

Biodiversity and Awareness Improvement Policy of Seoul

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1

Status of Seoul's Biodiversity

Geographical Features of Seoul

Seoul is traversed by a huge waterway, the Hangaeng (River), which is revered as a source of inspiration that feeds and nurtures all Korean people and their culture, and is protected by scenic mountains, such as Namsan and Bukhansan.



Status of Seoul's Biodiversity

Mountains/Parks

- Mountains : 26 locations, 151.84 km²
- Parks : 2,714 locations, 169.13 km²



Streams

- Total : 59
(Hangang (River) 40.19 km)



Protected Areas

- Total : 24 locations, 6,269,776 m²



Species

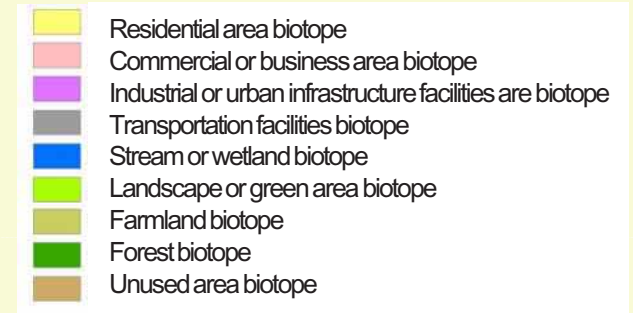
- Total : 5,267 (Plants: 2,157)



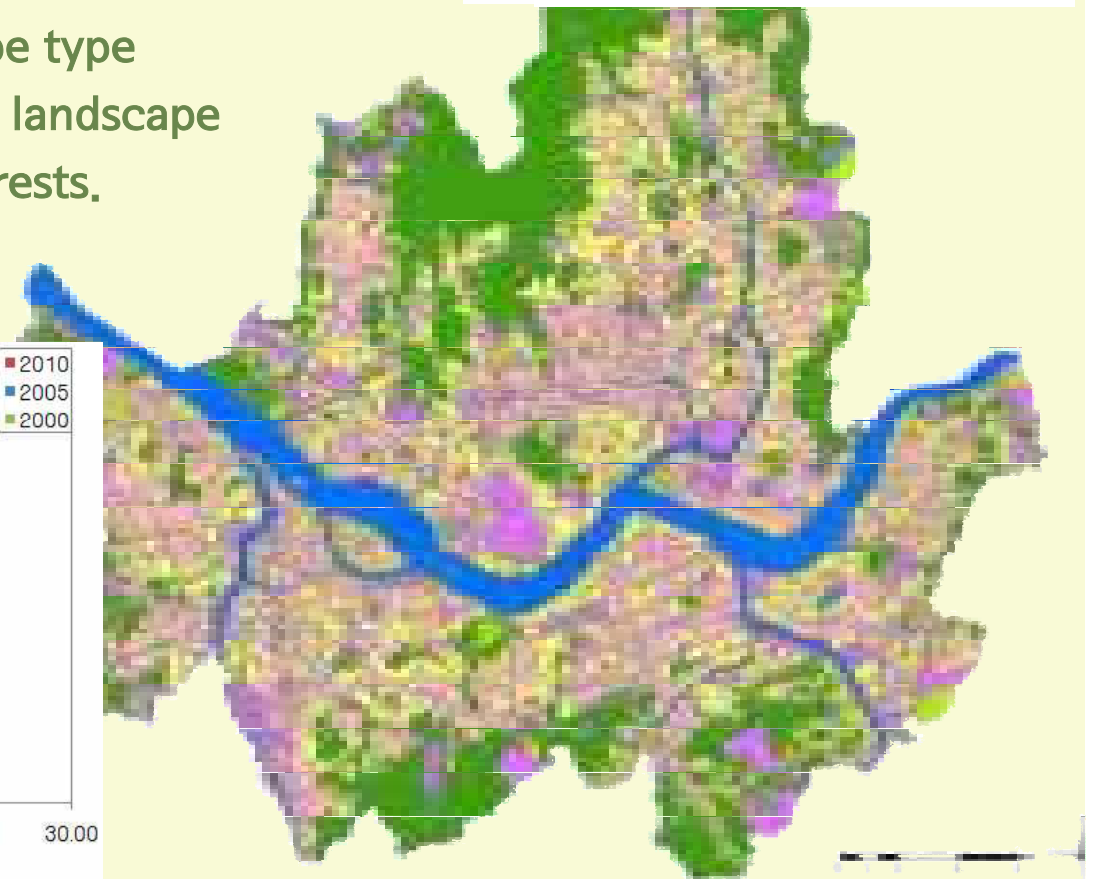
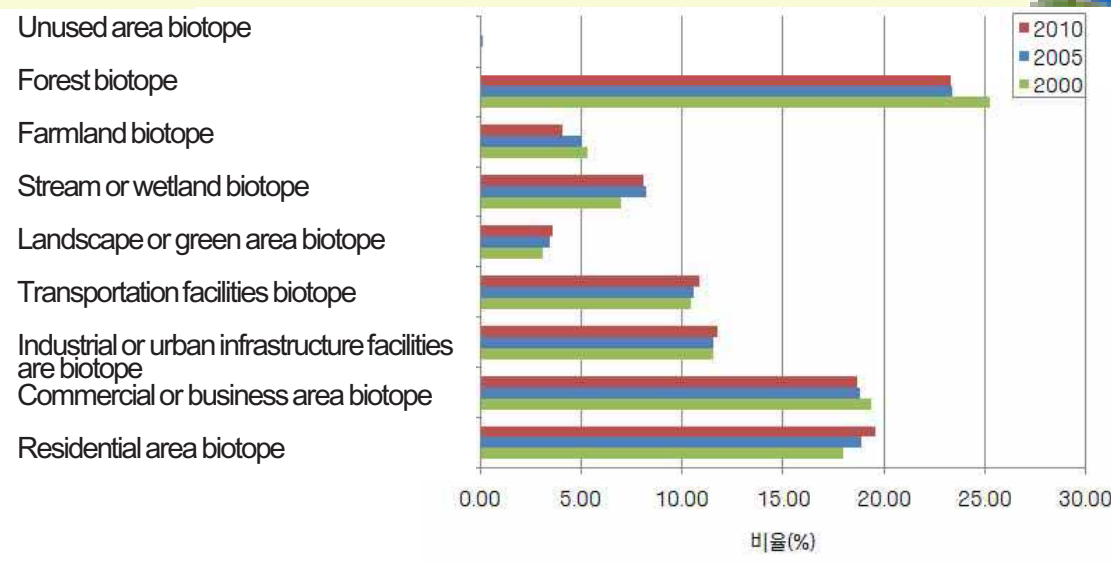
Diversity of Habitats

Biotopes

- A forest biotope occupies 32.32%, accounting for the largest area ; stream or wetland : 8.09% ; farmland : 4.08% ; landscape : 3.57%.
- Compared to 2000, the change by biotope type shows an increase in residential areas and landscape trees, and a decrease in farmlands and forests.



➤ Area ratio change by biotope type



➤ Biotope Type Map (2010)

Diversity of Habitats

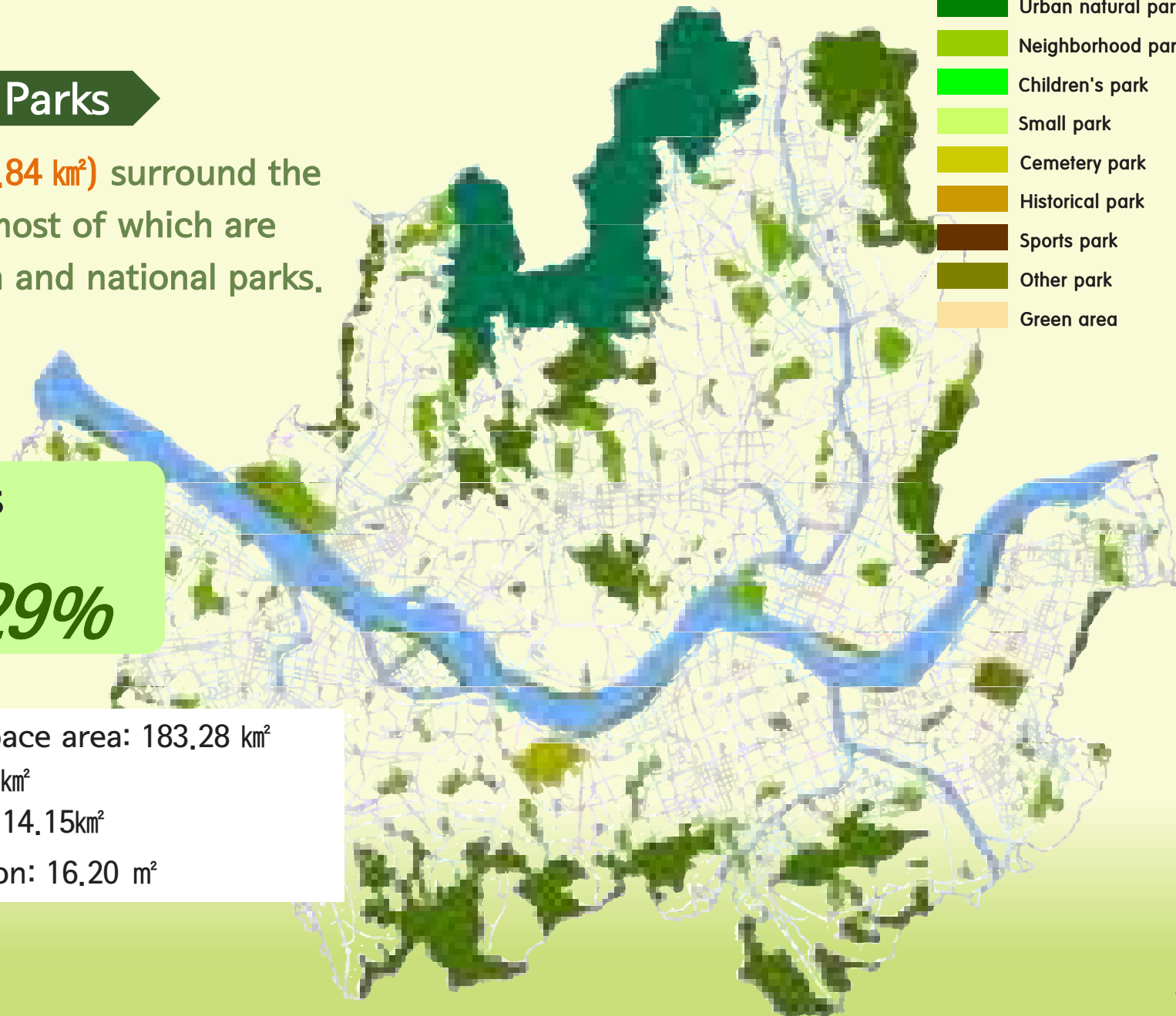


Mountains and Parks

• 26 mountains (151.84 km²) surround the outskirts of Seoul, most of which are designated as urban and national parks.

Portion of parks and greenery
30.29%

- Parks and green space area: 183.28 km²
- Parks area: 169.13 km²
- Green space area: 14.15km²
- Park area per person: 16.20 m²



Diversity of Habitats

Streams

- **59 streams** are scattered around the Hangang (River) and pass through the center of Seoul
- Legal streams 36 (240.2 km), Small streams 18, Other streams 5
- Hangang (River) 40.19 km, Jungnangcheon (Stream) 20.47 km, Anyangcheon (Stream) 13.95 km, Tancheon (Stream) 8.80 km



➤ Stream Location Map



➤ Hangang (River)

Diversity of Habitats

Ecosystem & Landscape Conservation Area

· A total of **17 locations (4,812,583 m²)**, including Bamseom (Island) in Hangang (River) and Dunchon-dong, are designated and being managed.

※ Bamseom (Island) is designated as a Ramsar Wetland in June 2012 for the first time in the metropolitan area.



➤ Bamseom (Island)



➤ Godeok-dong

Diversity of Habitats

Wildlife and Migratory Bird Protection Area

- A total of **7 locations (1,457,193 m²)** are designated and being managed.
- 4 Wildlife protection areas
- 3 migratory birds protection areas



➤ Nanji Hangang Park



➤ Crypsinus within the wildlife protection area of Suraksan(Mt.)

Species Diversity

Current State of Living Organism Species

- Based on research, **some 5,267 species are discovered** to account for 12% of the National List of Species (**National List of Species: 41,483 species**).
 - Bukhansan (Mt.): 2,215 species; Namsan (Mt.): 649 species; Gwanaksan (Mt.): 586 species; Cheonggyesan (Mt.): 449 species
 - Hangang (River): 1,683 species; Cheonggyecheon (Stream): 862 species; Tancheon (Stream): 781 species; Jungnangcheon (Stream): 776 species

➤ Number of species in Seoul (1980-2013)

| Category | Fungi | Invertebrate Animal | Plant | Vertebrate | Total |
|----------------|-------|---------------------|-------|------------|-------|
| No. of Species | 373 | 2,360 | 2,159 | 375 | 5,267 |

➤ National List of species (2013)

| Category | Micro-organism | Fungi Lichen | Invertebrate Animal | Plant | Vertebrate | Total |
|----------------|----------------|--------------|---------------------|--------|------------|--------|
| No. of Species | 2,632 | 4,153 | 22,612 | 10,187 | 1,899 | 41,483 |



➤ Current emergence of birds



➤ Current emergence of amphibian/reptile

Species Diversity

Endangered wildlife list by the Ministry of Environment

- Among 246 species that are designated as endangered species by the Ministry of Environment, **a total of 39 species** are discovered in Seoul.
 - Insect: 3 species; Plants: 9 species; Amphibians and Reptiles: 3 species; Birds: 22 species; Mammals: 2 species
 - Bukhansan (Mt.):15 species; Hangang (River): 14 species; World Cup Park: 11 species; Tancheon (Stream): 8 species



➤ Current distribution of endangered species (Birds) designated by the Ministry of Environment

➤ Wildlife designated by Seoul Metropolitan Government as endangered species

| Category | Plant | Insect | Fish | Amphibian /Reptile | Bird | Mammal | Total |
|----------------|-------|--------|------|--------------------|------|--------|-------|
| No. of Species | 10 | 12 | 4 | 7 | 11 | 5 | 49 |

Species Diversity

Current state of wildlife protected by Seoul Metropolitan Government

· Seoul Metropolitan Government **designated 49 species** of wildlife as endangered species in accordance with the laws related to wildlife protection and management and the Seoul Metropolitan Government Ordinance on Natural Environment Conservation.

- Bukhansan (Mt.): 29 species; Hangang (River): 25 species; World Cup Park: 21 species, Gwanaksan (Mt.): 18 species



➤ Current distribution of protected species (Birds, Amphibians, Reptiles) designated by Seoul Metropolitan Government

➤ Wildlife designated by the Ministry of Environment as endangered species

| Category | Fungi | Plant | Invertebrate Animal | Insect | Fish | Amphibian/ Reptile | Bird | Mammal | Total |
|----------------|-------|-------|---------------------|--------|------|--------------------|------|--------|-------|
| No. of Species | 1 | 79 | 31 | 22 | 25 | 7 | 61 | 20 | 246 |

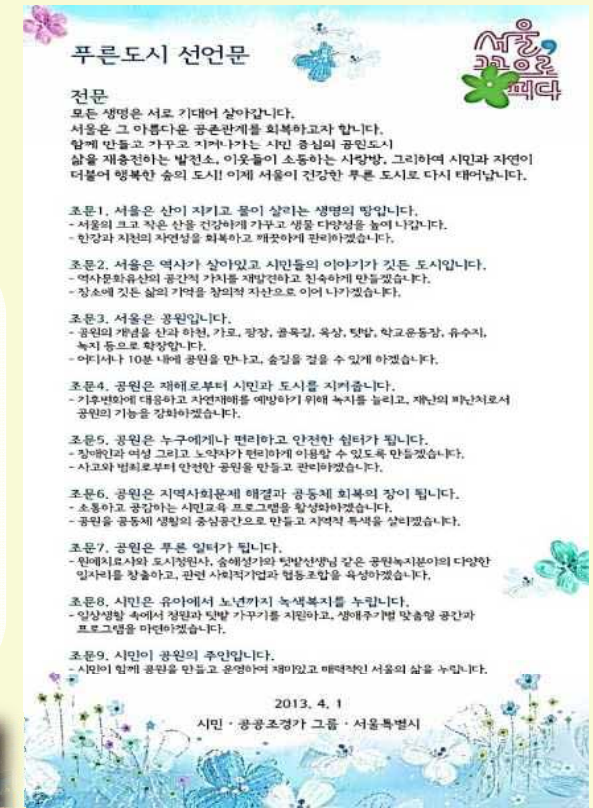
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Policy for Improving Citizens' Awareness of Biodiversity

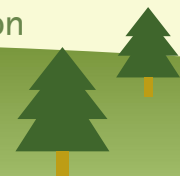
Establishment of Strategic Planning for the Green City Declaration

Development of the Green City Declaration and concrete action plans on the parks and green land according to the vision and strategies for the city's future

- Expand the concept of the park to the entire city and implement a permanent green culture.
- Suggest 3 major strategies and 21 action plans :
Green Culture Expansion / Spatial Value Increase / Park Operation Innovation
- Accommodate opinions from public landscape group and 1,000 citizens for more than 10 months :
Via Idea Contest, Workshop, Action Officers Committee



➤ Green City Declaration



“Seoul, a Blooming Flower” Campaign

The Citizen Green Culture Movement is to **expand green space and revitalize community** in Seoul by assisting the citizens’ continuous and autonomous participation in planting and cultivating plants and trees in their daily life.

Achievements in 2013:

- Generated **8,500 communities**
 - Involved **337,400 community members**
 - Planted **3,420,000 trees and 10,830,000 flowers**
- Assistance project for planting trees and plants in front of residential buildings and around neighborhoods :
 - **Adopt-Greens Project**
Citizens, businesses, and groups participate in the management of parks, roadsides, and street green belt
 - **Citizen Landscape Academy** : Fostered 309 landscape leaders

Case 1.

Flash Mob



Case 2.

planting flowers and trees



Case 3.

Adopt-Greens Project



Seoul Urban Farming Project

Provide conditions and tools for citizens and local communities to prepare and sustain a space for daily urban farming, such as patched land and rooftops.

Use deserted houses within historical sites

Case 1. A vegetable patch



Case 2. Rooftop Garden



- Declaration of June 2012 as the start of urban farming
- Set a goal to secure urban farming space of 3.3 m² (990 ha) or more for each household for 1 million households.

Construction of rooftop gardens

- Welfare centers and kindergartens
- Achievements in 2013 : 65 locations, 4,550 m²

Construction of vegetable patches

- Turn unused, damaged land to vegetable patches
- Achievements in 2013 : 2,500 sections, 41,250 m²

Construction of vegetable box gardens

- Citizen centers, day care centers, nursing homes,
- Achievements in 2013 : 10,000 sets

Bio Blitz (Biodiversity Exploration)

Have community members and experts discover and investigate as many animal and plant species as possible within 24 hours

· Achievements in 2014 :

777 species investigated by 3,587 citizens at Seoul Forest Park



Bio Blitz (Biodiversity Exploration)

Operate "Biodiversity Courtyard" to increase communication with community members regarding biodiversity during the Bio Blitz event.



- Form a Seoul biodiversity network with 13 groups
- Operate 15 biodiversity playgrounds (experience booths)
- Operate 8 different biodiversity open tables

Case 1. Biodiversity playground

Operate exhibitions about biodiversity and experiential booths.



Case 2. Biodiversity Open Table

Hold a general meeting after small group discussions under the theme of "Firefly and Honey Bees."



Green City

Construction of Biotopes

Construct biotopes to form habitats for various animal and plant species.

- Constructed **60 biotopes (135,192 m²)** between 2007 and 2013.
- **Plans to construct biotopes with community members** by selecting locations based on their opinions from 2015



➤ Sangam Neighborhood Park in Mapo-gu



➤ Hyochang Park



Project for Increasing Urban Biodiversity

Operate projects to revive various wildlife species with community members.

- Restore wild animals

- Release 168,404 animals, including salamanders, from 12 species in 74 locations (2005-2014)



Frogs and Toads



Fireflies

➤ Artificial breeding

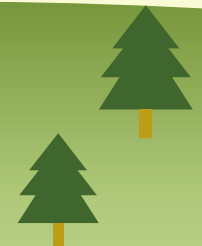


Frogs and Toads



Fireflies

➤ Releasing wild animals



Project for Increasing Urban Biodiversity

Operate a project to revive various living species in Seoul with community members.

- Remove invasive species that disturb the ecosystem.
- Removed wild plants that disturbed the ecosystem from an area of 2,105,000 m² (2013)



➢ Remove wild plants that disturb the ecosystem.



Urban Biodiversity Improvement Project

Operate a project to revive various living species in Seoul with community members.

- Increase bird population in the city.
 - Installed nest boxes and feeders at schools and parks with community members and students (70 locations, 2013)
- Install insect hotels.
 - Installed 25 insect hotels in parks (2014), and offered environmental education



Share information with participating citizens via mobile messenger

Citizen-Participatory Management

Revitalize continuous exchanges with local citizens through community-centered **park management by NGOs and volunteers.**

· **Privately commissioned the operation and management of eco-parks :**

- A total of 4 locations : Nanji Wetland Ecological Park, Hangang Wildlife Exploration Center, Amsa Ecological Park, Godeok Riverside Ecological Park

· **Hangang Volunteer Program :**

- Organized 85 volunteer community groups and 12,841 participants in 5 fields such as ecology, environment, and safety precautions (2013)
- 34,098 participants in 20 volunteer programs (2013)



➤ Volunteer Work – Hangang Restoration Campaign



➤ Volunteer Work – Eco-monitoring



Management Advisory Team Operation

Operate the Management Advisory Team consisting of **experts, NGOs, local residents, and public servants**



➤ Dunchon-dong Operating Committee



➤ Dunchon-dong

- Target Area : Dunchon-dong
ecosystem & Landscape Conservation Area
- Operation Period : 1 session or more quarterly
- Major Contents : Discuss measures of management, and construct measures for the governance of urban farming cultural parks
- Accomplishment : **Suggest an expanded designation of conservation areas and make an expanded designation** (Jul. 2013, 5,256m²)

➤ Council Composition

| Category | Total | Professors | Former district representatives | Citizen Groups | Local Residents | Public Servants |
|----------|-------|------------|---------------------------------|----------------|-----------------|-----------------|
| Persons | 14 | 2 | 1 | 1 | 7 | 3 |

Ecological Programs

Operate various eco-programs for local citizens to learn and experience nature as they are led by guides while touring the eco-environment.

- Operate a learning program about various eco-scapes, such as parks and protected areas (since 1999).
- Offered 22,523 sessions for 6,548,006 citizens in 2013

➢ Current operation of ecology programs

| Category | Forest Path Tour | Natural Ecology Experience Class | Park | Hangang (River) |
|----------------------|--------------------|----------------------------------|-----------|-----------------|
| Frequency | 1,633 | 1,205 | 17,236 | 2,449 |
| Education Recipients | 30,431 | 31,727 | 6,434,730 | 51,118 |
| Target Facilities | Seoul Forest Paths | Protected Areas, Streams | Parks | Hangang (River) |



Case. Ecological Programs

Forest Path Tour

- Period : Apr. – Nov.
- Venue : Seoul Do Dream Gill (Exploration Course)
- Contents : Guided courses; education on forest eco-system; historical and cultural resources



Natural Eco-experience Class

- Period : Apr. – Nov.
- Venue : Eco-Park, Streams, Protected Areas
- Contents : Observe and monitor wild animals and plants ; and remove wildlife that disturb the ecosystem



Production and Distribution of Eco-Education materials



➤ Hangang(River) Ecology Map e-book



➤ Leaflet on Protected Species



➤ Materials on the installation of nest boxes and management method



➤ Leaflets on eco-cultural paths



➤ Leaflets on Seoul eco-exploration



➤ Bird exploration guidebook

Eco Forum

Operate the “Eco Forum” to explore the direction for an environmentally-friendly and sustainable city management.

- Operated 124 sessions between 1999 and 2013
- Theme : the climate change adaptation plan, direction of the environmental ecology plan, ways to enhance biodiversity, etc



➤ Achievements by Year

| Category | Total | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|-----------------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| No. of Sessions | 124 | 13 | 11 | 10 | 8 | 10 | 9 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |

➤ Current condition of presenters

| Category | Total | Professors | Research Institute | Citizen Groups | Public Agency | Private Agency | Graduate school student |
|-------------------|-------|------------|--------------------|----------------|---------------|----------------|-------------------------|
| No. of Presenters | 133 | 42 | 45 | 5 | 24 | 16 | 1 |

Information System Construction and Operation

Systematic material construction and information provision

Construct and operate various websites by ecological resource, such as parks, forests, and streams.



※ Biotope map

- Investigate the current condition of the ecosystem and create a map that provides basic information about the ecological urban management.
- Composition of 8 thematic maps



➤ Mountains and parks in Seoul



➤ Hangang Park

Case 1. Ecological Information System

Ecology of Seoul

- Introduce the current state of Seoul's ecosystem, measures for the management of the ecosystem, and related laws.



<Major ecosystems in Seoul>



<Major mountains and rivers in Seoul>



<Wildlife protection areas>

Wildlife in Seoul

- Check the current state of the wildlife species and habitats in Korea and Seoul



<Introductory videos and descriptions on protected wildlife>



<Provide services of viewing wildlife distribution map>

Case 2. Hangang Bamseom Story Map

- Provide aerial information and area changes of Bamseom (Island) by year.
⇒ A increase of the area by 6 times over the past 50 years



<Aviation image in 1992>



<Aviation image in 2012>

Case 3. Seoul Dudeurim-gil

- Provide a location map and detailed information about the Seoul Dudeurim-gil, including transportation, distance, required time, and sights to see.
* Seoul Dudeurim-gil : A walking path that offers experiences for visitors to feel and learn about the rich ecosystem, history, and cultural resources of Seoul while taking a leisurely walk.



<Route information by walking course>



<Ecological, cultural, historical guide on each site>

Information System Construction and Operation

Strengthen communication with local citizens

- Operate the first 'Eungdapso,' a management system that integrates online civil complaints and opinions
- Operate 'Oasis,' which allows for interactive communication about Seoul City's administrative affairs between citizens, experts, and public servants

Case 1. Eungdapso



Case 2. Oasis



A suggestion site for citizens to make a direct suggestion, idea on development, and evaluation about Soul Metropolitan Government's policies.

※ Eungdapso : A term that refers to the system of responding to the citizens' complaints and suggestion. It is a one-stop system that can receive and process both citizens' complaints and suggestions regardless of type.

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Future Strategies

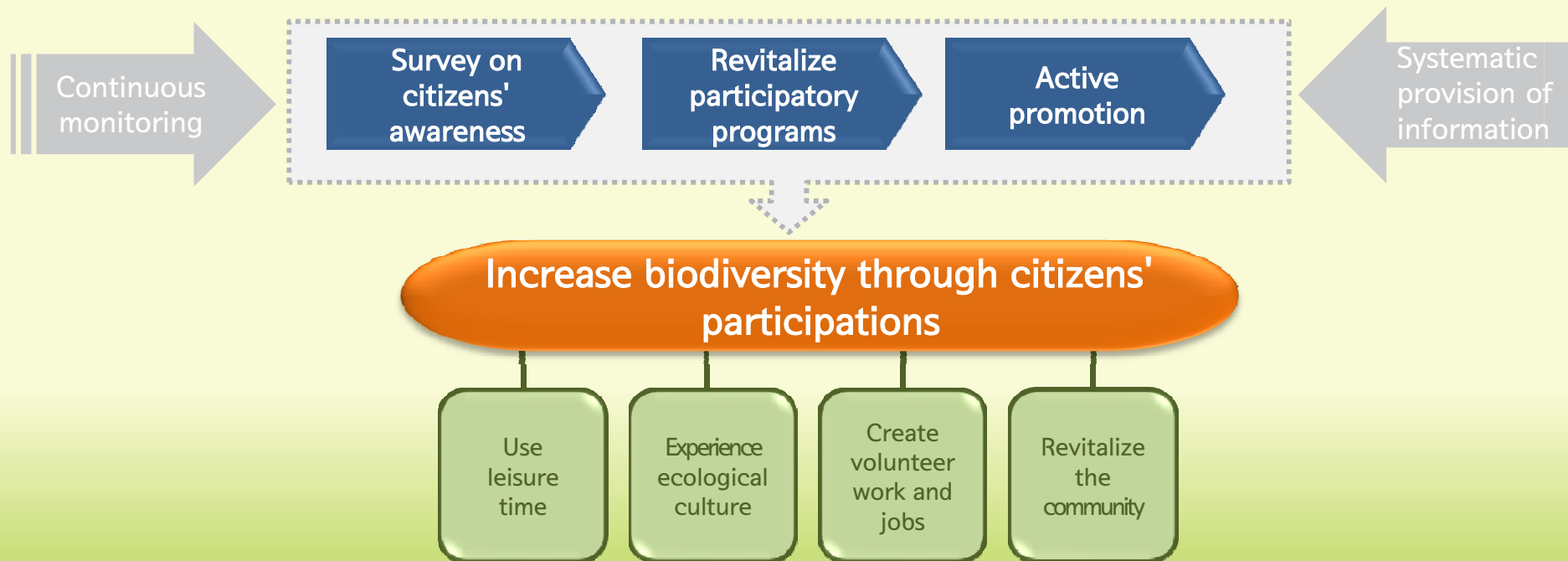
Induce citizens' continuous participations

- Discover jobs and provide a foundation.

Construct cooperative governance, and develop an employment model.

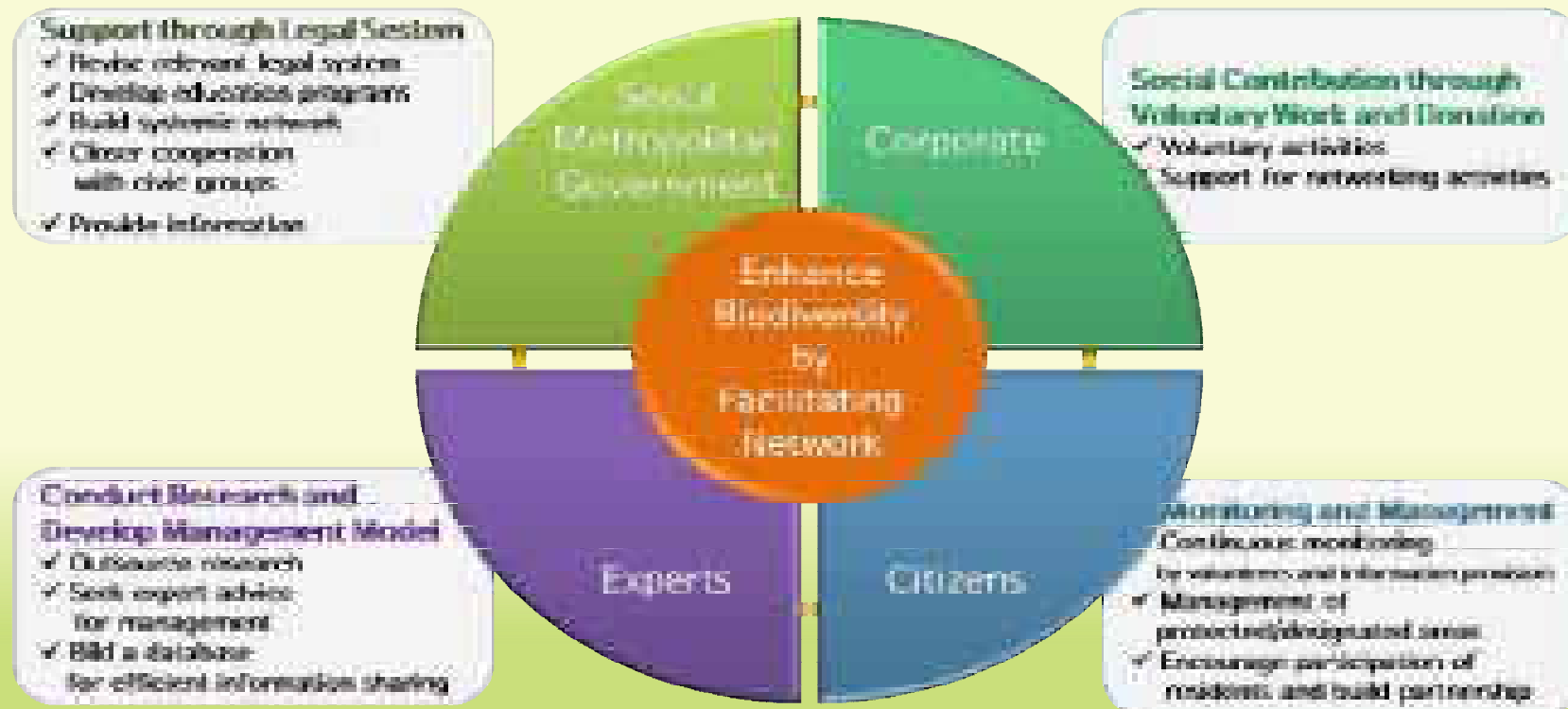
- Prepare a base for green welfare services and establish implementation strategies.
- Develop programs for increasing the biodiversity within a life zone.

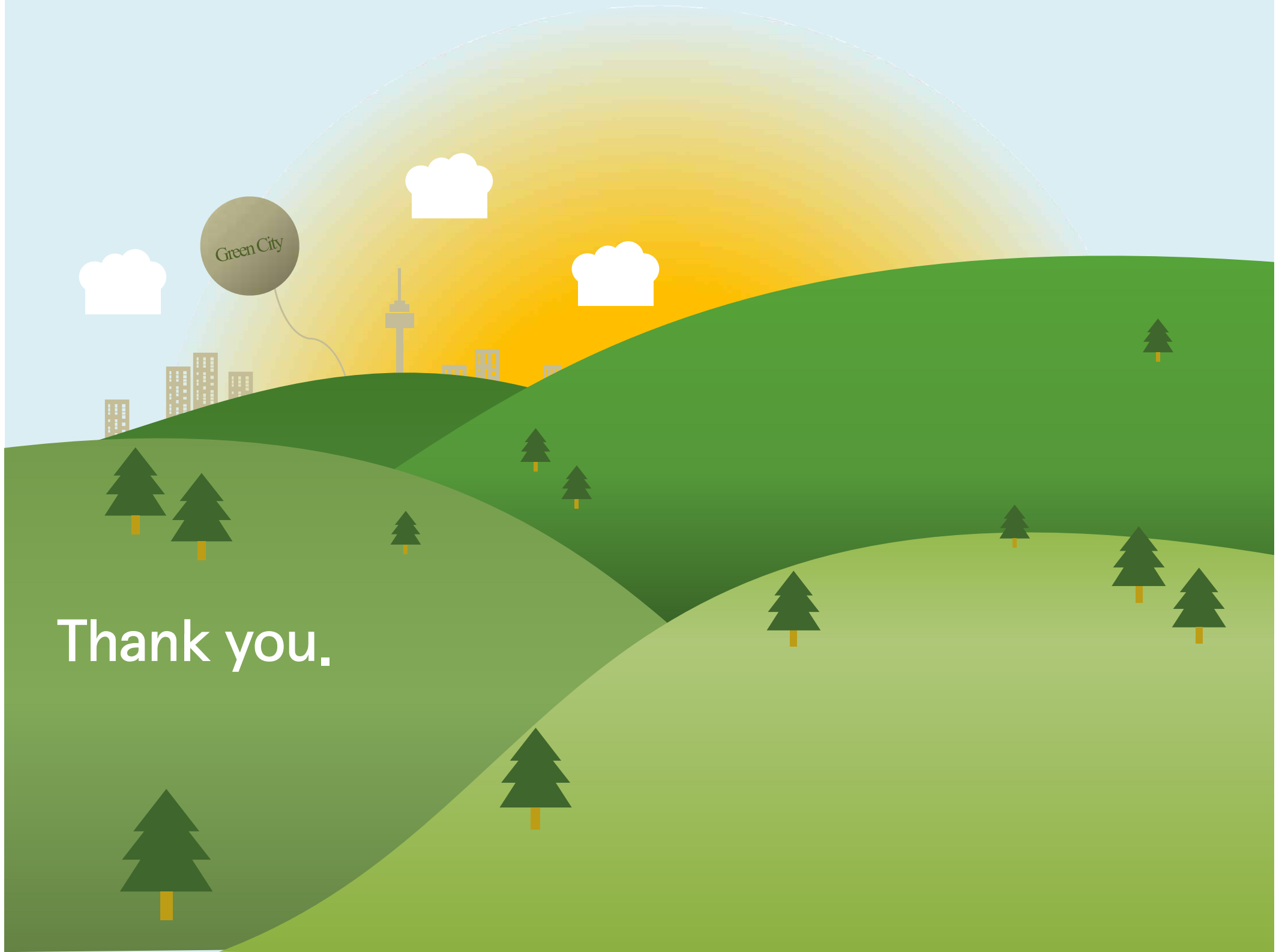
Monitor the ecosystem and construct an ecological map (Community mapping).



Revitalize a network between businesses, experts, and citizens

- Develop strategies for Seoul City's biodiversity and citizen-participatory action plans
Operate a cooperation system consisting of citizens, experts, and public servants at the establishment of planning, and accommodate to the citizens' opinions via SNS and workshops.
- Establish and operate an eco-environmental center
Operate a comprehensive management of the ecosystem by maintaining data on wildlife species, providing information, education.





Green City

Thank you.