

Special Feature: Green Cities / Green Infrastructure

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Preface

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In this feature, development of green infrastructure in cities as well as the latest efforts in the preservation/creation of green spaces viewed from a broad perspective is reported. Green infrastructure is a concept that began to be used in the mid-1990s in the United States. In this concept, the natural environment is emphasized in land use. In addition to emphasizing a robust soil/hydrological environment suited to the natural ecosystem network and plant/animal development, recent years have seen an emphasis placed upon swell routes having the capacity to manage stormwater runoff such as retarding/draining rainwater from sudden downpours, open spaces that can cleanse polluted rainwater, and green spaces/green networks at the local level.

In addition, in places like Great Britain where intensive land use is required, there are instances in which green infrastructure is used emphasizing the aspect of complex functionality to answer the various space requirements where tradeoff relationships exist

such as use in wildlife preservation and human recreation or the preservation of cultural treasures, etc. Even closer to this meaning are what is known as "greenways" in the United States. The general definition of a greenway is a network of land that is planned, designed, and managed to be suitable for sustainable multipurpose use of land in such areas as biological study or recreational, cultural, or ornamental use. As its name implies, a greenway is a way. In other words, it can be distinguished from green infrastructure because of its concept of space that emphasizes the passage of humans and other organisms.

At any rate, the definition is not limited to the spatial functions within range of the classical park system and green belt and includes responses to climate change, maintenance of biodiversity, sustainable communities, environmental health, preservation of natural heritage/cultural heritage, etc. as well as the modern challenges presented by

multifunctional urban infrastructure. The important point when making comparisons to the green cities discussed below is that the green infrastructure has land/spatial concepts centered on the natural environment.

On the other hand, the “green city” is a concept that means a municipality with a low environmental impact from the standpoints of carbon dioxide, energy, buildings, traffic, water and sewage, waste processing, land use, the atmosphere, environmental governance, etc. Cross-sectional efforts across a wide range of administrative sectors are required, and in the last few years this is one of the main administrative issues for city governments the world over. The meaning of “green” as it is used here is not only the green of the spatial concept represented by parks and green areas, but interpreted as also having the broad meaning of being environmentally sound (minimal environmental impact). In addition, when the relationship between the aforementioned green infrastructure and green cities is examined, it can be understood that green infrastructure is one of the core elements securing the land and space of green cities.

Just as they do overseas, efforts in Japan that correspond to green infrastructure mainly fall under the jurisdiction of the Parks and Green Projects section. However, the current situation in Japan in which individual strategies are carried out in accordance with ordinances optimized for green spaces (City Green Area Laws) and the Basic Green Plans (Green Area Basic Plans drafted by each basic municipality) based thereupon are unique when viewed from an international perspective. For example, in Great Britain, even with the classical green belts, and the modern green space/open space strategy (plans are pursued at each basic municipality), there is a strong tendency to handle the above on a large scale as a strategic menu at the city or region planning and administration level rather than as the exclusive jurisdiction of a Parks and Green Projects section. On

the contrary, although intricate strategic tools are well-developed in Japan, this can be said to be the result of sectionalism, while there is a tendency for Great Britain’s green space-related strategies to have low independence as departments, but for individual plans to have cross-sectional context as well as high functionality. In practice, the green space strategies employed by Great Britain in recent years do not stop at the Parks and Green Projects or urban planning and administration level, but are characterized by their comprehensive content that encompasses the environmental, societal, and even economic spheres.

This feature consists of five (of which one is foreign) distinctive factual reports predicated on the above broad definitions and up-to-date concepts of the term “green”. Mr. Taniguchi integrated the thought behind future issues regarding the creation/preservation of substantive indicators (especially of area) of green space such as ecological footprint and green footprint when realizing green infrastructure/green cities into his explanation. According to Mr. Taniguchi, it is preferable to simultaneously calculate not only the environmental impact aspect, but also the area that contributes to the environment (for example, the amount of food the relevant area produces and the amount of carbon dioxide it absorbs).

Mr. Ootsuka presented information about Tokyo and its municipalities, the first cities to introduce concrete plans regarding the contradiction presented by the green areas simultaneously disappearing and being created. It is a revolution in the history of green area planning in Japan to specify a land’s position and scope as wide-ranging and systematic vegetation (including private land) that should be secured, and is indicated as a type of collateral. Mr. Aoki reported on the efforts in Nagoya, which linked urban redevelopment and green area conservation. The mechanisms for linking the preservation and use of green areas and historic structures in the suburbs with

developments in urban areas and advancing preservation and improvement of the whole city environment, and positioning the plans surrounding green areas within the large framework of urban regeneration, makes this mechanism highly regarded as methods for securing effectiveness. In addition, Mr. Kanekiyo explained the example of the green belt (forest building) that was carried out over a wide area in Obihiro city through methods involving citizen participation and the citizen-centric forest building in neighboring municipalities that occurred as a ripple effect. These citizen projects, which are not limited to the environment, are comprehensive and long-lasting, and enjoy a good reputation connecting vocations such as agriculture and fishing as well as the promotion of the local society.

Mr. Mun introduced the green city strategies being pursued by the South Korean government.

These efforts are comprehensive policies that include economic and social strategies, and which support the central core of low carbon/green growth strategies advanced against the backdrop of the government's considerable political strength. The important point is that the green associated plan is positioned as an influential method for establishment of international prominence and QOL improvement (one of the three main goals). There, the position as green infrastructure that is a spatial system supporting a green city can be confirmed.

What can be derived from the above is that the goal of green associated plans is of a cross-sectional, complex nature and that therefore where a guarantee of the ability to carry out a program is concerned, a system and organization for securing local compliance and broad-based support while involving various stakeholders is required.

Thinking of Green Cities in Terms of Footprints

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1. Introduction

When thinking about sustainability, it is extremely important to know how much of a burden people place on the environment. When we know this we will recognize to what extent we are placing an excessive burden on natural resources and the environment, and only then will we be able to make an appropriate decision on what must be done to compensate for that. For example, Japan's population has begun to decline, and there has been a noticeable increase in city lots that are under-used or not used at all. A system to turn even some of those spaces into greenery could be expected to not only to reduce our burden on the environment, but also improve our living environment.

Without knowing how much of this space to turn to greenery, we may create too little and undertake excessive development.

However, it is not easy to measure the size of the burden on the environment. Burdens on the environment in particular, are of various types. For example, CO₂ emissions from the use of cars place a burden on the environment, but so does the necessary farm land to raise cows for people to eat. How should these different units for measuring the burden on the environment be handled? The key is whether it is possible to discuss the issue using an easy-to-understand, uniform measure of the various types of burdens placed on the environment.

2. Ecological Footprint and Its Possibility

Focus has recently fallen on the leading concept of the “footprint”. We “consume” natural resources and the environment during our lives, and the footprint is an attempt to express, in terms of “area”, the overall amount of natural resources and the environment we squish. The footprint concept is often used, having already been employed to develop several indicators including the carbon footprint, which focuses on the volume of CO₂ generated, and green footprint, a conversion into green land. In addition, research is being conducted at various locations on the idea of an “ecological footprint” which also takes into account food and consumables. In this paper, I look at the ecological footprint, the most inclusive of the various footprint indicators, and discuss the possibility of using it to promote the creation of green cities.

Many people are aware of the ecological footprint as an indicator calculated by organizations such as the World Wide Fund for Nature (WWF) to compare the burden on the environment on a national or macro level. The indicator is created by calculating the area required by people for various purposes such as farms, pastures, cities, forests to absorb CO₂, forests to supply lumber and paper, etc. and then totaling up the areas for these individual purposes. The impact on the environment is expressed in terms of “area”. This makes it possible to not only compare the burden placed on the environment from different factors using the same measure (area), but also to calculate the total impact by summing up the impact caused by the various factors. Looking at the global total (average figures) for the middle of the 1980s, our ecological footprint was greater than the area that the Earth provides. We are able to live even though our ecological footprint is greater than the actual area of the world because we rely heavily on fossil fuels created in the past and are putting a burden on the environment that is accumulating. In extremely rough terms, we must change how we live so that our

ecological footprint is no more than the actual area if we are aiming for sustainability.

3. Excessive Burden Ratio

Since the ecological footprint takes into consideration CO₂ emissions (area of forests necessary to absorb these emissions), it includes the components of the carbon footprint and green footprint mentioned above. For many regions of the world, the forest area necessary to absorb CO₂ emissions accounts for a large percentage, around 50%, of the total ecological footprint.

When thinking about particular areas, the people living in the area place a burden on the environment, but the area also includes natural resources such as forests that absorb that burden. When calculating the actual footprint, consideration is only given to the burden aspect. When thinking of future green cities, it would be desirable to also calculate “contributions” to the environment such as how much food is locally produced and CO₂ that is absorbed. How many times the ecological footprint, the burden area, is greater than the contribution area is referred to as the excessive environmental burden ratio. If this ratio is 1.0 or less, that region can be called environmentally sustainable within the scope of the items considered. After calculating such figures for the various prefectures, Hokkaido is the only one that meets such criteria.

4. Moving Forward

Recently some local governments have started to make use of the idea of an ecological footprint in their city master plan in order to realize a green city¹. Some designated local governments have already started trading CO₂ emissions rights. In the long run it would be desirable, however, to create a mechanism to achieve a comprehensive and area-wide balance that focuses on the overall environment, not to undertake individual efforts that focus only on carbon. This

would incorporate an intermediary organization such as an environment bank and require creating a cap-and-trade type market for the environmental carrying capacity of the area based on its ecological footprint. Creating such a system can be expected to create incentives to promote compact cities with little burden on the environment in urban areas and ensure volume and quality of greenery in rural areas. There are still problems related to calculating a precise ecological footprint indicator such as a lack of consideration of waste treatment and insufficient data

on an area level. It is the hope that researchers in countries throughout the world are working on solving these related issues.

Reference:

- 1) Tsuyama City: Master Plan for Urban Planning, 2008. (in Japanese)
- 2) Ujihara,T., Taniguchi,M. and Matsunaka,R.: Interregional Cap & Trade Program by Using Ecological Footprint, — National Land Use Planning for Balanced Environment —, Journal of the City Planning Institute of Japan, No.43-3, 2008. (in Japanese)

A Program to Protect Tokyo's Greenery —Creating a Comprehensive Plan to Secure Greenery

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1. Introduction

In December 2006, the Tokyo Metropolitan Government formulated Tokyo's Big Change: The Ten-year Plan, which depicts Tokyo's next stage of development. This is the direction that Governor Shintaro Ishihara feels Tokyo should move toward in the near term. The plan refers to eliminating the various negative legacies created during Tokyo's growth period, and particular focus is placed on greenery and scenery including the plan's main goal of reviving a beautiful Tokyo surrounded by corridors of water and greenery.

In particular, the plan calls for forming a network of greenery stretching from the Umi-no-Mori (Sea Forest) built on reclaimed land within the central breakwater to parks and roadside trees in the center of Tokyo and developing 1,000 hectares of new greenery in Tokyo through various efforts such as introducing lawns into school yards, building parks, and creating greenery during redevelopment in Tokyo's central core (within the Central Circular Route) based on the

concept of wind corridors that sea breezes from Tokyo Bay can flow through.

However, how does this new greenery compare with the existing greenery that people have nurtured since the Meiji Era (1864-1912) and includes ridge-line greenery, trees around residences and agricultural land remaining in urban areas and satoyama (semi-natural areas that coexists with a nearby populated area)? Urban sprawl and other factors have resulted in forests shrinking 800 ha and agricultural land declining 1,600 ha in Tokyo between 1997 and 2007. This lost area is about the size of Minato-ku (20.34 km²).

In aerial photographs, the remaining greenery looks like a small island in a large sea. Seeing the greenery with one's own eyes, one is reminded of the scenery of Japan of years gone by; it is truly beautiful. This greenery is becoming more important not only in terms of its sentimental value, but also in various scientific aspects including absorbing CO₂, acting as cool islands, catching rainwater, and ensuring

biodiversity.

During the process of developing the 2010 implementation program for Tokyo's Big Change: The Ten-year Plan, the importance of not only creating new greenery, but also strategically preserving existing greenery was affirmed, and creating a new plan to preserve greenery was ranked as a high priority.

Created and announced in May 2010, the Comprehensive Plan to Secure Greenery assured the importance of this plan and is an attempt to induce green city planning in Tokyo in the near future through novel administrative approaches.

2. Outline of the Comprehensive Plan to Secure Greenery

2-1 Policy Structure

(1) Objectives

The plan was created to achieve three main objectives. The first is to clarify what type of greenery should be protected throughout the area and to systematically secure it since the loss of existing greenery*1 is mainly occurring on private land. The second objective is to provide guidelines for seamlessly linking together the various efforts, such as building parks and introducing greenery into the city, and determining, at the planning state, what forms of greenery, including that on private

land, the local community desires. The final objective is to develop actual projects to lead preservation efforts.

(2) Entities that created the plan

The Tokyo Metropolitan Government and 53 municipalities (all local governments excluding Toshu)

(3) Plan period

The plan extends for ten years from 2010 and, as a general rule, will be revised every 5 years. A revised plan will be formulated in about two years to make adjustments to the initial plan.

(4) Mechanism for examining issues

Opinions were collected and efforts coordinated and organized through a system of three committees—Expert Review Committee, Joint Review Committee, and Internal Liaison Committee.

(5) Public comments

The prefecture and municipalities accepted comments from the public during the proposal stage; 185 opinions were collected, and some of these were reflected in the plan.

2-2 Details

The plan consists of the following three pillars in order to achieve its objectives.

(1) Protecting existing greenery

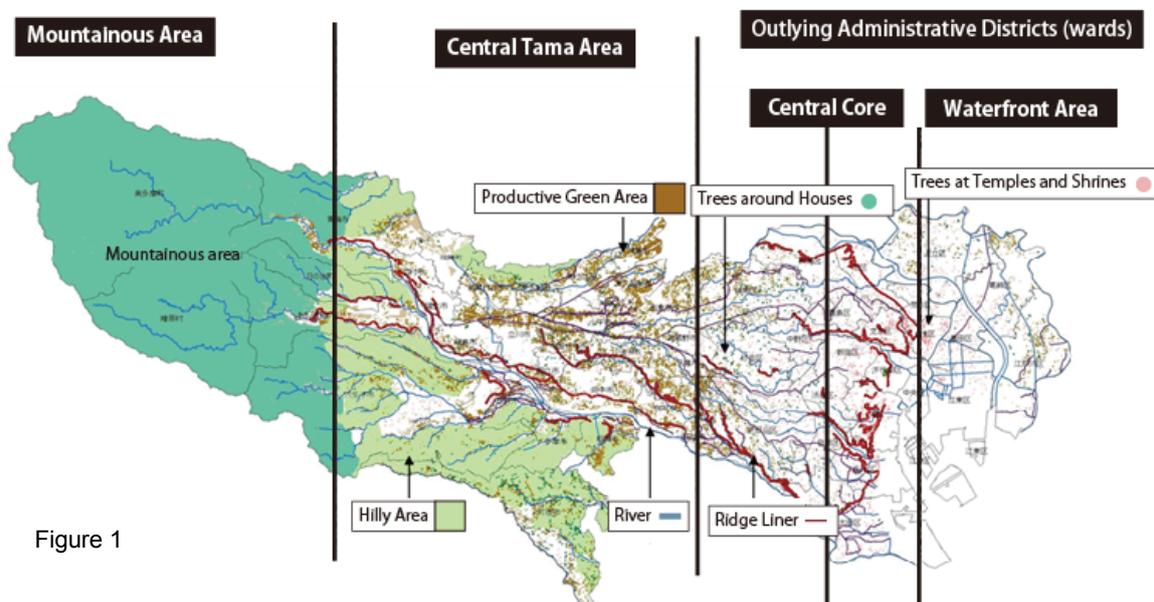


Figure 1

Greenery on private land such as that on hills and ridge lines, trees around temples and shrines, trees around homes, and agricultural land is unstable. This greenery is a natural resource that should be passed on to the future. The greenery was organized based on the concept of type, and the locations of the various types of greenery were determined and then mapped (figure 1). For each type, the number of locations and area that should be preserved over the next ten years using various systems such as laws and ordinances were clarified according to the ability to guarantee its preservation^{*2}.

As for the matter of raising the ability to guarantee preservation even if preserving the greenery will take longer than the plan period, the decision was made to select possible candidate areas and increase the strategic nature of the preservation (figure 2).

(2) Green town planning guidelines

In order to link the various measures related to town

planning to one another and to clarify what type of greenery local communities want, it was decided that the first stage would consist of determining city development projects^{*3} related to urban greenery that are expected to be undertaken over the next 10 years in the 107 zones in Tokyo, and mapping the projects. (the map was not included in this paper because of its size)

(3) New measures

It is necessary not only to clarify information such as what locations will be preserved, but also to develop new measures to encourage the preservation of forested areas and agricultural land. The following are examples of these measures.

- Viewing greenery in hilly areas that is being encroached upon as a single park and creating a hilly area super park concept that specifies a preservation scheme.

- Establishing a committee comprised of related local

governments and setting preservation guidelines, initially for Tama ridge-line greenery (around 70 km), in order to protect the ridge-line greenery that remains in Tokyo.

- Establishing a prefectural system to support municipalities' efforts to designate areas as special greenery space conservation zones, the leading system in Japan, in addition to the national support system in order to increase such designations.

- Launching a Protect Tokyo Greenery Project in cooperation with private funds and supporting efforts by bodies such as citizen groups that promote preservation.

- Developing the Tokyo

Secured Land

Body that secured the land	Forested area					
	Secured land (Level 1)		Secured land (Level 2)		Secured land (Level 3)	
	Locations	Area (ha)	Locations	Area (ha)	Locations	Area (ha)
Tokyo	8	33.32	0	0	0	0
Special zone	19	6.1	2	0.25	0	0
Municipality	42	252.3	4	6.32	1	1
Total	69	291.72	6	6.57	1	1

Body that secured the land	Agricultural area					
	Secured land (Level 1)		Secured land (Level 2)		Secured land (Level 3)	
	Locations	Area (ha)	Locations	Area (ha)	Locations	Area (ha)
Tokyo	0	0	0	0	0	0
Special zone	2	0.43	2	0.24	0	0
Municipality	0	0	2	5.68	0	0
Total	2	0.43	4	5.92	0	0

	Level 1	71 locations	292.15 ha
Total	Level 2	10 locations	12.49 ha
	Level 3	1 locations	1.00 ha

Candidate Areas

Body to secure the land		Forested land		Agricultural land	
		Locations	Area (ha)	Locations	Area (ha)
Tokyo	Park	14	204	0	0
	Preservation areas	≈ 20	≈ 500		
Special zone		157	41	22	9
Municipality		76	224	21	124
Total		≈ 267	≈ 969	43	133

Total ≈ 310 locations ≈ 1,100 ha

Figure 2

Kleingarten (small garden) Project that allows more diverse use of land than community gardens in order to employ and preserve unproductive agricultural land.

- Examining a system of agricultural scenery development zones that use various methods including urban planning to preserve land such as agricultural land and trees around houses that are relatively concentrated in a single area.

3. Distinguishing features and significance

When creating the plan, administrative agencies adopted new approaches and were very successful. The following are these main approaches. (Only efforts to protect existing greenery are looked at below since it is still unclear how successful the green town planning guidelines will be).

(1) The Joint Review Committee, which was comprised of members from the Tokyo Metropolitan Government, 53 municipalities, and one municipality and village not included in the city plan, was positioned as an important platform to coordinate the joint examination of common issues faced by the prefecture, special zones, and municipalities. The committee raised local governments' and employees' awareness of green measures, fostered exchanges of information, and integrated actions by clarifying goals. This is a new administrative system to promote broad and cross-sectional coordination on plans that can easily be assigned to areas and to spread these policies.

(2) The cutting-edge geographic information system (GIS) was an important tool to undertake this

examination. GIS made it possible not only to standardize resource information that has a tendency to differ between areas, but also formed a common foundation so that the prefecture and 53 municipalities could conduct examinations of the same precision.

(3) Making full use of the coordination system and tools made it possible to clarify aspects of the greenery that should be protected such as location and area. This was the first time in the history of Tokyo's efforts to preserve greenery that it was possible to show the people the policy direction of preservation efforts throughout Tokyo.

*1 In this paper greenery refers to agricultural and surviving wooded areas that have been nurtured on account of their role in people's daily lives (ridge-line greenery, trees around houses, satoyama, etc.)

*2 The ability to guarantee preservation was broken down into three levels.

Level 1: Guaranteed preservation by purchasing the land or through strong legal restrictions

e.g. special green conservation areas, city planning parks and open spaces, conservation areas under municipal ordinance, purchase of productive green area, etc.

Level 2: Preservation through restriction on land use and preferential tax treatment based on laws and regulations

e.g. designated scenic zones, protection forests under the Forest Law, public green areas, etc.

Level 3: Preservation through loose regulations such as concluding agreements with owners and having owners register land use based on laws and ordinances

e.g. protected trees under local government ordinance, landscape district under the Landscape Act, green space agreements, etc.

*3 Parks appearing in the city plan, productive greenery zones, district plans that designate redevelopment promotion zones, land readjustment projects, and urban development projects

Nagoya City's Efforts to Make Effective Use of Urban Regeneration Special Areas under the Act on Special Measures Concerning Urban Reconstruction

Kimihiko Aoki

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1. Introduction

Nagoya City is striving to create a world-class city center overflowing with vitality, fun, and warmth that stretches from the area around Nagoya Station to Sakae. To accomplish this, the city is creating a lively urban reconstruction hub that is rich, enjoyable, and international by appropriately promoting reconstruction projects undertaken mainly by the private sector.

Located in areas designated as emergency urban revitalization districts based on the Act on Special Measures Concerning Urban Reconstruction, which came into effect in June 2002, the hubs are being developed through various efforts such as adopting city planning projects for urban regeneration special areas that are in line with the development guidelines of the particular area.

The system of urban regeneration special areas makes it possible to use urban development plans to set regulations related to use, floor-area ratio, height, etc. that supersede existing ones in order to contribute to urban reconstruction and make extremely rational and sound use of the land within an area for urgent urban renewal.

In this paper, I discuss not only Nagoya City's experience using urban regeneration special areas but also its urban regeneration special area guidelines created and announced last year to make it easier to use the system.

2. Examples of Urban Regeneration Special Areas

Three areas within Nagoya City have been designated as areas for urgent urban reconstruction: Nagoya Station/Fushimi/Sakae area (approximately 348 ha), Nagoya Chikusa/Tsurumai area (approximately 24 ha) and the area around a station on the Aonami line, which is operated by the Nagoya Seaside Rapid Railway (approximately 56 ha). Projects in four areas within the Nagoya Station/Fushimi/Sakae area have been highly praised for their contribution to urban reconstruction in the area, which include expanding pedestrian zones by creating quality open spaces, promoting urban greenification by (raising) green coverage ratio, increasing energy efficiency by introducing district heating and cooling, and other efforts to solve the particular problems of each area and make the area more attractive, and the areas have been designated as urban regeneration special areas.

As for individual cases, in the Nagoya Station 4 chome-7 banchi zone (Midland Square), it has been possible to make intensive, rational, and sound use of land and improve the disaster prevention capabilities of the area by concentrating lots and undertaking joint renovations when the aging Toyota Building and Mainichi Buildings were renovated, forming an extensive commercial and business hub. In particular, on privately owned land, the underground pedestrian zone was expanded and safety improved by creating underground corridors, which can be used as bypasses for the underground shopping areas and sunken gardens.

In the Nagoya Station 4 chome-27 banchi zone, the Mode Gakuen Spiral Tower, which includes a vocational school and shops on the lower levels, was constructed to make the area more conducive for cultural activities and community interaction. Green areas and open public spaces were also created along neighboring streets and other locations. In addition, congestion at intersections was reduced and pedestrian zones were expanded through various efforts such as creating pedestrian underground passages that connect lots on the opposite sides of main roads at intersections.

Third, for the Sasashimau-raibu 24 area (tentative name Global Gate), which was approved as an urban development project last year, the goal is to create an international reception and exchange hub that will bustle with not only residents of Nagoya, but also visitors from other areas of Japan and overseas. The plan calls for concentrating regional and international commercial and business functions in the area and attracting various facilities such as first-class hotels that are able to hold conventions, creating a new hub for international exchanges.

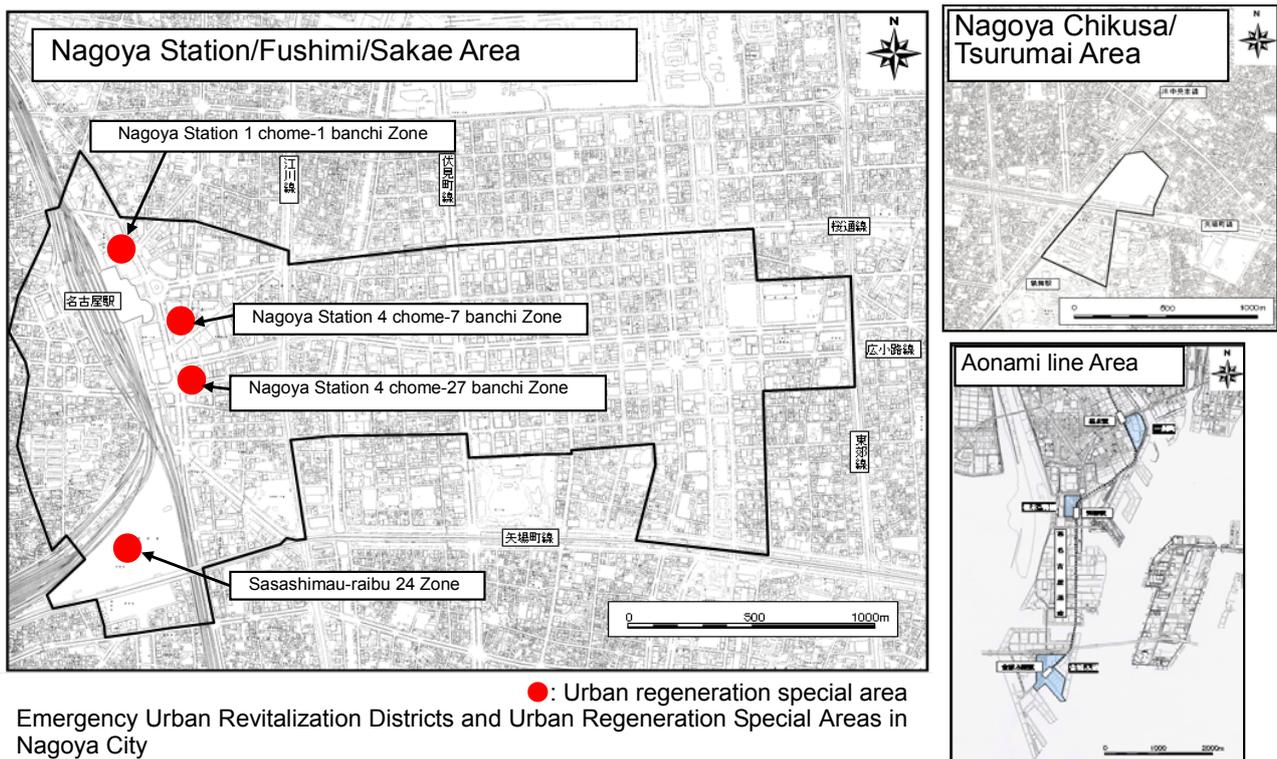
Finally, there is the Nagoya Station 1 chome-1

banchi zone. For this zone, the goal is to create a relaxing, but lively urban space by forming not only a regional and international commercial and business hub that is fitting for an area neighboring Nagoya Station, but also a multi-level pedestrian network through the joint renovation of various structures including the former Nagoya Central Post Office and the Nagoya Terminal Building located in front of Nagoya Station.

For each of the areas, the plan is to achieve various goals such as creating a relaxing atmosphere and richness in the city through numerous efforts including creating green areas so that the green coverage ratio is at least 20% and building and introducing district heating and cooling equipment within the areas.

3. Urban Regeneration Special Area Guidelines

Nagoya City is becoming more and more urban as can be seen by the fact that 93% of the city has been designated as urban areas; however, the green coverage ratio remains low for the overall area at 24.8% (as of 2005). In addition, valuable privately owned forested areas are slowly disappearing due to



Examples of the Urban Regeneration Special Areas in Nagoya City

Zone	Nagoya Station 4 chome-7 banchi	Nagoya Station 4 chome-27 banchi	Sasashimau-raibu 24	Nagoya Station 1 chome-1 banchi
Photo or artists impression				
Date of decision or change	February 14, 2003	July 22, 2005	August 25, 2010	Dec. 3, 2010
Area	≈ 1.8 ha	≈ 0.8 ha	≈ 2.4 ha	≈ 2.9 ha
Use	Offices, stores, movie theater, etc.	School, stores, etc.	Offices, stores, hotel, etc.	(North) offices, stores, bus terminal, etc. (South) offices, stores, hotel, bus terminal, etc.
Floor space	≈ 193,900 m ²	≈ 49,900 m ²	≈ 157,000 m ²	(North) ≈ 180,000 m ² (South) ≈ 264,000 m ²
Height	≈ 247 m (47 aboveground floors and 6 underground floors)	≈ 170 m (36 aboveground floors and 3 underground floors)	≈ 174 m (37 aboveground floors and 2 underground floors)	(North) ≈ 202 m (41 aboveground floors, and 3 underground floors) (South) ≈ 220 m (46 aboveground floors, and 6 underground floors)
Max. floor-area ratio	1,420% (designated floor-area ratio of 1,000%)	1,350% (designated floor-area ratio of 1,000%)	790% (designated floor-area ratio of 500%)	1,200% (designated floor-area ratio of 1,000%)

strong development pressures. Under these conditions, the city is working to promote greenification and to preserve green areas through numerous efforts including building public green areas such as parks, adding greenery such as trees to roads, and introducing a system of greenification areas where owners of private land are required to add greenery.

As for other issues such as historical buildings, many were lost not only during the Second World War, when around 1/4 of the city was reduced to ashes, but also during the subsequent growth of the city.

Under these conditions, a decision was made to use urban regeneration special areas as a mechanism to link the development of the city center to the preservation and use of assets such as green areas in

the suburbs and historical buildings and to promote the preservation and improvement of the urban environment for the overall city. In particular, the Nagoya City Urban Regeneration Special Area Guidelines were established in September of last year, which clearly show a stance of actively and broadly using urban regeneration special areas to achieve the above goals when undertaking development projects that makes use of these special zones such as those in the city center. This stance is evident in the fact that contributions made to urban reconstruction and the preservation and use of assets such as quality green areas and historic building are also considered when evaluating urban reconstruction projects.

There have not been any cases in which this

system has been used to evaluate the preservation and use of green areas and historical buildings outside of the urban regeneration special areas, but setting forth the basic ideas that underlie the system of urban

regeneration special areas will encourage projects that are based on the original ideas of private companies to be examined, and the hope is for the system to be actively and broadly used.

Outline of Urban Regeneration Special Area Guidelines

1. Basic concept

(1) Based on proposals from businesses

The guidelines are based on urban planning proposals from businesses in order to make the most of the ingenuity of private businesses.

(2) Individual evaluations not based on uniform standards

Each proposal from a business is evaluated individually and a comprehensive determination is made of its necessity and appropriateness

2. Perspective evaluations are made from

(1) conformity to local development guidelines, the city master plan, etc.

(2) consideration of the surrounding environment (wind damage, sound, vibrations, sunlight, greenification, scenery, etc.)

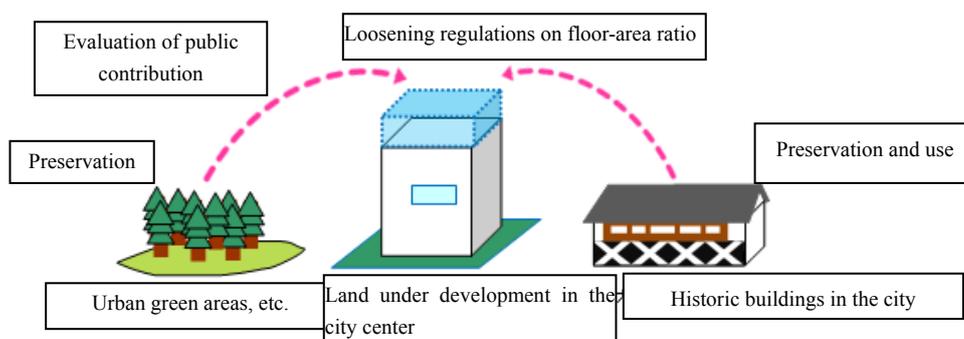
(3) harmony with the city infrastructure (such as plans to appropriately handle traffic)

(4) impact on urban reconstruction

Proposals are aggressively evaluated in terms of not only traditional standards such as ensuring effective open space or building urban facilities, but also their broad benefit for urban reconstruction, their contribution to improving the functionality of the city, improving the environment, and revitalizing the local economy

Examples of factors to be evaluated

- a. Strengthens the area's weaknesses such as making it more disaster resistant and conducive for cultural activities and exchanges
- b. Creates facilities such as related public facilities outside the area
- c. Generates creative urban appeal that makes use of unique characteristics of the area
- d. Preserves and uses urban assets such as green areas and water front areas in the city and historical buildings.



(5) Standards such as maximum floor-area ratio

A comprehensive determination is made on standards such as floor-area ratio proposed by businesses based on whether it is appropriate for contributing to urban reconstruction

(6) Review of urban reconstruction proposals

Guarantee that proposed facilities will be built, related maintenance costs, etc.

(7) Consideration of other opinions such as those of local residents

Appropriate response to parties such as local residents, etc.

Creating of Forest in Tokachi

Norihiro Kanekiyo

CEO, TAKANO LANDSCAPE PLANNING Co., Ltd.

1. Introduction

Written here are views of forest creation in Tokachi including the Douritsu Tokachi Ecology Park and Tokachi Thousand-year Forests. The opportunity to look back on Obihiro forests was the 35th anniversary of tree planting, which began in 1975.

2. Obihiro Forests

2-1 Concept

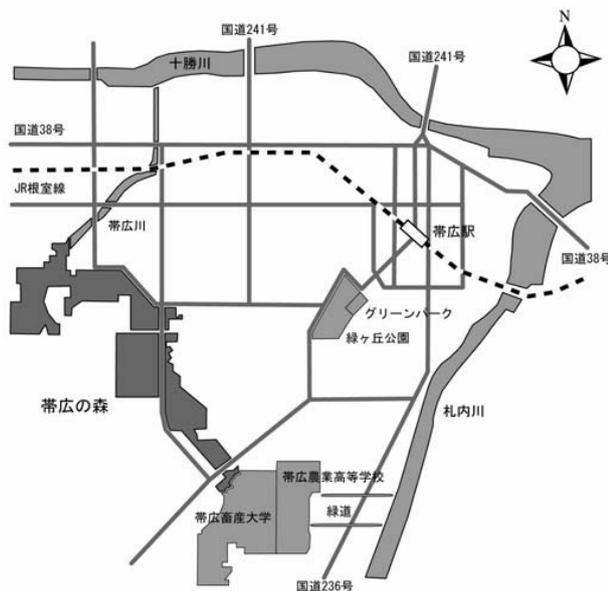
The Obihiro forests have an area of 406.5 ha, an approximate width of 550 m, and a length of 11 km. This large-scale park plan was accomplished by establishing a green belt with the Obihiro forests at its center and connecting the Tokachi River and the Satsunai River, thus enveloping the urban center of Obihiro. Controlling the sprawls of residential land space into suburbs, the urban areas and agricultural areas were divided, forming an area that could function as a place for interaction between the two and performs the functions of suppressing pollution as a municipal forest, preventing municipal disasters, the slight easing of weather and the environment, the preserving of a living environment for wildlife, and

the securing of an urban environment that people can enjoy in their free time.

The concept of the Obihiro forests was put into action by Haku Yoshimura, the 5th Mayor of Obihiro. The urban planning theme of the Obihiro Mayor's Comprehensive Plan for 1959 was designated as "A Modern Park City", and the upper limit for the size of the city was set at "the ideal size for an urban population in which a government can fulfill its responsibilities while maintaining a favorable living environment shall be 200,000." The land use plan of this overall plan contains the stipulation "a green belt shall be designated on the outskirts of the urban planning use area, and shall be maintained as a scenic zone for the Obihiro-kawa riverside". In this way, the plan encompassed green belt ideas.

The following is an excerpt from "Fusetsu Ujou", which was written by Mayor Yoshimura.

"...Although it may take 200 years to grow a primeval forest, I believe it is in the cooperation between citizens--all citizens, from the young to the elderly, each planting and raising a single tree or flower--that there is the advancing of forest creation and that the tradition of good citizenship and the pride of being citizens lies. I may not be a dream if the centers of towns are connected to the forest in a network of green and if a green line was further connected to the Hidaka mountain range, that birds and squirrels may trace the loops of green and even settle in the city...."



2-2 Current Issues and Prospects

Over 30 years have passed since we began landscaping. Forests have taken root in various

locations where it is now possible to see forested scenery. With the progress of development in the areas used for large events such as citizen's tree planting, there has been a decline in the areas in which such events can take place. This brought about the conclusion of the citizen's tree planting event in 2004 with its 30th installment. It has become more difficult to guarantee the safety of individuals presiding over tree planting festivals as the trees have grown, leading to an end to the festivals in 2005 with their 15th installment. Thereafter, the focus shifted to a location where citizens can make more everyday and continuous contact with forests by placing an emphasis on voluntary forestry activities due to small scale tree planting/tree growing efforts and natural observation meetings centered on Haguku-mu, which opened in 2010 as a headquarters for the growth management and use of Obihiro forests.

The Obihiro forests are a project that can be said to be a symbol of Obihiro urban development. More citizens developing the feeling of "Nurture the forests and be nurtured by the forests" and interacting with the forests as part of daily life will surely lead to attractive urban development and the fostering of a unique regional culture.

With the methodology of urban planning in the forests of Obihiro, it is possible to think in accordance with the changes in the main ideas of urban planning. Obihiro forest planning, which began as something led by the bureaucracy, has grown to encompass the citizenry with the firming up of modern rural city concepts, and diverse debates on the subject. During this timeframe, citizens' groups have participated actively in debates, and, in addition to being debated in assembly, Obihiro forest planning became a topic for lively debate between the bureaucracy and the citizenry. Thereafter, Obihiro forest planning established itself among the citizens with tree planting festivals and tree cultivation festivals predicated on citizen participation.

Until the present, the way in which the bureaucracy and citizenry interacted with the forests changed in accordance with the stages of forest growth. As a result, a wide range of efforts that involve government, citizens, and businesses, from the Increase the Green Plan to the Evergreen Project, has begun to take place in Obihiro.

3. Tokachi Ecology Park

The Tokachi Ecology Park is a park of 409.2 ha in total area located on the site of the Tokachi River. The Park stretches across the villages of Otofukecho, Makubetsucho, and Ikedacho. Tokaichi Kendoritsu Koiki Park accounts for 141 ha of the Ecology Park's total area. All green space in the Tokachi area is connected in the form of dots, lines, and planes into a network centered on the Tokaichi Kendoritsu Koiki Park. It is the aim of this park to become a location that is the starting point of a rich environment-a symbol of the realization of "Tokachi's coexistence with nature".

Although the Obihiro Forests were conceived to surround the urban area of Obihiro, the Tokaichi Ecology Park is located in the middle of the course of the Tokaichi River, and is the main focus of the Tokachi's environment that is located near the Hidaka



Carrying Out Environmental Cultivation Management Using Natural Power

mountain range, Taisetsuzan mountain group and Shiranukakyuryo, and is the origin from which the great scenery continues and spreads outward.



Creating Commercial Opportunities through Forests and Art, Forests and Activities, and Forests and Food

4. Tokachi Thousand-year Forests

Due to the fact that local newspapers began to acquire a large quantity of forests as a carbon offset business, this commercial venture took shape out of a desire to make use of the land, people's increased awareness of the environment, a desire to contribute to society as a company, and as a source of information on Tokachi's environmental efforts.

The business plan of "Thousand-year Forests" is a promise to vigilantly guard and partner with the forests over a thousand years, a span longer than a human life.

5. The Importance of Forest Creation

The cultivation of the Obihiro forests started with the idea of growing it into forests over a period of 100

years, and it was a big vision but one that began with the casual planting of trees. Forests and people alike are maturing with the passage of time. The Obihiro forests, which are becoming more forest-like all the time, are developing into programs to increase green space in the urban areas, and for the surrounding towns and villages, Obihiro forests are developing on a large temporal and spatial scale as the Tokachi Ecology Park and thousand-year forests. In Tokachi, where this forest creation which is conducted by many generations can be keenly felt, it is believed that there exists the basis for moving ahead with efforts like the Tokachi Ecology Park and thousand-year forests without resistance.

This forest creation encourages expansion into agriculture and forests, fishing and forests, etc. and holds the possibility of supporting part of Tokachi's image as a local brand of an environmentally advanced region.

References

- 1) Haku Yoshimura, *Fusetsu Ujou*, Shinjidaisha, 1973. (in Japanese)
- 2) Haku Yoshimura, *Modern Rural Districts for an Ideal Society*, Hokkaido Jichi Kenkyu, No.34, 1971. (in Japanese)
- 3) Section of Greenery, Urban Construction Group, Obihiro City, *Creating of Forest by Citizen Participation -Regarding Obihiro Forests-*. (in Japanese)
- 4) Mitsugu Suzuki, *Study on the Structure of Cooperative Community Planning in Hokkaido*, Bunkyo University Research Paper, 2007. (in Japanese)

Policy Direction of Green City in Korea

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1. Implementation Framework

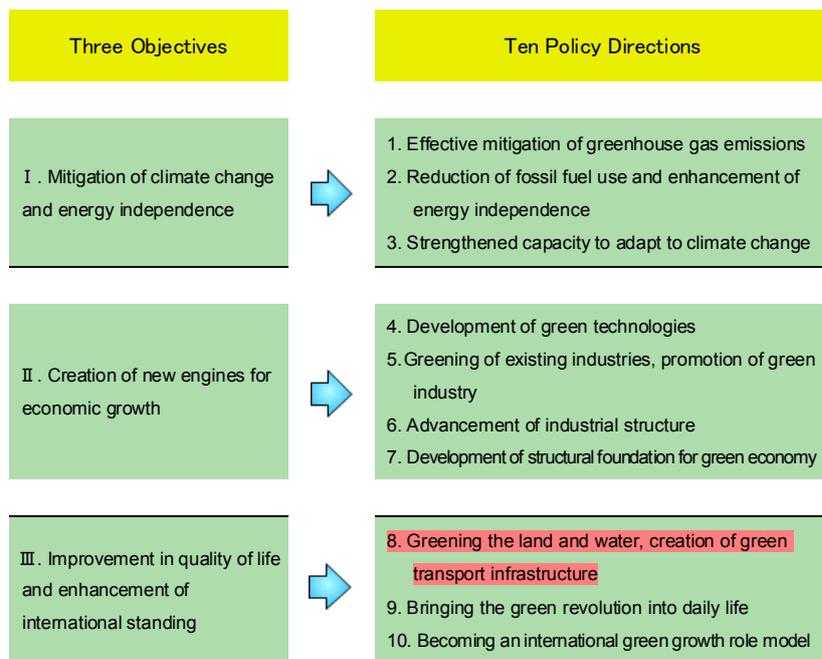
Korea is setting "Low Carbon, Green Growth" as a national vision for the future and implementing relevant policies to actively address climate change, which is becoming more serious everyday. Korea is making such efforts not only to cope with climate change and energy crisis, but to discover a new growth engine for economic take-off and to improve the quality of people's lives. To effectively take on the task of our time, which is to realize "green growth," Korea established the "Presidential Committee on Green Growth (PCGG)" in 2009. The PCGG sets the general policy direction and strategies regarding green growth, which forms the basis for the central and local governments to formulate and implement policies. In January 2010, the "Framework

Act on Low Carbon, Green Growth" was enacted to serve as a legal framework for efforts to realize green growth. Based on the Act, national strategy and a five-year action plan have been prepared. National strategy, the top-level national plan regarding green growth, sets the basic policy direction as follows.

The Ministries and local governments are effectively implementing the five-year action plan, which specifies concrete measure according to the national strategy, in close collaboration with the PCGG.

2. Policies on Green City

Among the ten policy directions, "Greening the land and water, creation of green transport infrastructure" carries its importance since it improves the quality of people's lives and national competitiveness while providing a physical foundation for other green growth policies. The policy aims to pursue economic growth and environmental protection at the same time,



fulfilling the people's demand for pleasant lives. To be specific, the policy includes development of energy-saving cities, expansion of resource-recycling urban infrastructure and creation of eco-friendly urban spaces.

2-1 Development of Energy-saving Cities

(1) Construction and Management of Eco-friendly Buildings

As of 2008, the building sector accounted for 22.2% of total energy consumption in Korea. Therefore, it's all the more important to construct and manage buildings in an eco-friendly way to cut carbon emissions of cities.

In order to construct eco-friendly buildings, Korea is strengthening the energy standard for new buildings to construct eco-friendly buildings. It reinforces the design standards, including insulation standards for windows and doors, to reduce heating energy consumption and requires new buildings to be fitted with energy-efficient equipment. For existing homes, the government encourages voluntary participation of the private sector and provides more support for homes to improve energy efficiency. The government is working on a plan to require an energy consumption certificate, which indicates annual

energy consumption and greenhouse gas emissions, for the sale and rental of housing. It also plans to expand the application of a green building certification scheme from some new buildings to include existing buildings. The government also expands its support for the efforts to increase energy efficiency by providing some costs or low-interest loans for existing homes that try to improve their energy efficiency with partial or complete renovation, redevelopment and reconstruction. Furthermore, it encourages tenants to save their energy. The Negotiated Agreement, which establishes annual targets and promotes energy saving of large public buildings, is now in force. Also, the Carbon Point System, which offers incentives such as gift certificates depending on the energy saving performances of buildings like electrical and gas savings, encourages people to voluntarily participate in energy saving and greenhouse gas reduction campaigns.

(2) Development of Green City Infrastructure

In addition to construction and management of energy-efficient buildings, it's important to cut carbon emissions that are generated from the movement of people and vehicles. Accordingly, Korea is creating

urban structures that can minimize the traffic demand by transforming cities into compact cities with the least amount of transport energy consumption and pushing for the mass transit-oriented city development of urban centers.

Also, public transit services continue to be enhanced with the development of intermodal transfer stations and the establishment of Intelligence Transport System(ITS) and Bus Intelligence System(BIS). Moreover, U-Eco City is being developed as a cutting-edge futuristic city which combines IT and ecotechnology to provide a wide range of transport, environment and welfare information. In U-Eco City, an integrated urban management center, which not only integrates the urban resources and energy but also monitors carbon emissions trend, is established. Smart Grid Network is also built to realize optimal energy efficiency by exchanging information in real-time between utilities and consumers. Currently, U-City projects are implemented on a pilot basis in Incheon City and Busan City. Also, Korea will make the plan for the Great Train Express(GTX) which is a kind of express railway and has operated airport railway named as AREX. BRT and median bus lane systems, which are



< Intermodal Transfer Station >



< GTX >



< BRT >



< AREX >

now being operated to improve efficiency of arterial road networks and convenience of intermodal transport, are being gradually expanded.

(3) Urban Planning for the Creation of Low Carbon, Green City

To realize an energy-saving city, there's a need to consider ways to strengthen the urban infrastructure for a low carbon, green city in advance from the urban planning stage.

Accordingly, the Ministry of Land, Transport and Maritime Affairs has implemented the 「Urban Planning Guideline for the Creation of Low Carbon, Green City」 since July 2009. The Guideline specifies two basic urban planning principles. First, urban planning should be systematic and encompass different areas such as spatial structures, transport systems, environmental preservation and management, energy, parks and green areas to cut greenhouse gas emissions and address climate change. Second, urban planning should reflect policies for the supply and use of eco-friendly energy sources like solar, wind, tidal power and other new and renewable energy sources. Furthermore, the guideline requires urban planning to include greenhouse gas emissions survey, future forecast and reduction strategies. The Ministry has formulated standard green city planning models for each city type (large, mid-sized and small cities) and provided them for local governments along with the urban planning guidelines. In 2010, some local governments established green city plans on a pilot basis and green urban planning is expected to be expanded to local governments around the country in consideration of local conditions.

(4) Case of Green City: Geomdan New City

Existing cities are gradually being reshaped as energy-saving urban structures by reflecting green urban planning elements, while new cities are being designated as pilot project areas where green urban planning elements are actively implemented.

One of the most representative pilot project areas

is "Geomdan New City." Geomdan New City is being developed as a self-sustaining new city in the northwest region of Incheon City and is planned to be built until 2016. In an area of 268,000 m² within Geomdan New City, which represents 1.5% of the entire new city, "Zero Energy Town" is being developed as part of a pilot green city project. The "Zero Energy Town" refers to a "zero-carbon housing complex" that consumes no fossil fuels by introducing "Passive Houses" (homes equipped with an insulation system, high-efficient doors and windows and a heat recovery ventilator to save 90% of heating energy) together with new and renewable energy sources. Other than the Zero Energy Town, Geomdan New City has been developed as an energy-saving city from the planning stage. By making the new city accessible to public transit centers by walk or bicycles within 10 minutes, Geomdan New City will help increase the modal share of mass transit by facilitating the use of bicycles, preserve the ecosystem as it is and achieve energy independence of public facilities such as schools and government buildings.

2-2 Expansion of Resource-recycling Urban Infrastructure

The Ministry is implementing policies to create resource-recycling cities by recycling used resources and making effective use of rainfall. Automatic waste collecting facilities that gather domestic wastes through pipelines instead of picking trucks have been built in some metropolitan areas such as Songdo, Incheon, and will be constructed in new cities. Rainfall management system, which has been introduced in some areas to increase the efficiency of water cycle management, are now being applied to wider areas. Moreover, integrated energy management system will be developed and operated to comprehensively manage various energy sources such as solar energy, geothermal energy and biomass etc.

2-3 Creation of Eco-friendly Urban Spaces

Efforts are also underway to create more eco-friendly urban spaces. River restoration projects continue to be implemented by creating wetlands and planting water purification plants in brooks or urban streams. Urban parks, where city residents can wind down after work, will be increased continuously. Today, some urban park projects are not carried out due to financial conditions of local governments and even if implemented, they have to go through complicated processes. To resolve this matter, the government revised “the Act on Urban Parks and Greenbelts, etc” to add more flexibility to urban park development systems, including easing regulations regarding creation of urban parks, and to attract private investment by allowing profit-making facilities in parks developed by the private sector.

Along with urban parks, development-restricted area has served as the lung of the metropolitan areas in Korea. Development-restricted areas, which have been designated and preserved since the 1970's, are doughnut-shaped areas around the metropolitan areas and offer a great space for people to take a break. However, since development-restricted areas were designated to curb reckless urban sprawl, they ended up including non-green areas and some areas have

been damaged as time has passed. As a result, the government continues to move ahead with restoring damaged areas in development-restricted areas to forests and parks.

3. Future Challenges

As stated above, Korea is now transforming the energy-intensive and resources-intensive cities that are heavily dependent on fossil fuels into energy-saving, resource-recycling cities that mainly rely on new and renewable energy. However, there may be some obstacles to implement green city policies as planned. Green city policies require broad consensus and cooperation between the public and the private sectors in the process of policy implementation. Government organization should work closely together to create a synergy effect between policies and provide necessary funding. International cooperation through exchange of information and experts etc. is also important. If we are able to wisely cope with the challenges before us and continuously move ahead, then the “Low Carbon, Green City” that brings humans, nature, technology in harmony will be realized in the near future.