" for manufacture to "spaces" for the nurturing of new industries and job creation. As the importance of innovation increases in entrepreneurship and corporate growth, various spaces should be provided in consideration of the stages of corporate growth. Industrial parks will have to be renewed not as land to collectivize factories, but a job creation spaces and a space of support for idea-based businesses and corporate growth combining varied functions.

Along with the introduction of a new model of industrial park, attention should be paid to the regeneration of old



industrial parks and the elevation of their restructuring. With over half a century since the beginning of industrial complex development, the necessity for the reclamation of old industrial parks is increasing due to ageing facilities, changes to business structure, and conflicts with surrounding areas due to urban expansion. To respond to these issues, the industrial complexes' safety and hazard-prevention capabilities should be strengthened, and smart transportation and smart distribution need to be introduced to enhance corporate competitiveness and improve urban spaces. Furthermore, in order for old industrial complexes to be used as spaces for new industry, multi-function development should be supported, and business models that can be specialized and renewed in ways tailored to regional characteristics such as culture, architecture, and landscape should be developed and expanded.

Furthermore, support should be expanded for infrastructure that strengthens the competitiveness of, industrial cities such as coastal industrial cities that were developed during the period fostered heavy chemical industry. In addition to short-term responses for regions that are faced with industrial and employment crises, natural transition should be supported by designating the industrial parks in the major industrial cities and surrounding areas as regeneration districts if necessary for industrial restructuring, and by supporting concentrating on regional corporates and labor markets through cooperation between government ministries. In order to revitalize declining industrial cities, measures may be considered including education and training on new industries related to the prior driving industries, support to the related industrial infrastructure, support to social agreements to maintain jobs, stronger education and training to enhance the skills of local labor.

3) Increasing the Attractiveness of the National Territory and the Invigoration of Cooperative Regional Tourism

First of all, the attractiveness of domestic tourism should be improved through specialized local assets and integrated development. To this end, first, tourist destinations should be formed through the discovery of unique local assets and their active usage. Specialized development of local assets across the country such as ecologies, natural landscapes, leisure and sports, historical sites, traditional culture, medicine, health, recreation, cities, and industries would enrich the regions with content. Examples include Hallyu, international sports sites including e-sports and the Olympics, large-scale meetings,

incentives, conferences, and exhibitions (MICE), the discovery of local thematic resources such as wellness/medicine/beauty, the use of dulegil (natural trails), walking paths etc. to make tourist resources of inland ecologies and natural landscapes, the invigoration of Korean-style ecological green tourism through local participation, and the nurturing of ocean tourism and leisure industries through the formation of tourist routes using ocean and coastal resources including islands, oceans, mud flats, and fishing ports, and the invigoration of aquatic leisure activities. Ageing tourist attractions across the country should also be renewed. In particular the introduction of tourist destination lifespan cycles should be considered, directions and strategies be set for the improvement of tourist destination functions and facilities in accordance with changes to demand and trends, and comprehensive measures be prepared to develop content such as experiences and adventures, the improvement of ageing facilities, and the organization of surrounding infrastructure. In addition, diverse content should be discovered by remodeling idle resources. Empty spaces and facilities such as discarded industrial and production facilities, aged commercial and living facilities, former public building sites, and empty schools should be culturally renewed to be reborn as attractive local tourist resources and integrated cultural and artistic spaces for local residents. The most Korean cultural assets, such as those that made the World Heritage List, should be branded and nurtured into regional brands through the nurturing of and expanded support for ancient cities and historical and traditional cities, and the formation of varied cultural cities. **Figure 3**

Competitive tourist resources should be discovered through inter-regional connection and cooperation. To this end, demand-centered tourism development projects should be discovered through central-regional cooperation or with the regions taking the lead, and cross-region tourism routes formed in connection with the tourism industry in surrounding areas. The central government should support the inter-regional connection and the combination of public solicitation projects, while the regions should discover resources hidden throughout the localities to add value, and nurture the organic networking between resources and a common regional brand through programs, etc. Furthermore, in order to support the inter-regional discovery projects, transportation convenience should be improved by means including the enhancement of transportation infrastructure such as roads and railroads, the discovery of mass transportation routes, and the adoption of

demand-responsive transportation systems, major joint tourist resources should be discovered and connected in consideration of the movement routes of local visitors, and the humanities and natural resources of the surrounding areas should be integrated to expand the spatial scope of activities. In addition, tourist elements should be added to simple and monotonous roadside landscapes using special themes, forming mobility routes (landscape roads including roads, footpaths, and bicycle paths) where people, nature, culture, and history meet, and inter-regional connection networks should be built on this basis.

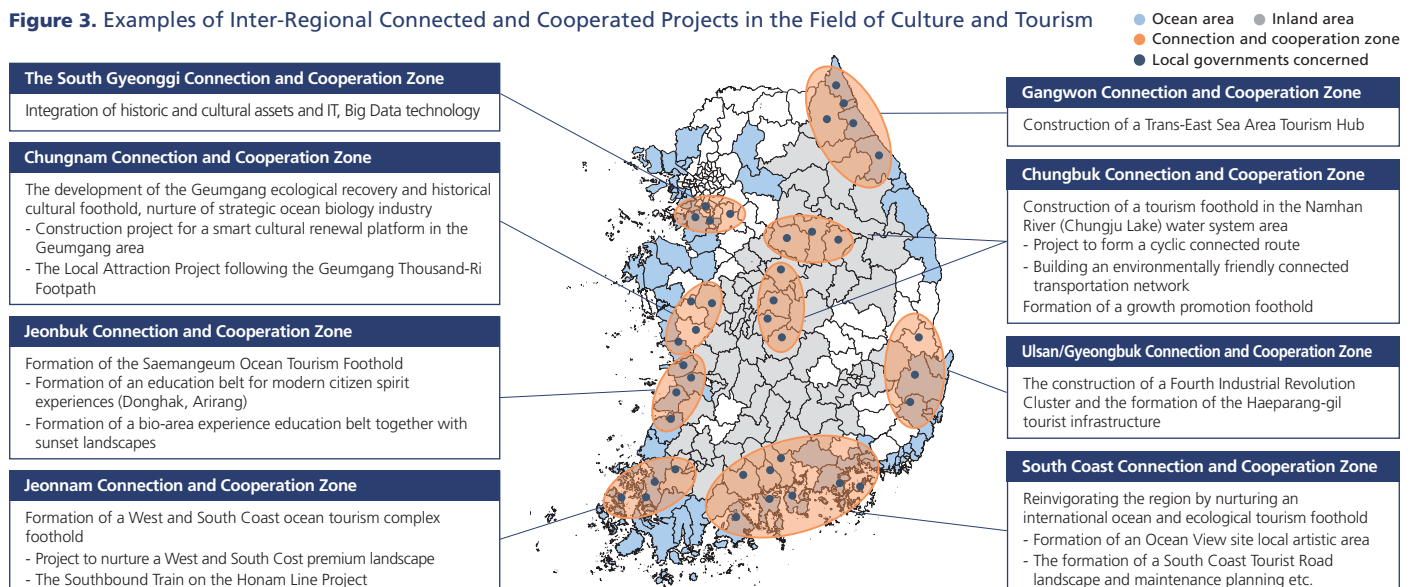
These tasks will only be possible through stronger local innovative capacities. To this end, regional cultural and artistic bases including the development of cultural content, systems for realization, and professionals should be secured, business models developed and expanded using specialized local resources, and networks of solidarity based on trust between participants should be built and organized. At the same time as invigorating the regions and increasing consumption within the regions by attracting resident and exchange populations through initiatives such as regional living experience products, bases should be built for coexistence harmonizing the everyday lives of local residents with the needs of tourists. Examples include diagnoses of appropriate carrying capacity by local tourism destinations, and the introduction of tourism quotas to minimize the negative effects of tourism development. Outside networks should also be built by expanding tourist

infrastructures such as ICT.

4) The Enjoyment in Everyday Lives and the Enhancement of Competitiveness in Regional Tourism

A cultural living infrastructure should be built that can be enjoyed indiscriminately everywhere. To this end, first, consider a shift in the method of service provision to resolve regional culture disparities. In addition to the expansion of cultural living infrastructure based on consumer approachability in consideration of decreasing population in the regions and ageing, consider stronger surveys of cultural status in the regions, the development of regional culture balance indices, and the improvement of minimum standards for the provision of cultural living infrastructure considering population scale, access, and mobility. Specific examples include expanded support for mobile culture (small cinemas, cultural circuits for vulnerable classes etc.) as a way to secure foothold-based and everyday cultural service facilities so that a high level of culture may be enjoyed anywhere in the country, the expansion of regional foothold cultural service facilities such as museums and art museums and everyday cultural service facilities such as public libraries and cinemas, and the promotion of the joint use of cultural living facilities between neighboring cities and counties in regions such as rural, mountainous, and fishing villages that are experiencing decreases in population. In addition, promote cooperation and communication between regional culture agents and expand the bases to increase

Figure 3. Examples of Inter-Regional Connected and Cooperated Projects in the Field of Culture and Tourism



Source Composed by Author based on data from The East, West, South Coasts and Inland Development Planning Group of the Ministry of Land, Infrastructure and Tourism (<http://www.molit.go.kr>).

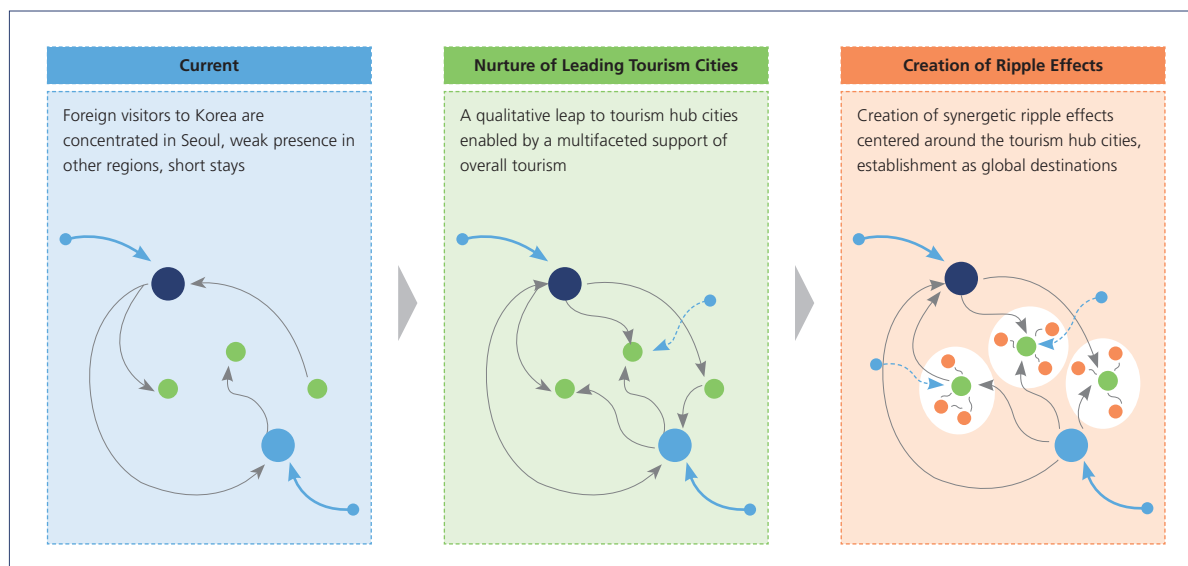
cultural diversity. Specifically, promote the activities of varied culture and art clubs and public sports clubs, invigorate local cultural communities, and expand cultural programs for communication and empathy between local diverse cultural classes including migrant workers and marriage migrants, and also expand support for such programs.

Accelerate the globalization of Korean culture and global tourist competitiveness. To this end, first, expand new Hallyu culture and enhance the value of the national brand. Specifically, in addition to stronger measures to preserve and make use of sites on the UNESCO World Heritage List, pursue the global branding of Korean cultural assets through the additional discovery of local cultural sites for new listings and organization of systems for their pursuit. Furthermore, discover new assets for Hallyu culture by integrating elements of Korean traditional culture and modern culture, build a public-private partnership to secure the sustainability and expansion of Hallyu, develop Hallyu-related tourism products such as K-Pop concerts, K-beauty, and the conversion of Korea Wave show locations to tourist attractions, and create global demand for Korean culture through cooperation with Hallyu stars etc. Furthermore, improve the global cultural and tourist service infrastructure. Nurture local tourist foothold cities at a global level, and use them as gateways to expand visits to regions outside of Seoul by attracting underlying facilities such as hotels, and through connections to local cultural and tourism content. Furthermore, expand and diversify public transport systems (mass transit

networks, car shares, electric cars, bus shuttles etc.) to facilitate access between airports, major transport nodes (major airports, ports, KTX stations etc.), and regional tourist footholds or between major resources, and expand 24-hour automated tourist guidance systems (smart help desks) connected to regional tourist transportation guidance systems such as Korean-style Mobility as a Service (MaaS) and to ITC.

Building a foundation for the exchange and cooperation of culture and tourism between South and North Korea and peace on the Korean peninsula is paramount for the globalization of Korean culture and the enhancement of global tourism competitiveness. The Demilitarized Zone (DMZ), located at the center of the peninsula, is gaining worldwide attention as not only a valuable site for the study of Korean peninsular ecology but as a global natural heritage where war and peace, nature and ecology coexist. The projects pursued so far including the ecology peace park, ecology exploration routes, and peaceful world route were limited to the South Korean region; in the future these should be expanded to cooperative projects between the Koreas, and project diversification should be sought based on the historical and cultural sites etc. remaining in the region. Even listing as a UNESCO World Heritage may be sought as a symbol of inter-Korean cooperation. In addition, avenues should be sought for mid- and long-term culture and tourism cooperation and exchange. Basic directions and principles should be established to enhance sustainability and stability through incremental steps and the

Figure 4. The Nurture of Regional Tourism Hub Cities



Source
Ministry of Culture,
Sports and Tourism,
2019.

preparation of institutional foundations, and mid- to long-term development measures should be reached through joint South-North participation including the composition of an Inter-Korean Culture and Tourism Cooperation Consultation Conference (working title), preparation of measures for tourism R&D cooperation, the compiling of an inventory of culture and tourism resources, and the selection of core projects. **Figure 4**

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4

Building Safe and Livable Places Embracing Different Generations and Classes

Sang Jo Kim, Byoung Jae Lee

1. Foreword

The Fifth Comprehensive National Territorial Plan presupposes the first-ever "era of absolute population decline" in South Korea. Some predict that the population will go downhill after peaking at 52 million in 2028. It is no exaggeration to say that the economy is already entering a period of low growth. If the population decreases and the low growth period continues, how we use our land will also have to change. Moreover, we still have a long way to go in terms of housing and welfare. In addition to housing security, there is also a high demand for custom housing in preparation for single-person and elderly households. People also recognize the importance of "safety" more than ever.

This article would like to outline the current status, problems, outlooks, and policy tasks of safe future living spaces, focusing on the contents of cities (spaces), housing and disaster prevention included in the Fifth Comprehensive National Territorial Plan.

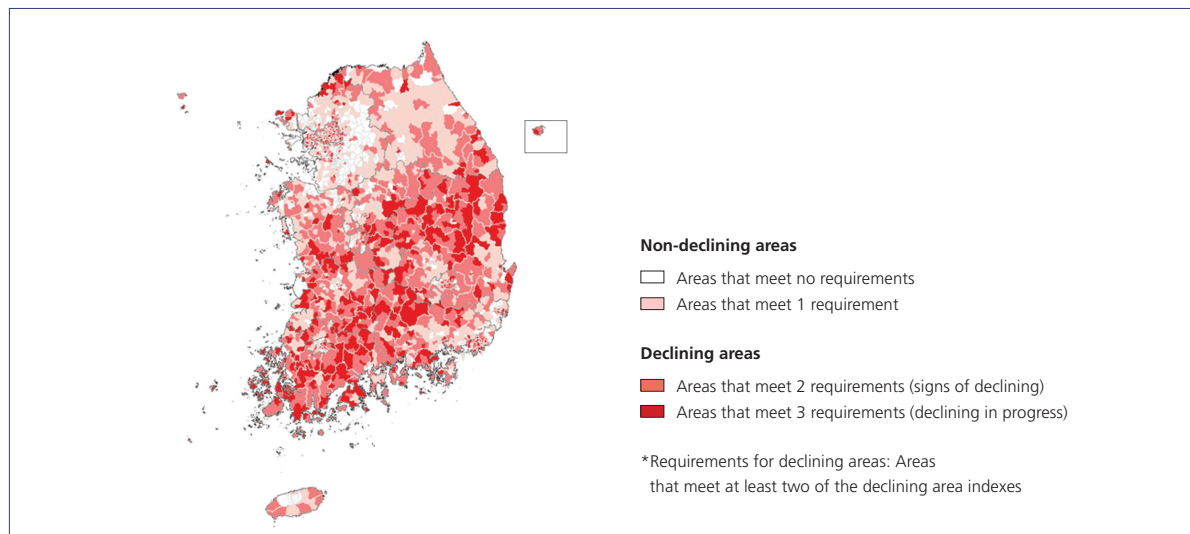
2. Current Status and Issues

1) Decline of cities and insufficient urban growth management

Key issues in the urban sector include the decline of cities and increasingly aging residential areas. The physical, economic, and social decline in cities is intensifying. In particular, large cities are experiencing the aging of the physical environment, such as an increase in old buildings, whereas small and medium rural cities have concerns about the declining population. The physical and environmental decline increased from 75.9% in 2013 to 86.9% in 2017 in metropolitan cities and from 51.7% to 67.3% in provincial cities in the same period. The number of rural cities whose population passed the peak point more than 10 years ago also nearly doubled from 19 in 1985 to 37 in 2015, and in the 2000s, this trend is even spreading to the metropolitan cities beyond rural areas.

However, policy responses to urban growth management and unsustainable development are still ineffective. Despite the

Figure 1. Status of Declining Areas in South Korea (2017)



Note

The declining area is an area that meets at least two of the declining requirements, such as population, the number of businesses, and aging buildings, set forth in Article 17 of the Enforcement Decree of "The Special Act On Promotion Of And Support For Urban Regeneration"

Source

Min Ho Seo, Yu Jin Bae, Gyu Sang Kwon et al, 2018.

prospect of population decline, the logic of urban planning in the growth period and excessive urban development are still in place with continuing efforts to secure the amount of urban development and infrastructure, such as excess allocation of planned urbanized areas in non-urban areas. The continuous development of the outskirts of cities has led to the decline of old downtowns due to an increase in low-use, idle land and the population outflow, intensifying disparity between old and new urban districts. [Figure 1](#)

2) Weak housing security and widening gap in housing satisfaction

First, in the housing sector, weak housing security and the widening gap in housing satisfaction are the key issues. The continuous increase in housing supply has solved the problem of total housing shortages, but it is difficult to meet people's actual demand to have their own house. The housing supply rate has surpassed 100% since 2008. In 2017, the national average was 103.3%, but the national average rate of owning a house was only 56.8% (42.1% in Seoul, 48.9% in Seoul Metropolitan Area). The number of households below the minimum housing standards⁰¹ also reached 1.03 million (5.4%), indicating the weak housing security of renting households.

Second, it is also worrisome that the gap between satisfaction and service by housing type has gradually widened. The gap in accessibility to public services is deepening, with the gap in satisfaction of convenient facilities between apartment residents and those who live in detached/tenement/multi-household houses rising from 12.1%p (2006) to 14.1%p (2016).

Third, the quality of life felt by the people is low due to quantitatively and qualitatively insufficient living SOC facilities⁰². The current living SOC supply method is a partitioned supply system, which is difficult to meet the complex demands of the region and residents, and there is also a severe gap between regions based on the financial level.

3) Diversification and Magnification of disasters and lack of a comprehensive response system

First, the most serious issue concerning national disaster

prevention and safety is that although the type and scale of disasters have recently increased, the response system is only based on previous experience of disasters and therefore lacks comprehensive response. On top of the aging infrastructure, maintenance and management are not properly conducted, and there is a lack of comprehensive response despite the concern about the increasing risk of large-scale, complex disasters.

Second, the rapid aging of medium and large infrastructures such as houses, buildings, roads, railroads, and airports, which were mostly built in the 1970s and 1980s, is threatening people's safety. In the case of medium and large SOC, the aging rate of 30 years or more is the highest in reservoirs (96%), followed by dams (45%), railroads (37%), and ports (23%).

Third, large-scale complex disasters have caused a lot of property damage and human casualties due to the recent natural and human disasters. Damage from natural disasters such as typhoons and heavy rains increased about 8.6 times in the 2000s compared to the 1970s, and damage to vulnerable areas and people such as the elderly rose after the 2000s due to the increasing occurrence of heavy rain and snow as well as extremely high temperatures such as heat waves. Although continuing climate change is expected to lead to larger damage caused by natural disasters, the comprehensive and cooperative management system is insufficient to prepare disasters.

3. Changing Conditions and Prospect

First, in the city (space) sector, the era of population decline began and the demand for urban space restructuring is increasing. The population is projected to decline rapidly due to low fertility and aging, and some cities are expected to lose their urban competitiveness as their function declines. South Korea's absolute population is forecast to drop after peaking at 51.94 million in 2028, and the working age population has actually been on the decline since 2017 (Statistics Korea 2019).

Second, in the housing sector, diversifying housing demand and the problem of vacant homes are likely to become issues.

01. The minimum housing standards, based on the "Housing Act," refer to a certain level of structure, performance and environmental standards, including the minimum residential area by household composition, the number of rooms by use, and the availability of essential facilities such as water and sewage facilities, structural strength, sound insulation, ventilation, lighting, and heating.

02. Living SOC means the essential infrastructure necessary for daily life such as eating, sleeping, raising children, supporting the elderly, working and resting (Inter-ministerial Report. 2019).

Changes in the household structure, such as single-person households and elderly households⁰³ are expected to lead to changes in the area, location, and type of housing required, as well as the housing market over the long term. The demand for custom housing policies, such as for youth and newlyweds, is expected to rise, and the government is likely to continue improving the residential environment for low-income families. Multicultural and foreign households created by naturalization or marriage are also sharply rising⁰⁴. On the other hand, the decrease in population is expected to rapidly increase the number of vacant homes in rural areas and some urban areas⁰⁵, leading to increased demand for maintenance. **Figure 2 Figure 3**

Third, in the national disaster prevention and safety sector, more than anything, the need to secure safe land spaces is expected to rise due to the changing patterns of large-scale disasters and the increase in vulnerable areas. Due to climate change, natural disasters such as floods, droughts, heavy snow, heat waves, and earthquakes are likely to happen more frequently, the period and pattern of occurrences will diversify, and the scale of damage will also increase. The increase in social disasters also leads to an increasing need to establish the disaster prevention system for national land management and a

call for policies to address disaster blind spots. **Figure 4**

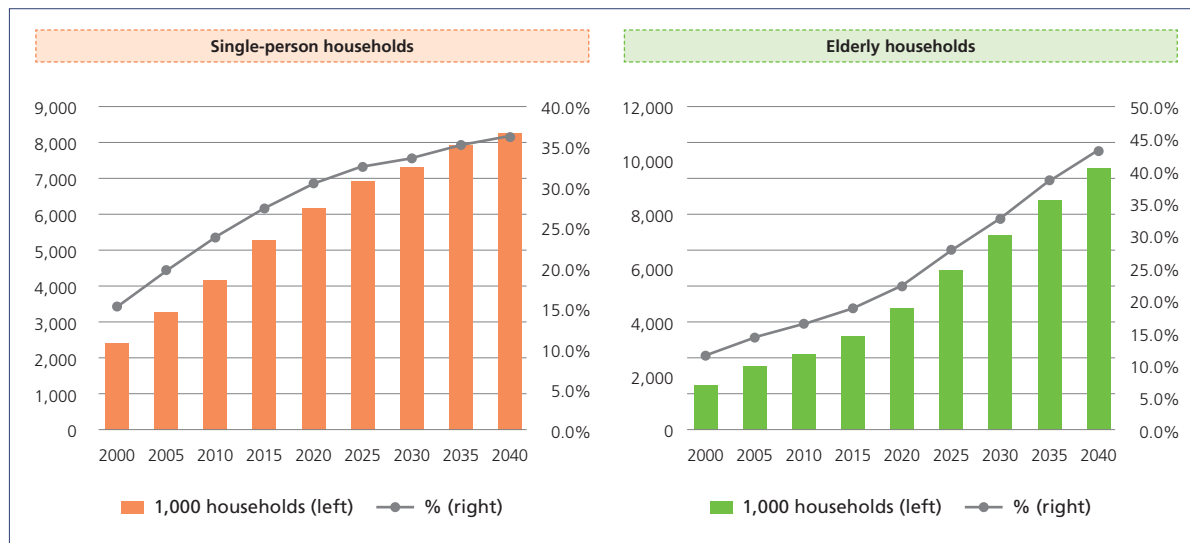
4. Major Policy Tasks

1) Flexible urban development and management in response to population decline

First, we will induce appropriate development and planned management in preparation for population decline. During urban planning, based on realistic population forecasts, we should systematically manage spaces in and out of downtown considering the planned population in addition to population structure and regional functions. We should avoid the extensive development of downtown, induce complex, multi-faceted development, and promote compact urban renewal around the main transportation axis. We should also analyze the status of land use in non-urbanized areas to develop diagnostic indicators for the possibility of unsustainable development and establish a continuous monitoring system for planned management.

Second, we will focus on planned management areas and green areas under high development pressure. Differential management should be strengthened, such as subdivision into

Figure 2. Outlook on Single-person and Elderly Households



Source
Statistics Korea
Population and
Housing Census;
Statistics Korea 2019.

03. The number of single-person households is expected to surge from about 5.58 million (28.5% of the total) in 2017 to about 8.23 million (36.4%) in 2040. Elderly households whose householders are over 65 years of age are also expected to jump from about 3.99 million as of 2017 (20.4%) to about 10.01 million (44.2%) in 2040 (Statistics Korea. 2019 Special Estimate of Future Households: 2017-2047).
04. The number of multicultural households soared from 229,000 in 2015 to 334,000 in 2018 while foreign households surged from 65,000 in 2000 to 478,000 in 2017 (Statistics Korea website). The number of children of marriage immigrants (second generation of marriage immigrants) is expected to rise due to the increase in multicultural households and to reach about 1 million by 2050 (Korea Institute for Health and Social Affairs, 2009).
05. According to the simulation results using the Korea Land Information Corporation's future housing prediction model, the number of vacant homes in Korea is expected to increase to 1.28 million units (5.1%) in 2030 and 3.02 million units (10.1%) in 2050 (Land and Geospatial Informatrix Corporation, 2016).

intensive and general management in consideration of the development level and maintenance direction of the target area for growth management. In addition, we should improve the infrastructure to reinforce the connection between the old downtown and a new city and prepare for the era of population decline by strengthening the community, creating residential space, and building advanced infrastructure.

Third, we will turn the decreased demand for infrastructure due to the declining population into green spaces and strengthen the strategies to form and manage smart spatial structure that takes into account regional characteristics, such as compact renewal centering on the main transportation axes.

Fourth, we will effectively promote urban regeneration in downtown and residential areas according to the urban regeneration roadmap. The supply of new housing, commercial, business, and industrial spaces should be made through intensive and complex utilization of idle spaces and sites in the old downtown to encourage compact use of urban spaces.

Fifth, we will improve urban functions and landscapes by enhancing the small-scale maintenance method of old and neglected buildings. We will expand and strengthen the renewal through reconstruction and remodeling of old and neglected buildings,

expand various institutional and financial support measures to promote such activity, conduct monitoring of vacant houses, and reinforce measures to prevent homes from becoming vacant.

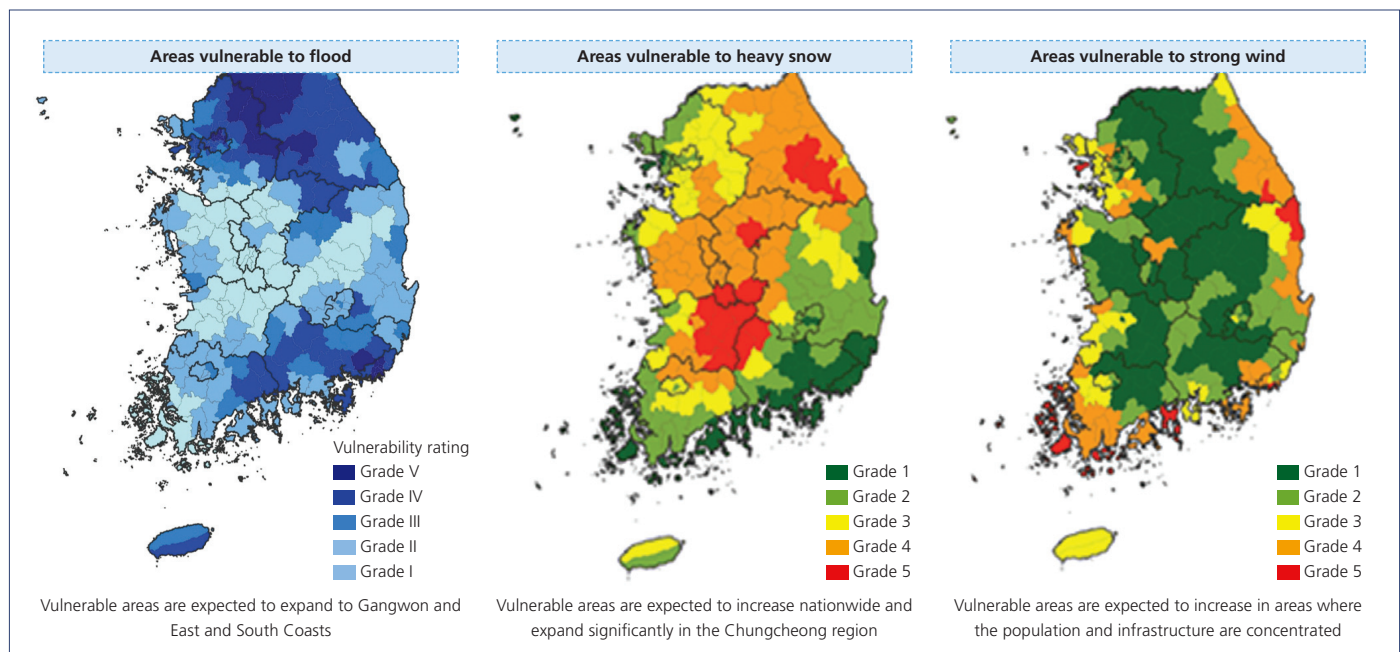
2) Creation of urban, living, and residential spaces in response to changing demographics

First, it is important to create an urban and living space for social integration by establishing an urban and living space designed to resolve low birth rates and aging society as well as an environment offering public services for the socially disadvantaged.

Second, there is an urgent need to improve areas below the national minimum standard⁰⁶ for basic living infrastructure. In order to improve the quality of life for all and to bridge the gap between regions and within the region, we should identify areas that do not meet the national minimum standards for basic living services and provide services above the national minimum standards across the country.

Third, living SOC will be categorized into regional base facilities and village unit facilities and allocated differently, and residents' accessibility to convenient facilities should be improved in combination with the region-specific welfare

Figure 3. Outlook on Areas Vulnerable to Climate Change Disasters (in the year of 2100)



Source: Government of the Republic of Korea, 2019.

06. Basic living infrastructure refers to facilities among the urban regeneration infrastructure that are needed to promote the convenience of city dwellers and to maintain or improve the quality of life to a certain level. The Ministry of Land, Infrastructure and Transport set up the national minimum standards of basic living infrastructure to be used as government-wide standards and for related ministries to use them as the basis for the supply plan of living SOC in the future. This is also included in the Basic Policy for National Urban Regeneration (2014-2023).

delivery system. We will diversify how to provide living SOC, such as a way of responding to demand and creating complex facilities, as well as promote access-based living SOC service monitoring by local governments.

Fourth, we will induce the supply of small houses in consideration of the increase in one- or two-person households and expand the support for housing tailored to the characteristics of elderly, multicultural and foreign households in an effort to increase residential spaces in response to new housing demands.

3) Settlement of inclusive housing welfare

First, we will strengthen tailored support based on the life stage and income level, such as youth, newlyweds, and low-income families. We will make efforts to improve the public lease housing inventory rate to meet the long-term public lease housing needs of those who do not own their homes and those with actual needs, as well as establish a public lease housing supply plan that comprehensively reflects local housing welfare needs and housing support programs.

Second, we will provide region-specific housing services and diversify housing options that reflect regional characteristics. We will diversify housing types, housing production methods, and housing locations, as well as offer a wide range of options, such as housing supplies considering regional characteristics and residential service levels. We will promote differentiated policies that meet the characteristics of the local population and economy in order to continuously improve the housing standards for the proper living of the people according to regional circumstances.

Third, we should expand housing security for the socially disadvantaged. We will strengthen housing support for vulnerable groups to address residential welfare blind spots.

We analyze income levels, housing cost burdens and housing levels by life stage and income stage, set household standards for housing welfare, survey housing support programs desired by each social class, and reflect the results in designing housing welfare policies.

Fourth, we will provide housing security for single-person households in poverty and elderly households. For single households, we will establish housing policies that are closely linked to income growth and job policies and seek to provide homes and jobs together. For elderly households, we will establish plans to supply residential facilities and provide support by health cycle, such as self-reliant residential facilities, housing welfare facilities, and nursing homes in consideration of income and health conditions.

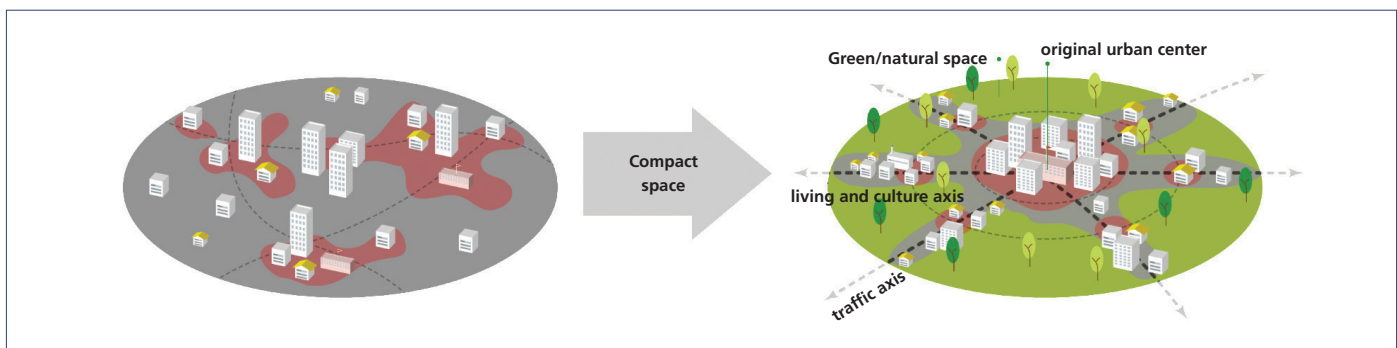
Fifth, we will expand the supply of future housing, such as long-life homes, modular homes, and smart homes, as well as eco-friendly homes in response to climate change. It is also important to establish decentralized and public-private cooperation governance to provide life-oriented residential welfare services and diversify supply methods for local residents.

4) Creating safe and resilient national territory

The Fifth Comprehensive National Territorial Plan presented the following as key policy tasks to create safe and resilient land.

First, in relation to the establishment and implementation of the disaster prevention system for whole-cycle of national territory management, the scope of disaster response has been extended in terms of time and space from the scope of typical disaster response, which was limited to immediately before and immediately after the occurrence of disaster to emphasize the establishment and implementation of the disaster prevention system for whole-cycle. In addition, the plan called for the elimination of living safety blind spots and the establishment

Figure 4. Restructuring of Urban Space and Smart Space Reallocation



of a national disaster prevention strategy system to promote scientific risk management of large-scale disasters.

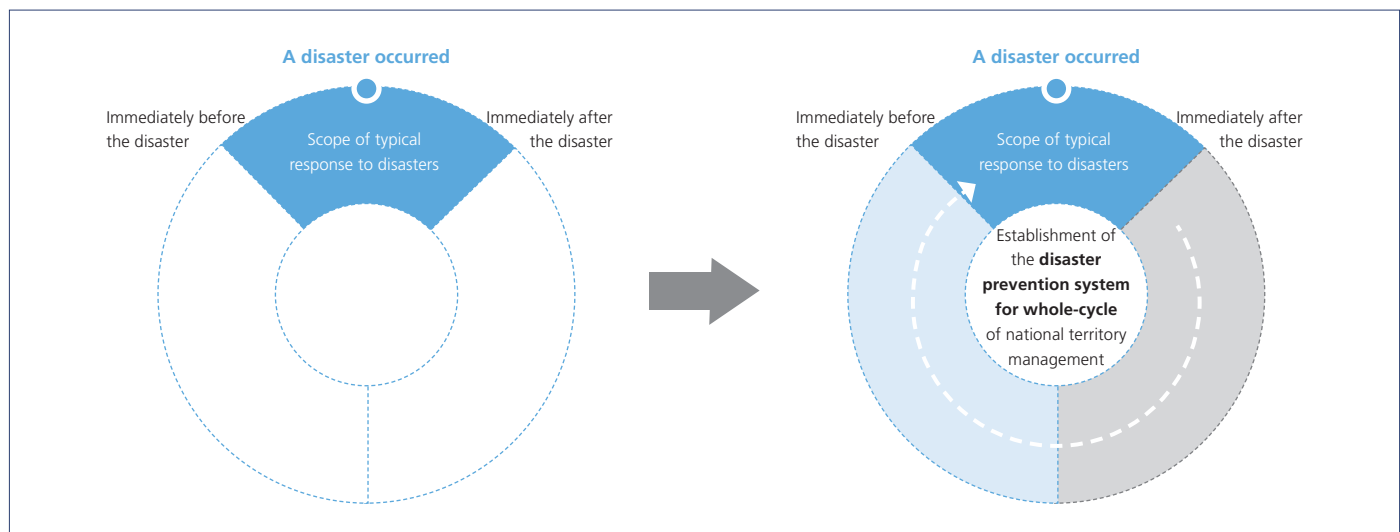
Second, with regard to the establishment of an integrated disaster prevention system considering regional characteristics, it laid out plans to build and operate a multi-dimensional response system involving the private, government, industrial, and academic sectors for responding to large-scale disasters in each region as well as to support a system to intelligently diagnose risks and provide information. Furthermore, urban plans for disaster prevention will be actively established so that plans to improve infrastructure and the disaster prevention environment will be included in regional urban plans in areas vulnerable to disasters. **Figure 5**

Third, regarding the establishment of a human-centered safety system, disaster maps will be prepared to encourage

residents to handle dangerous situations on their own, and smart safety management services that carefully examine the safety and welfare of the people will be expanded. In addition, to reinforce the safety of the transportation system, the government will conduct a comprehensive review of the safety of the transportation infrastructure, strengthen road safety through the intelligent connection of the signaling system using big data, and reduce the accident rate through the sophistication of railway operation and management techniques.

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Figure 5. Disaster Prevention System for Whole-Cycle of National Territory Management: Temporal and Spatial Expansion



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5

Creating Dignified and Environment-Friendly Territory

Jong Soon Park, Eun Joo Yoon

1. Integration between national territorial plan and environmental plan

The Fifth Comprehensive National Territorial Plan has come into effect this year. There is great meaning for the National Territory Environment sectors in this plan. Since the 1960s, various pollution problems occurred following the urbanization due to rural-urban migration and in the process of transitioning from agricultural to industrial country, and this deteriorated the quality of life of the people. If the quantitative growth economic efficiency centered on development were valued in the past, now we are in an era where the environment has become what determines quality of life. The government has also begun to view development and conservation as one domain and sustainable development has become the aspiration of everyone.

It is in such context that the Fifth Comprehensive National Territorial Plan and the Fifth Comprehensive National Environmental Plan were addressed. In doing so, public officials and researchers in charge of each plan shared the conditions of the national land environment and future prospects; and discussed the policy tasks to be commonly included. The linkage between the national territorial plan and environmental plan, which was studied from the early 2000s, came to fruition through the enactment of the "Integrated Management Common Directives" in 2018.

This article introduces the current situation and policy tasks of the Land Environment under the themes of "Management of the National Territory Ecological Axis," "Expansion of Green Infrastructure," "Making Elegant Landscapes," "Creating Urban Spatial Structure Optimized for Energy Consumption," discussed in the two plans.

2. Standards for the development and conservation of national territories : ecological axis

The starting point for sustainable development of the land lies in distinguishing more clearly the spaces for development and conservation. Nevertheless, except for the protected areas of Baekdudaegan, there is no ecological axis that has been simultaneously used in both national territorial and environmental policies. Naturally, there is a lack of ways to consider the ecological connectivity of the land in the sub-plans, i.e., urban planning and development planning, and as a result, major ecological axis of the land fragmented in several places.

In this the Fifth Comprehensive National Territorial Plan, a policy agenda was presented to strengthen the connectivity of mountain, river and ocean networks in an ecological standpoint. The plan was to improve the overall ecological function of the national territory by clarifying the spatial extent of the land ecological axis presented in rough hypothetical lines and by legislating the restoration and a management system.

More specifically, major ecological axes of the land were divided into Ecological Green Axis and Maritime and Coastal Blue Axis, and key conservation areas and management areas were set to establish the principle of National Land and Environment management. In particular, it would be desirable to encourage the conservation and preservation of the ecological axis as a priority, such as the protected areas of Baekdudaegan, DMZ (military protection area and civilian control area), the ridge axis, mountain range networks, regional ecological axis, etc.

Furthermore, the land ecological axis in urban should be strengthened by expanding the urban green space and biotope, and we should increase the green within the actual living area of the citizens to create a more pleasant living environment.

The maritime and coastal blue axis should be linked to the ecological green axis as well, and it would be appropriate to avoid development as much as possible in protection areas located in maritime and coastal areas and where sea levels rise.

It is expected that such land ecological axes will not only provide a spatial guideline on the use and preservation of land development, but also will play a significant role in creating a proactive land space, preventing reckless development. **Figure 1 Table 1**

3. Improvement of the living environment : expansion of green infrastructure

South Korea is currently seeing a decrease in the population in rural areas, while the population in the metropolitan areas centered on the Seoul City area is increasing. According to the population estimates in 2040, the population is expected to decrease from 52.9% of the current residential areas, while there will be an increase in the metropolitan area. Therefore, it is appropriate to focus on improving the quality of the living environment in the cities, where population is increasing, and on utilizing the amenities on natural resources in farming and fishing villages with decreasing populations. Furthermore, we need to actively deal with newly emerging environmental issues such as high concentrations of fine dust, etc.

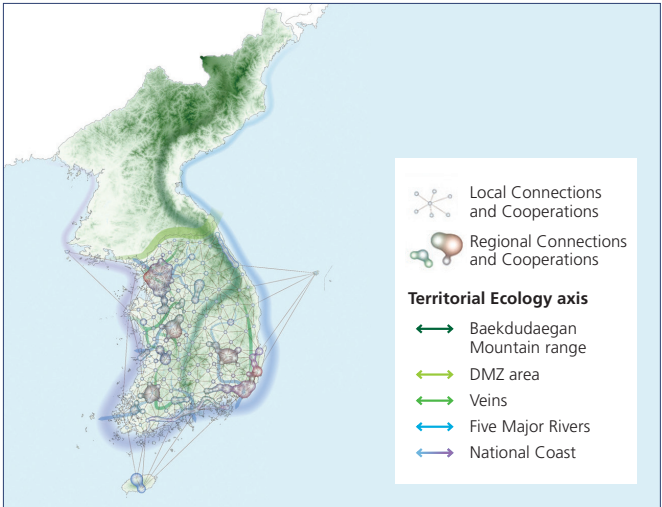
The anxiety of the people is growing due to fine dust. One

alternative to this is to open a wind tunnel by connecting natural resources such as the forests, park greenery and farmland into a network. We can reduce much of the fine dust in many areas if areas generating clean air, windy areas, and cold-air passageways are secured through this. It is also possible to build an air dam where fresh air can stay by placing park greenery in the middle of the wind flow. Also, when constructing new buildings, they should be placed in a manner that adapts to the wind, and ventilate the city's atmosphere quickly. **Figure 2**

Furthermore, urban agriculture needs to be revitalized. The effects of urban agriculture are considerable: they promote ecological health, control the climate, purify air, improve landscape, provide opportunities to leisure activities and foster community culture. In order to revitalize urban agriculture, we should first secure arable land, such as gardens, rooftops and public land, and come up with measures to share information about it with the citizens. Various types of urban agriculture such as hydroponic cultivation, box garden, beekeeping, etc., should be developed, and programs open to anyone should also be prepared.

From a more microscopic perspective, various noise problems should also be resolved. Measures and standards to assess the extent of the noise generated in floor noise in community dwellings, noise from business areas such as construction sites and factories, living noises generated in roads, railroads and aircrafts, shall be prepared. Also, it is necessary to manage harmful substances and odor in buildings.

Figure 1. Integrated management of the national territory-environmental planning



Source Government of the Republic of Korea 2019, 113.

Table 1. Current status of disconnected and damaged national ecological axis

Category	Baekdudaegan Mountain range (2011~2016)	Veins (2011~2016)	DMZ area (2015~2016)	National Park (2016)	Total
Disconnected	65	768	22	208	1,063
Damaged	208	972	145	83	1,408
Total	1,063	1,740	167	291	2,471

Source Government of the Republic of Korea 2019, 105.

Existing buildings that contain harmful substance such as asbestos, should be demolished and the use of eco-friendly construction materials should be encouraged. Rural areas should manage odor sources and create a wider buffer green area to prevent the bad smell from spreading around the area.

In the case of rural areas, forest welfare spaces should be provided in preparation for the aging population, and the increase of the number of people with lifestyle-related and environmental diseases. It is necessary to create forest welfare complexes in each zone of the national territory ensuring convenient access to all people, and to provide forest welfare services by life cycle, including forest kindergarten, forest leisure/sports facilities and arboretum. We are also at a point in time where we should connect the villages and scenic forests and historical/cultural resources, etc., by region to a tour course, and bring in infrastructure for people's health that are forest-type, coastal-type and hydrophilic type utilizing the excellent natural resources such as forests, coastal areas and dams.

We can also think of supplying second houses to the urban people, in rural areas with populations that are fast reducing, or completely transforming the villages' functions into recreation/healing sites. Brown-fields, closed facilities, and unoccupied houses that occur as the industry decays may be made into shared public property, or they may be recycled environmentally to enhance the competitiveness of the region.

4. Creating beautiful and elegant landscapes

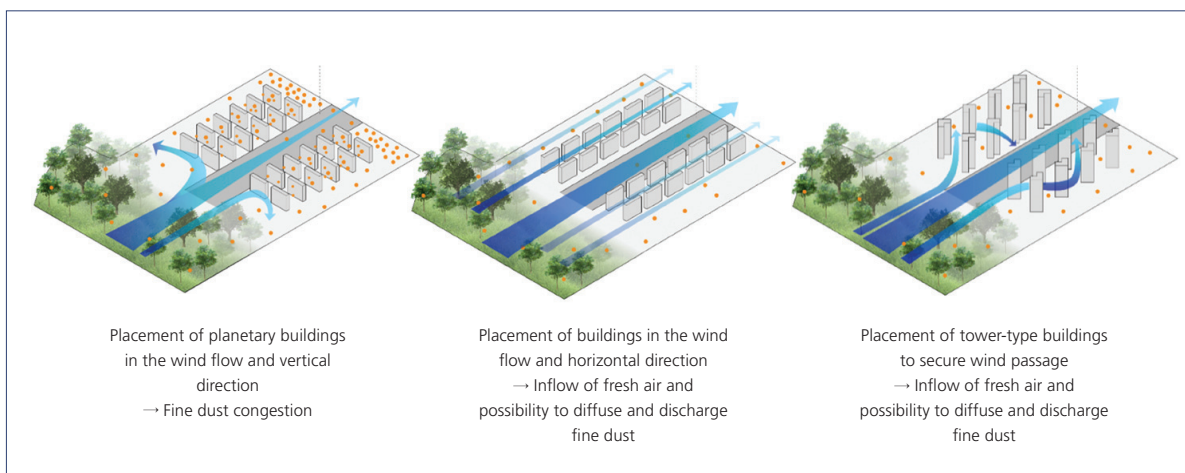
Since ancient times, our land has been called 'Geumsugangsan'(land of beautiful scenery) because it was beautiful like embroidered silk. However, in some suburban areas, the natural scenery and topography were transformed: high-rise buildings were built close to the coast in coastal areas and stand-alone apartments were built in rural areas, looking completely out-of-space. The landscapes in the new towns were worsened with high-rise apartments, and those of the old town were deteriorated by signboards in flashy colors and electric cables. **Figure 3**

We are now in an era where landscape has become a factor of national competitiveness, and global cities in Korea and around the world are breathing in new energy by changing their urban image. Korea is also working on improving its landscape, such as revising its 'Landscape Act', which may enhance the quality of its land. **01 Figure 4**

Then, what should we do? First, we need to find and utilize the remaining national landscape resources to create distinctive regional landscapes. This means that, by discovering and managing local regional landscape resources, they should be used as assets in establishing the identity of the region and revitalize the area.

Let's investigate and find scenic resources that are damaged or disappearing in the region, which are underrated, and use them as important resources in the region. To this end, it is

Figure 2. Examples of building layout guidelines considering the wind direction



Source
Government of the Republic of Korea
2019, 116.

01. Enactment of the Landscape Act in 2007, general revision of the Landscape Act in 2013, establishment of the First Landscape Basic Plan of 2015, National Land Charter enacted in 2017.

necessary to first develop methods, procedures and selection criteria for land and landscape resources. Subsequently, unique local landscapes such as rural or urban landscapes should be formed and systematically managed by utilizing the scenic resources that were thereby investigated and discovered.

Furthermore, the concept of landscape management needs to be applied to SOC facilities (railways, roads, ports, streams, etc.) promoted at the national level. Landscape management plans for each project stage of planning, programming, design and construction shall be prepared so that the landscape is taken into account at all stages of the SOC construction project. Other small facilities (small bridges, farming roads, agricultural bridges, pedestrian bridges, pedestrian overpasses, etc.) and everyday SOC facilities should also be carried out considering the landscape.

5. Creating an urban spatial structure optimized for energy consumption

As of 2014, greenhouse gases generated from the energy sector reached 87 percent, and each 1 percent increase in renewable energy use resulted in a 16.8 percent drop in CO2 emissions, statistics show. Therefore, a shift to an urban space structure with low energy consumption is needed.

In this context, the Comprehensive National Territorial Plan proposes ‘building a land-use system efficient in energy

consumption’ as its policy agenda. To this end, the land-use system should be reviewed taking into account transport distance, time/seasonal load fluctuations, etc., with respect to major energy production/consumption facilities within the city. In other words, zoning should be established in consideration of energy consumption patterns on residential and commercial sites and plan for an optimal placement of facilities close to energy production/transportation/consumption among urban infrastructure. In the case of industrial complexes, self-reliance in energy should be enhanced, and development of industrial complexes self-supporting in energy should be promoted through the district unit plans, etc.

Energy facilities need to be positioned appropriately, and distributed energy systems should also be prepared. In other words, the use of solar power and fuel cells in cities should be expanded, and the location of each energy facility should be planned in accordance with the energy supply and demand plan. For the construction of a city in which future energy, such as hydrogen, is used as the city's main source of energy, we should develop technologies related to energy production, storage and transport, and verify usability through the implementation of pilot projects in the residential/transportation sectors.

Finally, it should work to create zero energy and green buildings. To this end, zero-energy buildings that minimize energy load should be required, starting with public buildings in 2020 and gradually to be mandatory by 2030, and various pilot projects and institutional support measures should be

Figure 3. Damage to the natural scenery



Source
Sound of Sejong 2013.
Green Korea United
2006.
BizN 2016.

Figure 4. Problems of Urban Landscape



Source
The Hankyoreh 2019.
Lafent 2013.
Gangwon-do Daily
2008.

prepared for. Through strategies established according to the basic plan of green buildings, the strengthening of the energy performance in newly built buildings while continuing to implement policy tasks, greening of existing buildings, enhancing the green building industry's innovative capacity, people's participation, etc., measures to revitalize shall be comprehensively implemented.

6. Expecting a renewed land environment in 20 years

The Environmental Kuznets Curve (EKC) is a regular topic in economics textbooks. In the early stage of industrialization and manufacturization, the emissions of the factories, the concentration of the population in the metropolis deteriorates the environment. However, when the income exceeds a certain level, the environment is improved. This is the effect of the public understanding that high income levels do not necessarily make people happy, and that good environment improves the quality of life.

Now we seem to be reaching the inflection point of the curve. Reflecting these changes in the era, the Fifth Comprehensive National Territorial Plan and the Fifth Comprehensive National Environmental Plan were established as almost one plan, and not separate plans. We would like to emphasize again on the management of land ecological axis for the creation of proactive land environment, the expansion of green infrastructure that will enrich the quality of life, the creation of an elegant national landscape that connects the past, the present and the future, and an urban spatial structure optimized for energy consumption.

On a day in December 2019, today's ultra fine dust level is "bad," and it is forecasted to be worse tomorrow. I would like to finish this writing, hoping that in twenty years, the land environment would be quite different from now.

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1. Current status and issues

With the gap in transportation service and worsening of traffic congestion in large cities, there has been a growing gap in the formation of a national transportation network and service, and as a result, the traffic congestion in large cities has been exacerbating. According to the World Economic Forum (2019) Global Competitiveness Report, South Korea is ranked 13th among 141 nations, and although it was ranked 6th in infrastructure, it ranked relatively weak in terms of road connectivity (26th), railway density (23rd), and degree of airport connection (16th). With regards to road connectivity and railway density, there has been a gap in terms of facilities and transportation service across regions, and according to the research results by Jong Hak Kim et al. (2019), the average commute time across regions was 171 minutes (assuming usage of highway networks) as of 2017, and although the accessibility of major cities (road + KTX) was 20% better for the Metropolitan area and inland Chungnam compared to the national average, certain areas, such as the Namhae Coast and Gangwon-do were shown to be approximately 40% worse in terms of accessibility compared to the national average. As a result, there appears to be a need to reorganize the national road network focusing on the users (people) in accordance with changes in future commute patterns by the road users and prepare for transportation safety, SOC deterioration, and regional imbalance.

Despite the continuous development of transportation

infrastructure, due to the time gap between the development of new cities and transportation infrastructure construction, decrease in the usage of public transportation⁰², and increase in the number of automobiles in use, congestion in major cities⁰³ continue to increase, and the average commute time (round-trip) for Koreans is 58 minutes (80 minutes for Metropolitan areas), which is at least 2 times⁰⁴ that of the OECD average of 28 minutes, and the load factor for public transportation during rush hours is 175% for metropolitan railways and 132%⁰⁵ for metropolitan buses, resulting in severe public inconvenience regarding transportation. Despite previous efforts to resolve the city center congestion issue through the establishment and operation of consultative groups among local governments, the inconvenience of the citizens continues to worsen due to limitations of local governments with designated jurisdictions and regional conflicts.

Due to an increase in competition of global hub airports and lack of revitalization of regional airports, the international competitiveness of logistics services has been decreasing. In particular, in order to take the lead among global hub airports, there is a need for Incheon International Airport to strengthen its competitiveness amidst growing competition from China, Japan, and Singapore, and there is an urgent need to contemplate on methods to revitalize regional airports with lacking visitor and shipment volume, excluding Jeju, Gimhae, and Daegu Airports and Incheon International Airport, where most of the international flights are concentrated. In addition, despite policy support for the sustainable development and

01. Drafted by modifying and summarizing Book 3, Chapter 5 of the 5th Comprehensive National Territorial Plan

02. National public transportation load sharing rate for major cities decreased from 39.3% in 2016 to 38% in 2018 (Statistics Korea, public transportation load sharing rate, https://index.go.kr/smart/mbi/chart_view.do?idx_cd=4259)

03. City congestion cost: (2010) KRW 18.1 trillion → (2015) KRW 21.3 trillion / # of automobiles: (2006) 16.43 million → (2017) 22.53 million (Statistics Korea, number of registered automobiles, http://www.index.go.kr/potal/main/EachDtlPageDetail.do?idx_cd=1257)

04. OECD. www.oecd.org, Average time spent travelling to and from work (round-trip, average)

05. 2019 Metropolitan Transportation Vision, Oct. 2019, Ministry of Land, Infrastructure, and Transport

functional expansion of ports, the contribution of ports with regards to import/export freight transportation has been decreasing, and in contrast to the global trend of developing smart ports, we have been lacking in responding to such changes, including generating new freight volume and added value, and implementing 4th industrial technology.

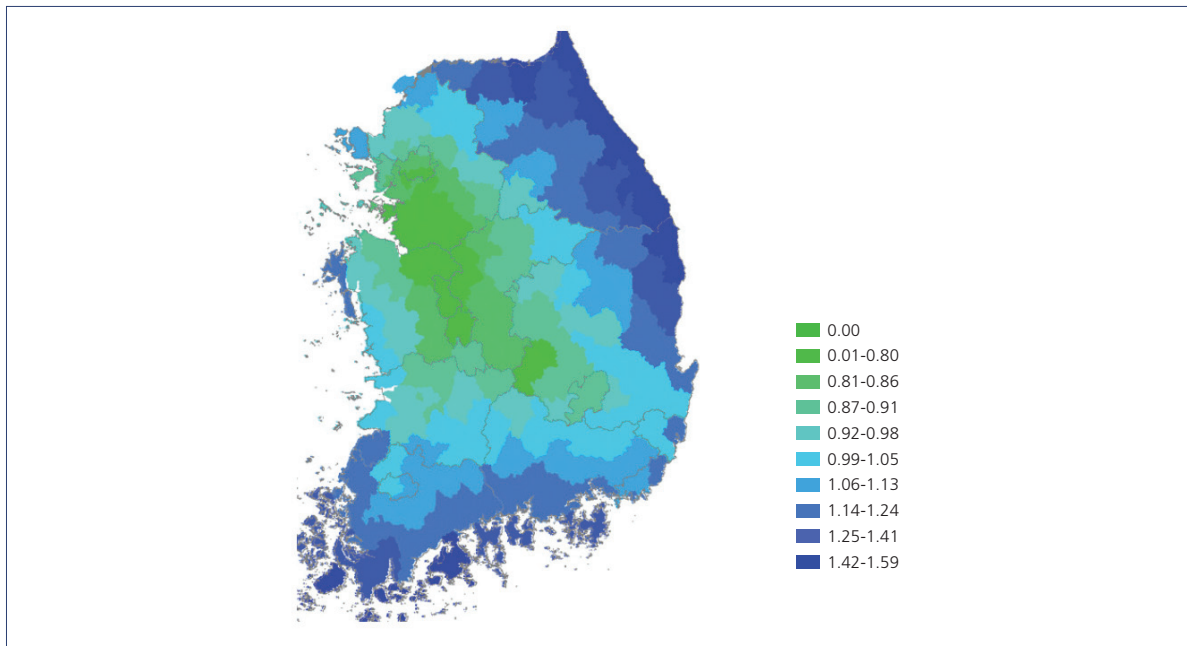
In order to efficiently resolve the city-related issue and generate new growth drivers in response to the 4th industrial revolution, the entire world is focusing on increasing strategic value of smart cities, whereas although our government pursued the ubiquitous city (U-City) policy since 2003, by focusing only on supplying infrastructure within new cities, the people's sensory level has been low, and there have been limitations in nurturing a representative smart city model with competitiveness in the global market. As a result, in order to quickly pursue related policies in pace with the global smart city market, the government has recently been planning and reviewing a staged city growth and customized smart city development and expansion policy. **Figure 1**

2. Changing conditions and prospect

The aging of transportation infrastructure that had been heavily constructed since the 1970s is accelerating, and future aging is expected to accelerate even more, leading to a growing need for maintenance and management. Among the bridges and tunnels (15,283 locations)⁰⁶ that are managed as Type 1 and 2 facilities in accordance with the Facility Safety Act, a total of 7.7% (1,181 locations) were constructed at least 30 years ago, and thus, the current aging of such facilities is not as alerting, but among these Type 1 and 2 facilities that were constructed at least 30 years ago, facilities with Safety Grade of C or below, which indicates the need for focused repair and maintenance, amounts to 33.0% (390 locations), resulting in a growing safety concern as their aging progresses.

Due to the emergence of new, balanced development bases, such as innovation cities, the national land space structure has become dispersed, and transportation policies to respond to the increase in demand for travel across regions

Figure 1. City, county and major city accessibility analysis results (Road + KTX)



Source

Jong Hak Kim et al. (2019, p.48), Research on National Transportation Network Construction for Innovation and Engagement.

06. Bridges and tunnels among Type 1, 2 facilities subject to the Facilities Safety Act (based on FMS registration as of Dec. 31, 2018)

Type 1 facility: (Bridge) Special type or 500m+ road bridge, highspeed/city metro bridge, or 500m+ railway bridges

(Tunnel) 1,000m+ or 3-lane or more road tunnels, highspeed/city metro tunnels, or 1,000m+ railway tunnels

Type 2 facility: (Bridge) Among bridges that are not Type 1, 100m+ road bridges or 100m+ railway bridges

(Tunnel) Among tunnels that are not Type 1, road tunnels, such as highspeed/general national road tunnels, or railway tunnels within metropolitan cities

as a result of efforts to revitalize a leisure-oriented culture and regional tourism. Furthermore, with improvements in automobile and transportation facility safety, mortality accidents have been decreasing each year, yet still remains significantly higher compared to other OECD nations, and at a point where the aging population is increasing, the proportion of accidents involving elderly pedestrians have been increasing, resulting in the need for substantial transportation safety policies. There appears to be a need to respond to population structure and social changes, including a growth in need to meet various demands, such as improvements in the transportation policies and systems by increasing pedestrian crossing time as we take into consideration the aging population who shows a different movement pattern than the average adult population, as well as demand-based services in rural areas with poor transportation infrastructure, such as farming and fishing villages that have a growing need for trans-regional high-speed services as a result of the emergence of compact city development due to a decrease in population.

With the advent of the 4th industrial revolution, it is predicted that there will be a need for a restructuring of road systems due to the emergence of autonomous vehicles and individual transportation methods, three-dimensional restructuring of the airport transportation system as a result of the proliferation of drones, establishment of a safe transportation environment as a result of intelligent transportation management systems in accordance with the diversification of transportation methods, and development and supply of zero-carbon technology-based environmentally-friendly transportation means in response to an increasing interest in the environment as a result of climate change. In the end, an increase in the need for information security in accordance with data-based national territory management is expected, and in accordance with the informatization of all transportation means and expansion of personal information collection subjects, an increase in the need for information security to protect personal information and prevent security issues or system hacking is expected.

3. Major Policy Tasks

1) Resolving city center congestion through key transportation network efficiency improvement

In order to establish a two-hour national transportation service, we will need to further supplement the national

highway network (7 X 9 + 6R) and road network, construct a tight transportation network through electrifying and increasing the speed of existing railways as well as expanding highway and local bus routes, expand the high-speed railway service, including the Honam Highspeed Railway Phase 2 and the Incheon/Suwon Highspeed Railway, and resolve the bottleneck area by quadrupling the Pyeongtaek-Osong route, ultimately constructing an X-axis highspeed railway network. We will also need to strengthen high-speed airway services by continuously improving the operations of regional airports and constructing new ones, including the Jeju Airport No. 2, Gimhae New Airport, and Saemangeum New Airport.

In order to resolve major city congestion through innovation, cooperation, and adjustments in metropolitan public transportation, we are planning to construct a metropolitan railway network that connects key bases within major cities in 30 minutes and recover the functionalities of main roads by strengthening the road network. In particular, by carrying out metropolitan express railway network construction projects, including three lines for the GTX, Sinansan Line, and Sinbundang Line within the metropolitan area, we plan to further improve express services by expanding the range of metropolitan high-speed services and constructing sidetracks for general metropolitan railways. In the case of non-metropolitan regions, we plan to expand metropolitan railways in regions with large demand for metropolitan-level movement and further change or construct more high-speed areas as necessary. In addition, through the early completion of a metropolitan outer ring highway network, we plan to promote the dispersion of city center traffic and construct a deep underground road to resolve frequently congested areas across key main roads.

In the mid to long term, through a Major City Metropolitan Transportation Committee, we need to construct a cooperative/mediating governance system through which the nation, local governments, and private sector can participate in resolving various metropolitan transportation issues, expand the public transportation network focusing on railways using the metropolitan express railway as a main road axes for the metropolitan area, and strengthen public transportation for regional major cities by expanding the metropolitan railway service focusing on key transportation axes. Moreover, through the cooperation and mediation of local governments, we will be able to invest in metropolitan transportation facilities and innovate the public transportation fare system to provide metropolitan transportation services that can serve the demand,

and ultimately establish a symbiotic transportation system that can resolve inconveniences in the existing metropolitan transportation system through the development of new cities.

Figure 2

2) Strategic operation of infrastructure and pushing for an encompassing transportation policy

With the objective of improving safety through timely improvements of aging infrastructure, we need to remove factors that threaten everyday safety through emergency inspections and national safety diagnosis to identify aging SOC facilities requiring urgent improvements in advance, and carry out maintenance management to achieve target functionalities of aging transportation infrastructure, such as roads and railways, as well as the modernization of safety facilities. For systematic management through preemptive maintenance management policies, we need to establish minimum standards for aging SOC maintenance management and functionality improvement and a mid to long-term plan for each managing entity. By using advanced technology for infrastructure maintenance management, we will promote the advancement of infrastructure information management systems through the usage of new 4th industrial revolution technology, including drones, AI, and 5G.

For zero traffic accident mortality rate through a people-oriented transportation safety system, we need to convert from a vehicle-oriented to a pedestrian-oriented road transportation

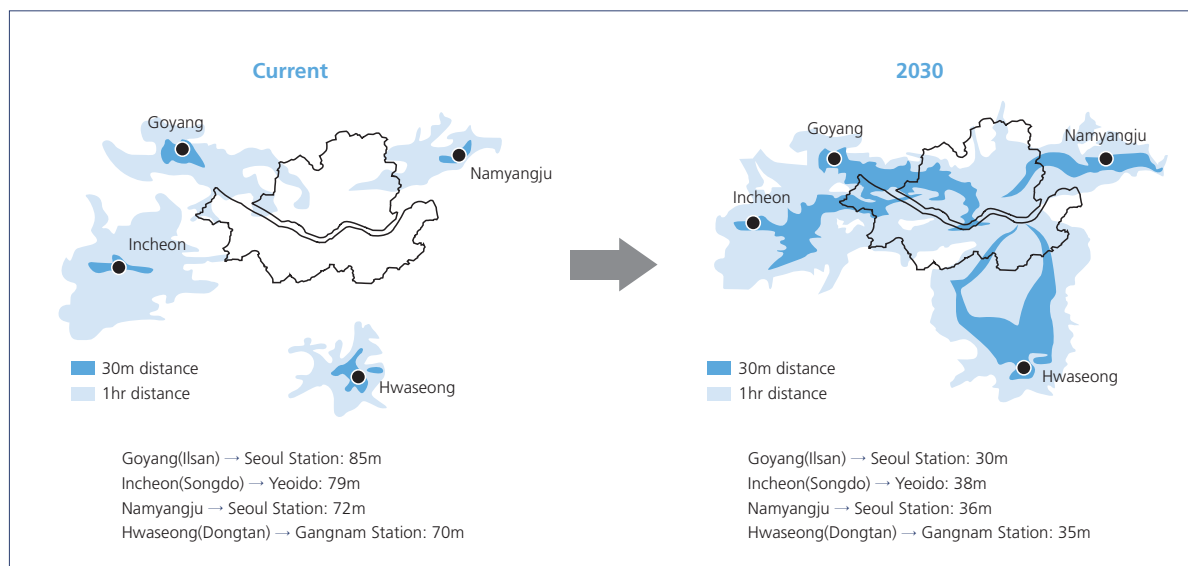
environment and ensure the walking safety for children, elderly, and disabled. Furthermore, we need to construct a safety-focused national road network plan and operating system as well as expand transportation safety infrastructure using advanced technology, such as C-ITS and autonomous public transportation vehicles.

In order to foster customized environments for transportation-weak regions, we need to diversify investment assessment methods of road networks for island areas with poor accessibility and decision-making of national and local government projects to strengthen accessibility of transportation-weak regions, review quasi-public service systems/public service systems of public transportation befitting regional conditions, and expand the implementation of a demand-responsive transportation system, including operating KRW 100 taxis and flexible line buses.

3) Construction of a futuristic, innovative transportation system

The introduction of futuristic, innovative transportation means, such as autonomous vehicles, the Hyperloop, and deep underground highspeed railways, will contribute to the development of a safe transportation environment through smarter management systems. Therefore, in order to restructure the transportation system in response to futuristic transportation means, we need to plan for a transportation system in accordance with the spread of individual, small

Figure 2. Connecting key locations within the Metropolitan Area to the Seoul City Center within 30 minutes



Source
Ministry of Land,
Infrastructure,
and Transport.
Metropolitan
Transportation Vision
2030. <http://www.molit.go.kr/metro/main.jsp>

transportation means and the commercialization of future automobiles, such as autonomous vehicles and environmentally friendly vehicles, in terms of land transportation. In particular, with the commercialization of autonomous vehicles, we will need to test and apply communication facilities, precise maps, traffic control, and advanced road facilities at key roads as well as reestablish relevant policies, including performance inspection and insurance. Furthermore, through smarter roads, including C-ITS, we will need to expand bi-directional information exchange systems between automobiles and infrastructure to secure safety in the transition period for autonomous vehicles, and develop smart cities that can be used as large-scale test beds that can provide integrated traffic information, autonomous public transportation, and connected services for futuristic transportation systems and autonomous vehicles to experience futuristic vehicle services.

By further improving transportation information provision systems, including real-time information and service diversification to promote user convenience through transportation service innovation, an integrated mobility service (MaaS)⁰⁷ that combines various transportation means with a mobile platform will be created. Furthermore, by spreading metropolitan frugal cards across the nation to revitalize the usage of public transportation, we need to implement a new fare scheme that takes into consideration the various factors, such as transportation methods in accordance with the introduction of the GTX and other new transportation means,

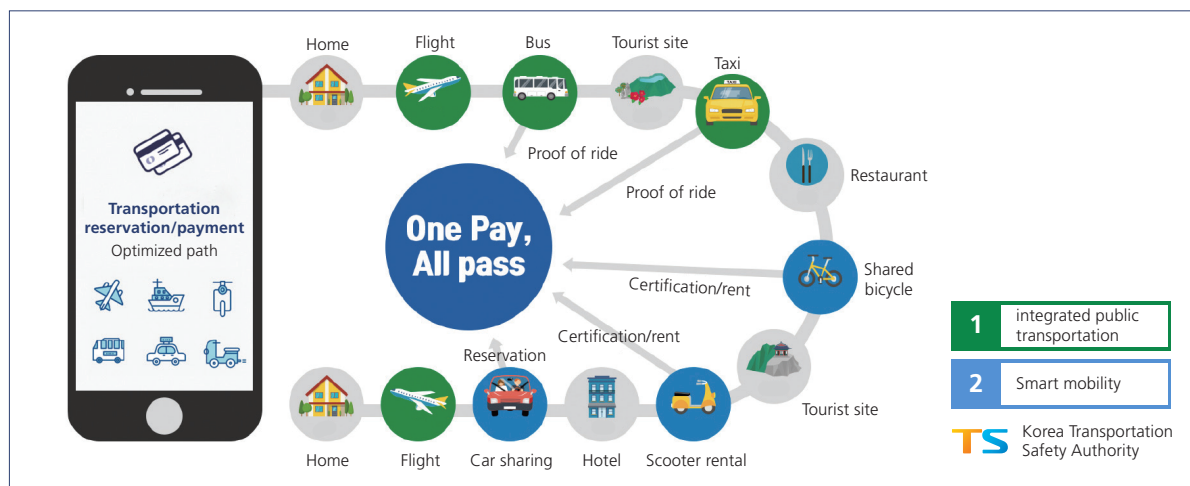
usage period, and usage time, as well as implement various discount and regular tickets. With the spread of Online to Offline (O2O) services, we need to restructure the transportation fare scheme for taxis, freight, and others, pursue the diversification of services, and institutionally reestablish work scopes among interest parties to minimize conflict. **Figure 3**

4) Strengthening global competitiveness in the logistics industry

In order to establish a growth foundation for the logistics industry, we need to institutionally support the growth of the logistics industry in line with market changes, strengthen job opportunity information sharing for talented people to enter the logistics industry, and support the nurturing of talented employees to lead the digitalization of the logistics industry. Furthermore, in order to nurture city logistics base and improve the efficiency of railway logistics, we will need to strengthen the close city logistics growth foundation, support the development of shared logistics facilities, innovate services by expanding and efficiently operating railway logistics infrastructure, installing transfer centers at transportation base, strengthening linkage between transportation base and regional transportation, and linking regional logistics systems to maximize utilization.

In order to strengthen the functionality of airports as logistics hubs and linkage with regional development, we need to complete the Incheon International Airport Phase 4 Project, including the expansion of the 4th Runway and

Figure 3. Conceptual map of integrated transportation method payment



Source
Korea Transportation Safety Authority (2018, p.3), A smart era where a single payment can enable the usage of all transportation methods is coming.

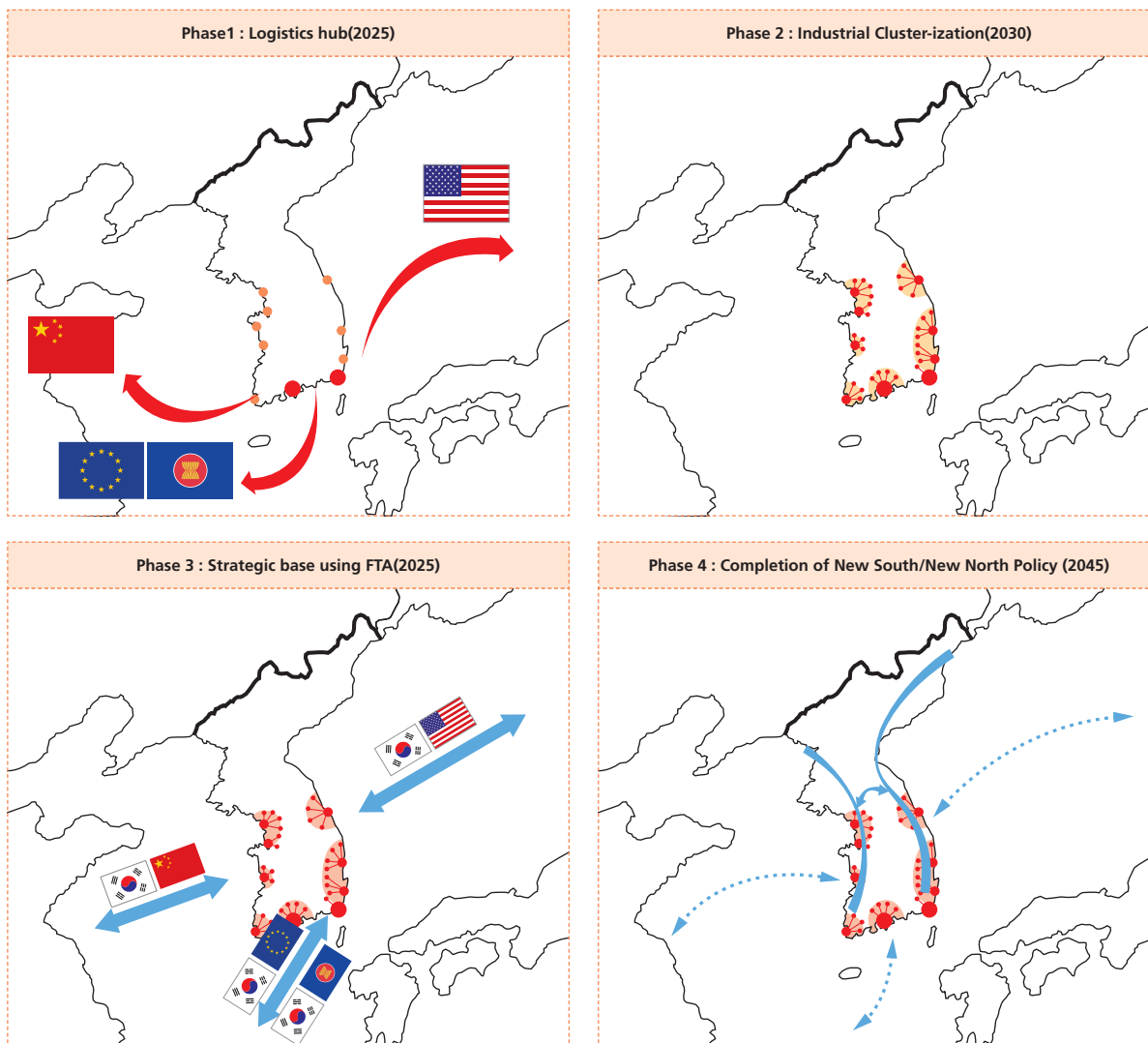
07. MaaS is the acronym for "Mobility as a Service," which integrates all transportation methods and provides the commuter the optimal combination of transportation methods, including automobiles, bus, railways, and bicycle sharing services

Terminal 2, strengthen airport support functions through the development of an Air-City that connects the airport to support the back city, and generate new airport demand as well as promote national growth. Regional airports need to establish customized revitalization strategies that befit each airport demand size and function. For innovation in port logistics services, we need to improve logistics service innovation and competitiveness through the implementation of a smart port , generate high added-value by diversifying port services, and focus on nurturing specialized key ports in the Southwest Sea and Pan East Sea regions in connection with FTAs, including the US, China, EU, and ASEAN, to develop into a forward base for entry into the New South and New North. **Figure 4**

5) Development of intelligent national land space and national land management innovation

We plan to construct an innovation ecosystem and revitalize globalization along with the creation and dispersion of an engaging smart city for the people that can resolve city issues using space and data-based services, and by constructing a smart city national model city that brings together 4th industrial revolution technology, we plan to collaborate with relevant government institution R&D and linkage projects to spread new cities across the nation and overseas. Furthermore, we will operate a governance structure to encourage private sector participation and establish a Living Lab to reflect the various opinions of the people when pursuing the smart city project. In the end, we will establish a foundation to develop digital twin⁰⁹ virtual national territory platform

Figure 4. Phase globalization strategy



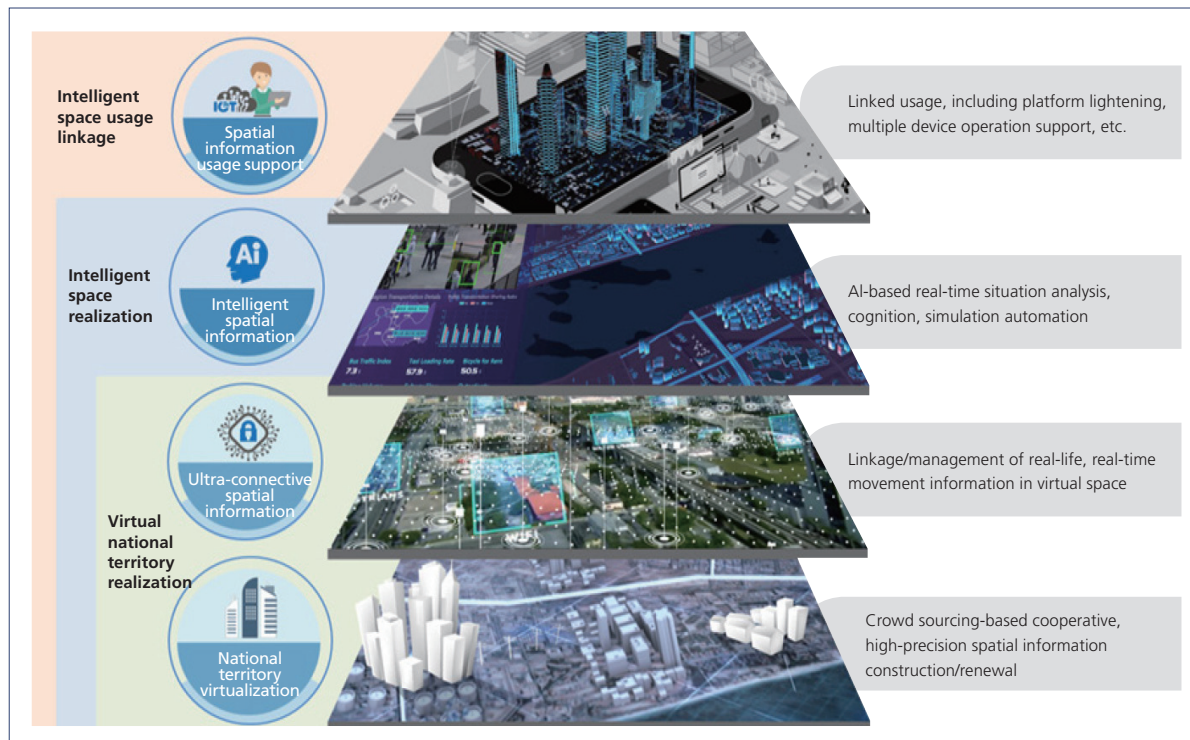
Source

Ministry of Oceans and Fisheries (2019, p.33), The 2nd New Harbor Construction Basic Plan (2019~2040)

technology through institutional reorganization and push for an advanced national spatial information foundation by further strengthening capabilities through training. In order to revitalize intelligent national territory management using data, there will be a need to make continuous investments to open and share public and private data, construct a real-time national territory monitoring system using the data collected from unmanned aircrafts, autonomous vehicles, and IoT, improve the platform, and nurture professional talents. **Figure 5**

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Figure 5. Realization of a digital twin virtual national territory and construction of intelligent spatial usage



Source
Science and
Technology Policy
Institute (2019, p.44),
Digital Live National
Land Information
Technology
Development Project

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7

Building Peaceful National Territory Connecting the Continent and the Ocean

Hyun Ju Lee

1. Seeking a new “Korean Peninsula spatial strategy”

The 5th Comprehensive National Territorial Plan, which is considered the highest-level plan with regards to Korea’s future national territorial spatial planning, can be considered a long-term plan that includes various areas related to spatial planning from 2020 to 2040. The 5th Comprehensive National Territorial Plan sets the spatial scope of the comprehensive national territorial plan to include all national territories that are subject to the national sovereignty of South Korea, and it also indicates that it may be considered to include the entire East Asia region surrounding the Korean Peninsula as necessary.⁰¹

During the process of establishing this plan, the South-North Korean relationship entered a massive transitional phase, indicating not only the great importance of the future national territorial plan as an important variable to the South-North relationship as well as the East Asian relations surrounding the Korean Peninsula, but also that the consideration of South-North comprehensive spatial planning within the highest level of legal planning provided as a long-term vision of the national territory is no longer a choice but a necessity.

Given such circumstance, Chapter 6 “Establishing a Peaceful National Territory Connecting the Land to the Sea” of the 5th Comprehensive National Territorial Plan focuses on the three keywords, “A peaceful and prosperous Korean Peninsula”, “A gateway nation to the land and sea”, and “Expanding global network capabilities”, in order to present a futuristic blueprint of the national territory in light of the Korean Peninsula, East Asia, and the world. That is, “A peaceful and prosperous Korean Peninsula” shall be the objective that various economic cooperation projects strive for in an era

of South-North cooperation, whereas “A gateway nation to the land and sea” implies the vision to advance to become a gateway nation with the Korean Peninsula connecting the land to the sea in the recent policy environment in which neighboring nations are focusing on cooperation that goes beyond national borders. Finally, “Expanding global network capabilities” considers the development direction that needs to be taken to grow Korea’s economic influence beyond the Korean Peninsula to East Asia and the world. In this article, we shall further investigate the details of the 5th Comprehensive National Territorial Plan focusing on these three keywords.

2. A peaceful and prosperous Korean Peninsula

At the Inter-Korean Summit hosted in 2018, through the Pan Mun Jom Declaration and the Pyeongyang Joint Declaration, South and North Korea signed an agreement on the details of economic cooperation based on the common understanding on the need for trust and cooperation as opposed to prolonged conflict and hostility. At the Pan Mun Jom Declaration in April, South and North Korea agreed on pushing forth the agreed-upon matters of the October 4th Declaration in 2007 and connecting and modernizing the Donghae Line and Gyeongui Line railway and roads. Besides, 5 months later at the 3rd Inter-Korean Summit (September 18-20, 2018), through the Pyeongyang Joint Declaration, the two Koreas agreed to resume operations of the Gaeseong Industrial Complex and Geumgang Mountain Project as well as develop the East Sea Special Tourism Zone and West Sea Special Economic Cooperation Zone.

Unfortunately, with the breakdown of the North Korea-US dialogues in Hanoi (February 24-25, 2019), the uncertainty

01. Ministry of Land, Infrastructure and Transport, April 2019.

surrounding the North Korean denuclearization has continued, but we cannot exclude the possibility of sudden changes in the political environment or improvements in conditions for cooperation. Should such situations persist, cooperation among nations regarding the development of North Korea may progress rapidly, which may create greater opportunities for South-North exchange and cooperation in the areas of city and infrastructure construction in which North Korea is weak.

Based on such conditional outlooks, the priority tasks necessary for South-North cooperation are fostering mutual trust and developing a foundation. On the one hand, the South-North Cooperation Project will need to progress in stages while considering improvements in the South-North relationship as well as changes in the political and economic environments, whereas on the other hand, cooperation projects that had been previously agreed on by the South and North will need to take priority in order to pave way for more advanced cooperation projects in the future. In addition, there is a need to push for South-North cooperation from the perspective of constructing a Northeast Asia Peace and Economic Community as well as executing the New Economic Initiative in the Korean Peninsula, which can be considered the long-term co-development strategy proposed by our government. At the same time, because the role of the private and provincial sectors in addition to the South-North policy authorities are emerging as very important factors for South-North economic cooperation, government-level support in various areas, such

as culture, sports, and history, will need to be expanded, and cooperation in sharing standardized, statistical, and basic data, as well as collaboration on investigation/research must be considered with high importance. Above all, should the current conditions improve, because transportation infrastructure cooperation projects will likely be prioritized, there will be a need to carry out projects on recovering and modernizing the functions of railways and roads with regards to the Gyeongjeui Line and Donghae Line.

3. A gateway nation to the land and sea

Surrounding the Korean Peninsula, we expect competition and cooperation among nations in Northeast Asia to further develop with the growing movement to form economic blocs and secure leadership in the area, such as through the Eurasian Economic Union (EAEU) or Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP). In particular, with the expansion of the India-Pacific Strategy, and Belts and Roads Initiative, which can be considered China's security strategy against the US and Japan, we expect political, diplomatic, security, and economic cooperation to develop in a more complicated manner.

Amidst this development, with countries, such as China and Russia, to the north of the Korean Peninsula agreeing to participate in cooperation projects focusing on transportation,



logistics, and infrastructure based on their close diplomatic and strategic relationships, we anticipate the expansion of the China-Mongolia-Russia economic corridor projects which are linked to transportation logistics and industrial cooperation. **Figure 1**

Taking this into consideration, the cooperation project to take priority at the national territory level is the construction of an intercontinental integrated transportation logistics network. This will connect the Trans-Korean Peninsula Railway with the Trans China Railway (TCR), Trans Mongolian Railway (TMGR), and Trans-Siberian Railway (TSR), which are the Trans-Eurasian international logistics railways, while on the other hand, this will indicate the proactive participation of the UNESCAP in the Asian Highway (AH) construction project in the area of road infrastructure. Furthermore, there is also a need to critically consider the cooperation project developing one-day accessibility across major East Asian cities, such as Seoul, Pyongyang, Shenyang, and Beijing, by applying futuristic and advanced technology, with the Korean Peninsula land connectivity project. With regards to transportation logistics infrastructure, in addition to hardware connectivity, there is a need to emphasize policy cooperation to secure connectivity across the Korean Peninsula and the Asia continent, and we will need to further develop a long-term vision to construct a combined Asia Pacific and European logistics corridor through the “East Asia Railway Community”. In the end, securing such transportation logistics connectivity will be expected to serve as a driver for the New Northern Policy and the New Southern

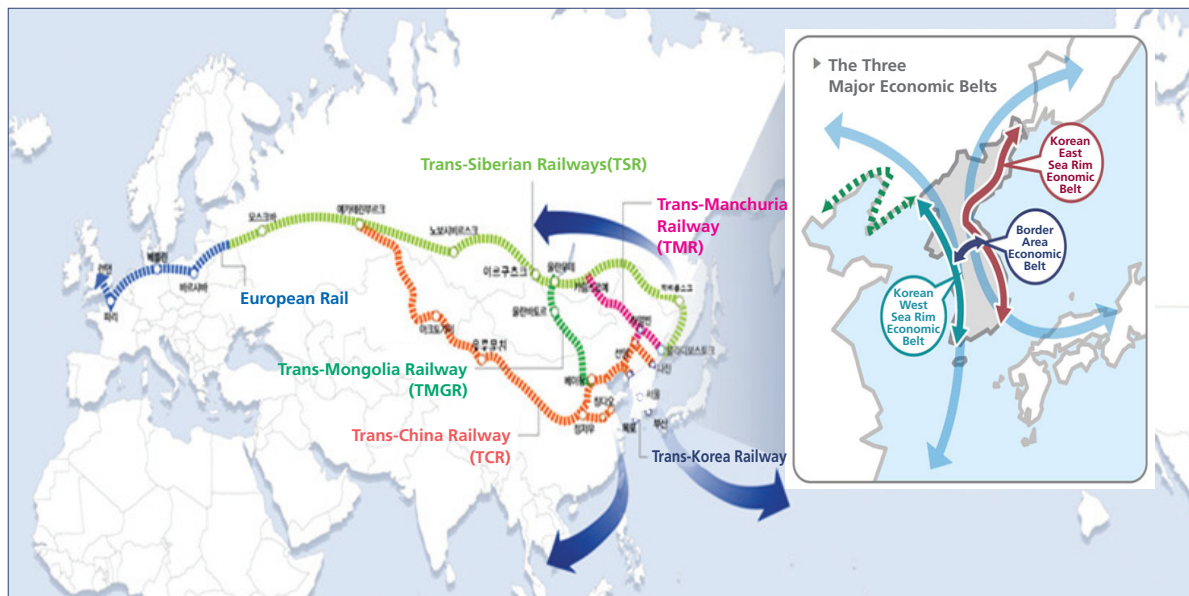
Policy, and meanwhile, further elevate Korea’s reputation as a gateway nation connecting the land to the sea.

4. Expanding global Korea’s network capabilities

With the emergence of global, transboundary environmental issues, such as air pollution and ocean pollution, as a result of climate change, the need for international cooperation and South Korea to serve a role befitting its national reputation is growing. In the future, South Korea will need to expand its reputation by proactively responding to global environmental issues and carrying out national territorial cooperation projects across the world, including emerging economies, based on its accumulation of success cases and experiences.

As such, there is a need to strengthen transnational cooperation to respond to urgent environmental issues as necessary. We will need to lead the implementation of the Sustainable Development Goals (SDGs) agreed at the UN General Assembly in 2015, and we will need to proactively participate in programmes related to international agreements to resolve global environmental issues. In addition, by systemizing export and support for the Korean-type City Development Model, we can consider cooperation projects to expand the economic influence of Korea. In particular, by sharing experience and knowledge in national territorial development in emerging economies, we will be able to

Figure 1. A concept map of Korea’s reputation as a gateway nation connecting the land to the sea.



Source
Ministry of Land,
Infrastructure and
Transport. 2019

elevate Korea's reputation in the area of global national territorial frontier, but there is a need to proactively support overseas market entry using the Korea-type Smart City Model based on specialized technology. It is here that we will need to expand policy financing support to ensure the successful overseas market entry of the Smart City Model while improving its execution through the New Northern Policy and the New Southern Policy. Furthermore, in addition to hardware development cooperation projects to support emerging economies, by transferring our advanced laws and policies after customizing them to befit the characteristics and situations of each nation, we will need to carry out cooperation projects in the direction of nurturing the autonomous development capabilities of each nation while constructing software infrastructure.

5. In anticipation of South-North collaboration on the establishment of a national territorial spatial plan

Based on a relatively large spatial scope, Chapter 6, Peaceful Establishment Method Connecting the Land to the Sea, of the 5th Comprehensive National Territorial Plan covers South-North cooperation projects regarding the future of the Korean Peninsula, cooperation projects regarding East Asia, and cooperation projects in the global market. As described above, there may be opaque and uncertain limitations that

prohibit discussions on long-term South-North cooperation projects in the area of national territory at this stage, but in the end, it holds importance in the fact that it may serve as the foundation for national territorial planning from an East Asian and global standpoint, as well as being an important task regarding the Korean Peninsula that is far from irrelevant to the development and prosperity of neighboring countries. In particular, in addition to the improvement of railway and road infrastructure, because North Korea is emphasizing the efficient national territorial planning with regards to the management, usage, and preservation of national territory,⁰² we will be able to serve a prevenient role in driving cooperation across other areas regarding national territorial spatial planning. Given such perspectives, should the environment improve, we can look forward to the possibility of establishing a South-North Joint Comprehensive National Territorial Plan for the Korean Peninsula in the future.

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02. Mu Cheol Lee, Moon Soo Yang, Young Ja Park, Kyung Seop Oh, Seok Hoon Hong, Soo Ho Lim, Hyun Mo Yang et al. 2019. Evaluation on North Korean Status Quo by Area and Outlook on Possibility of Change. Seoul: Korea Institute for National Unification and Sejong: National Research Council for Economics, Humanities and Social Sciences.

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Action Plan for the 5th Comprehensive National Territorial Plan

Wooseong Jeong, Young Joo Lee

1. Foreword

The Fifth Comprehensive National Territorial Plan is the highest-level space plan of the land for the planned period from 2020 to 2040, which is also an official plan based on the Constitution and the Framework Act on the National Land. Despite such status, the Comprehensive National Territorial Plan received considerable criticism for its inefficiency as to its actual effectiveness. Such stance points out that, it is no longer valid for the central government to predict the next 20 years presenting the direction of related policies, and also points to the limits on the consistency of the plans that are changing pursuant to the needs of the government.⁰¹

However, despite some validity of these criticism, the Comprehensive National Territorial Plan still has its *raison d'être* in view of the need to serve as a guide to sector planning and regional planning by presenting the goal, objectives, strategies and policy tasks for desirable future national land. This Fifth Comprehensive National Territorial Plan emphasizes the role of local governments through strategies to strengthen the liaisons and collaboration between central and regional governments, and between regions, while focusing on ways to enhance the compatibility between national territorial plans and sector/regional plans through diagnosing the status of national territory and monitoring based on empirical evidence. This article outlines the measures to enhance the power of execution of the Fifth Comprehensive National Territorial Plan.

2. Establishing strategies for implementing the Comprehensive National Territorial Plan and strengthening policy flow

The Fifth Comprehensive National Territorial Plan develops the following institutional mechanism in order to strengthen the implementation of the plan. First, it presents a way to strengthen the execution strategy of the Comprehensive National Territorial Plan. Currently the Framework Act on the National Land requires the Ministry of Land, Infrastructure and Transport to establish a five-year implementation plan for the Comprehensive National Territorial Plan (Article 18 of the Framework Act on the National Land and Article 7 of its Enforcement Decree),⁰² in order to enhance the power of execution of the plan. The implementation plan is aimed at ensuring compatibility with the mid- and long-term plans and policies of the central government agencies, and the development direction of each sector/region shall be reflected in the basic and comprehensive way, and the central administrative body shall establish a policy agenda that should be considered strategically.

Second, in order to strengthen the role of the Fifth Comprehensive National Territorial Plan, the plan guidelines for each policy task are referred to in the national Territorial plan assessment to ensure consistency between the plans. The planning guidelines for the Comprehensive National Territorial Plan shall be actively referred to when establishing and drafting the sectorial/regional plans, and shall be used as the basis

01. Up until the Third Comprehensive National Territorial Plan, the planning period was 10 years, but on the Fourth Comprehensive National Territorial Plan (2000-2020), the planning period has changed to 20 years, and as the government changed during the planning period of the Fourth Comprehensive Territorial Plan, it underwent two revisions (2006-2020, 2011-2020).

02. Article 18 of the Framework Act on National Land (Formulation and Evaluation of Implementation Plans): The heads of central administrative agencies and Mayors/Do Governors shall reflect the contents of the comprehensive national land plan in the policies and plans related to their competent duties and shall formulate implementation plans by competence in order to execute the comprehensive national land plan, as prescribed by Presidential Decree, and submit such plans to the Minister of Land, Infrastructure and Transport.

for the review of compatibility among the plans during the National Land Planning assessment process. The National Land Planning assessment process is a system for ensuring the convergence and connectivity among national land-related plans in the course of national land planning, and review whether it conforms to the goal, objectives and strategies set forth in the Comprehensive National Territorial Plan.

3. Establishment and operation of the Integrated National Territorial Planning Monitoring System

It is proposing to establish mid-to long-term plan by sector/region by checking continuously the changes in the national land and by setting the basic direction of the policy and build a monitoring system of the national territorial plan that can be reflected in the policy.

First, based on objective data collected through the national land survey, indicators that meet policy objectives are developed and monitored to reflow/reflect on policies and others. The results of monitoring of national territory plans are used as evidence for enhancing consistency among plans, establishing national land policies, and adjusting policies in conjunction with the national territory plan assessment. **Figure 1**

Second, we should find indicators that improve the survey of national territory and that have a high sensory level. The basic monitoring data shall be based on the national territory surveys made pursuant to Article 25 of the Framework Act on the National Land; a

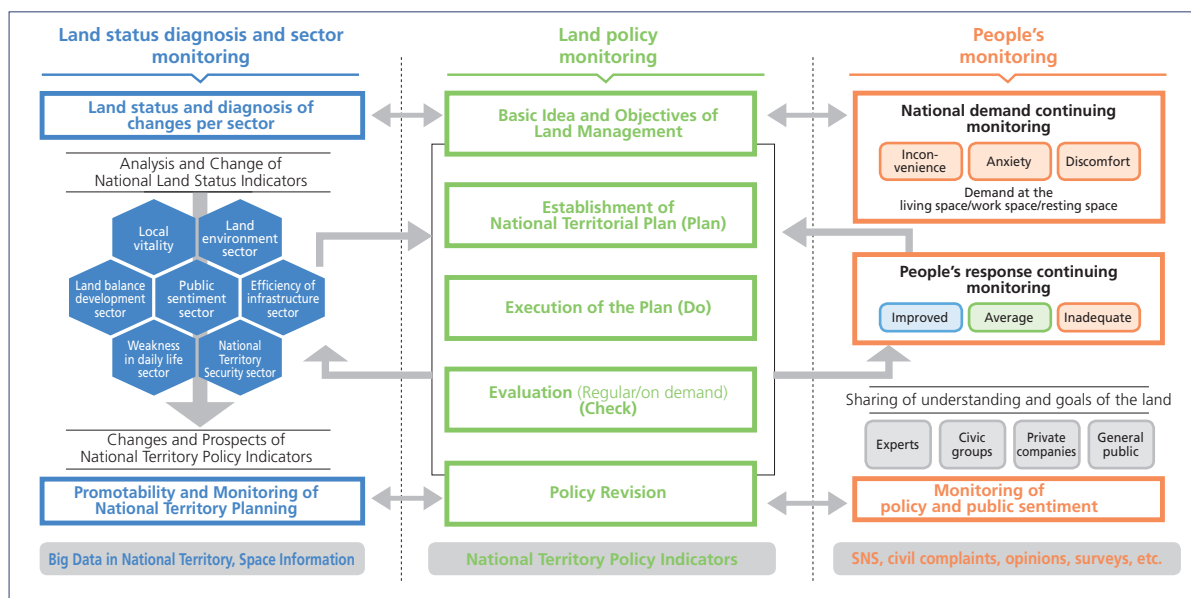
high-precision data shall be built by integrating/utilizing data that are being managed by each agency; the cycle for the national territory survey shall be shortened (1 year → more often); improvements must be made to facilitate the systematic collection and utilization of the basic data, such as upgrading the management platform. Based on the national territory survey, policy indicators shall be developed per national land development strategy that can be used to analyze the changing national land in a time-series manner or to establish national land policies.

Third, the results of the national territory survey and monitoring shall be used in various fields. Such results shall be used as basic data for the assessment of national territorial plan, to support the internalization of the national land-related plan assessments, and to find ways to utilize them. The results of the national territory survey and national territorial plan monitoring shall be provided as basic data for consulting when establishing policies/business plans by central and local governments, and shall be utilized as evidence for policy coordination of cross-cutting issues.

4. Establishment and operation of a system for evaluating the implementation of integrated management of National Territorial and Environmental Plan

The government proposed the establishment of a mutually complementary monitoring system to share information of the

Figure 1. Conception of the Integrated Monitoring System of the National Territorial Planning



Source
Government of the Republic of Korea 2019.

national land monitoring (Ministry of Land, Infrastructure and Transport) and that of the national environment monitoring (Ministry of Environment) to prepare a reflux system that would be utilized in the inspection/assessment of Land-Environment plans and policy coordination of cross-cutting issues. **03 Figure 2**

When preparing indicators for integrated management monitoring, joint discovery and monitoring of indicators that can implement the five strategies for integrated management of Land-Environment plans shall be carried out, and the sync of Land-Environment plans at the local government level, such as city/county basic plan, environmental conservation plan, etc., shall be assessed/managed utilizing the existing assessment institutions such as the National Territorial Plan Assessment, Strategic Environmental Influence Assessment.

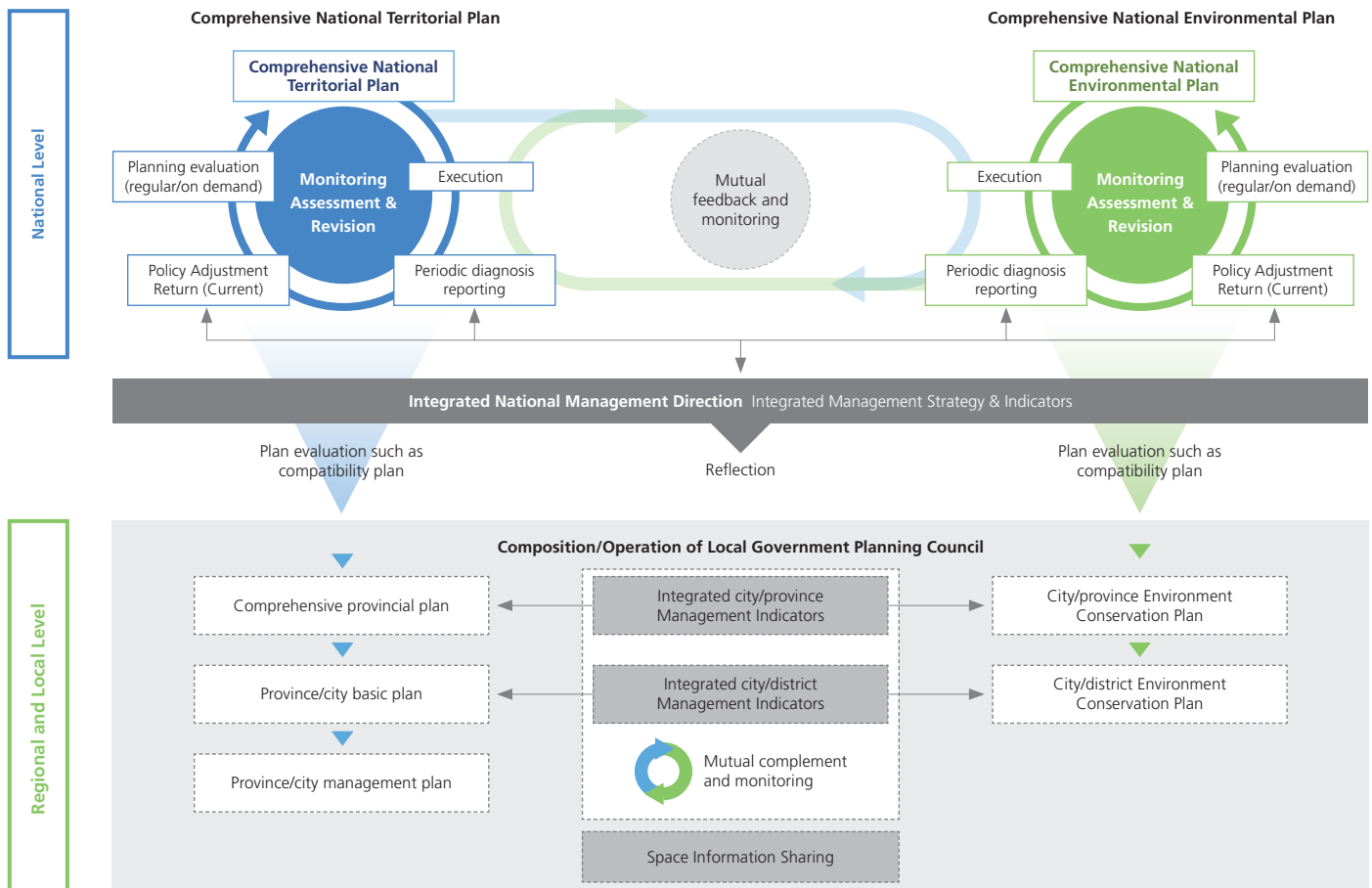
Furthermore, an integrated implementation foundation in the local governments shall be established to strengthen the power of execution of integrated management. Actional items include provision of guidelines that reflect integrated national

Land-Environment plan management strategies to present the basic direction of integrated management at the regional level, and revision of guidelines for city- and county- plans such as urban planning. We should jointly develop/distribute a manual for integrated management works of local governments to support the formation/operation of the local system establishment consultation meetings, and strengthen the basis for the operation of integrated management by establishing/ utilization of territorial and environmental space information of the region, such as cadastral maps and urban ecology status map.

5. Promoting collaborative national territorial policy and invigorating public participation

For regional development, local governments and central

Figure 2. Integrated Land/Environment Management Monitoring System (Proposal)



Source: Government of the Republic of Korea 2019.

governments should maintain/expand collaborative relations. To this end, local governments need to continue to discover inter- and intra- regional connection/cooperation projects, and the central government needs to support them, and strengthen the central government's support in underdeveloped/crisis areas.

Furthermore, the government will be encouraging public participation in the planning and execution process. The government needs to expand the way people participate, such as online and offline, and encourage people to participate directly in the mid- and long-term planning and from the policy-making stages of the central and local governments. We shall provide a system where the people can directly participate in the monitoring/assessment of national territorial plans and various mid-to long-term plans, to present/share opinions, and to refuel them to policies.

In particular, reasonable conflict management should be made for challenging issues between various stakeholders. It strengthens democratic conflict-solving methods and cooperation with respect to complex conflicts such as between various stakeholders — central government agencies, central and regional governments, residents, private corporations, etc. —, ideologies, regions and class. For issues that are highly likely to cause conflict in the course of establishing/implementing national territory policies and regional development projects, preventive conflict management system should be strengthened.

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03. Under the Common Directives (March 2018) on Integrated Management of National Land and Environmental Conservation Plans, the 2040 visions and goals and future of Land-Environment Integrated Management will be shared, and efforts will be made to create a sustainable national land environment by exploring implementation strategies and establishing an integrated implementation system.

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