

# Nature and Biodiversity Management in Korea: A Policy Perspective

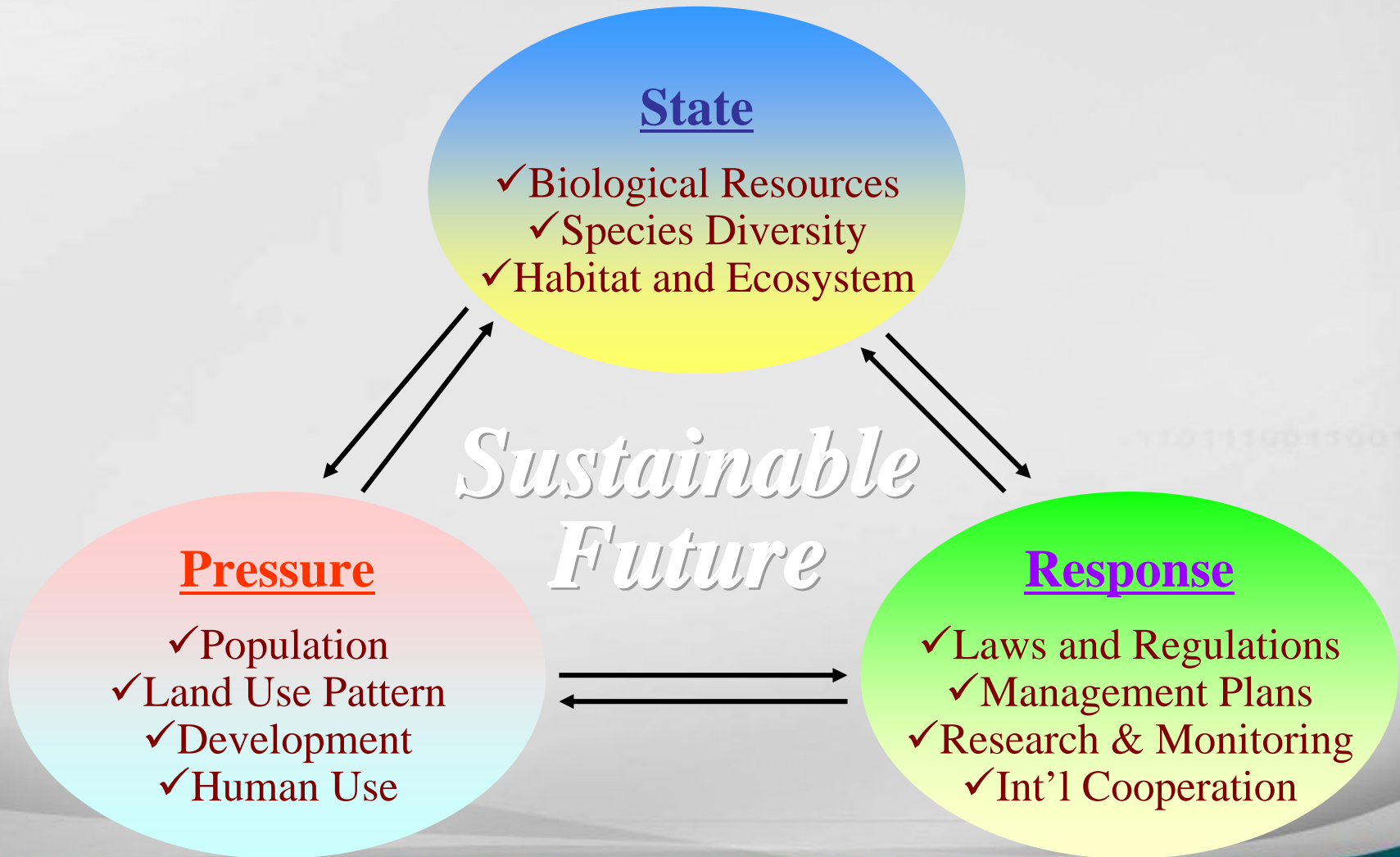
Oct. 2007

Paikho Rho, Ph.D.  
Korea Environment  
Institute

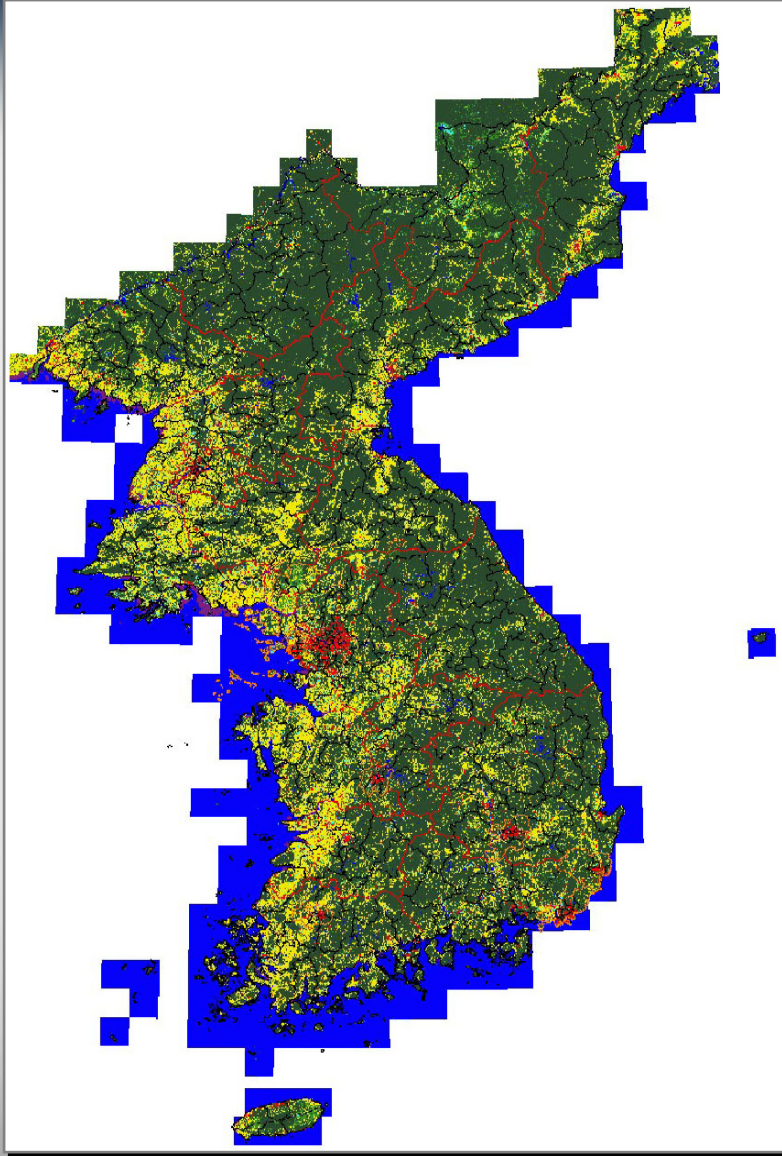
# **State of Nature and Biodiversity Management**

# Overview...

## □ Pressure-State-Response Framework for the Identification of Issues and Policy Responses for Nature Conservation



# State



**Baekdudaegan  
(Mountain Range)**



**Coastal Region  
(Designated Island)**



**Estuarine Wetland  
(Han River)**



# State

## Natural Resources

- Total area of Korean Peninsular: 222,000km<sup>2</sup>
  - S. Korea: 99,600km<sup>2</sup>(45%)
  - Forest: 63,900km<sup>2</sup>(65%)

- During the last two decades, Forest area declined 2.1%, Cropland declined 15.9%, and Tidalfat declined 20.4%

- Forest, Stream and Lake, Estuary, Island, Wetland Ecosystem and Diverse Species and Habitats

# State

## Wildlife

Habitat & Ecosystem  
Diversity with  
topographic and  
climatic variation



Estimated Species:  
100,000 spp.  
\* NOW, ~26,000 spp.  
recorded



Protected wildlife:  
221 spp. (MOE)  
46 spp. (MOMAF)





# Pressure

## ❑ Development Pressures Nationwide

### ➤ Population density and Quality of Human Life

- Population density is 485 person/km<sup>2</sup>, 3<sup>rd</sup> in the world
- Consumption and Vehicle-oriented Life cycles pattern

### ➤ Urbanization and Industrial Activities ↑

- Urbanization ratio: 49.8%(1970) – 89.0%(2003) – 95.0% (2020)
- Rapid industrialization since 1960s

### ➤ Habitat Loss, Climate Change and Invasive Species

- 25% of coastal wetlands lost during the last decade
- From 3,203km<sup>2</sup> in 1987 to 2,393km<sup>2</sup> in 1998

# Pressure

## Land use change



cropland

15.9% decline



mudflat

20.4% decline



woody

2.1% decline

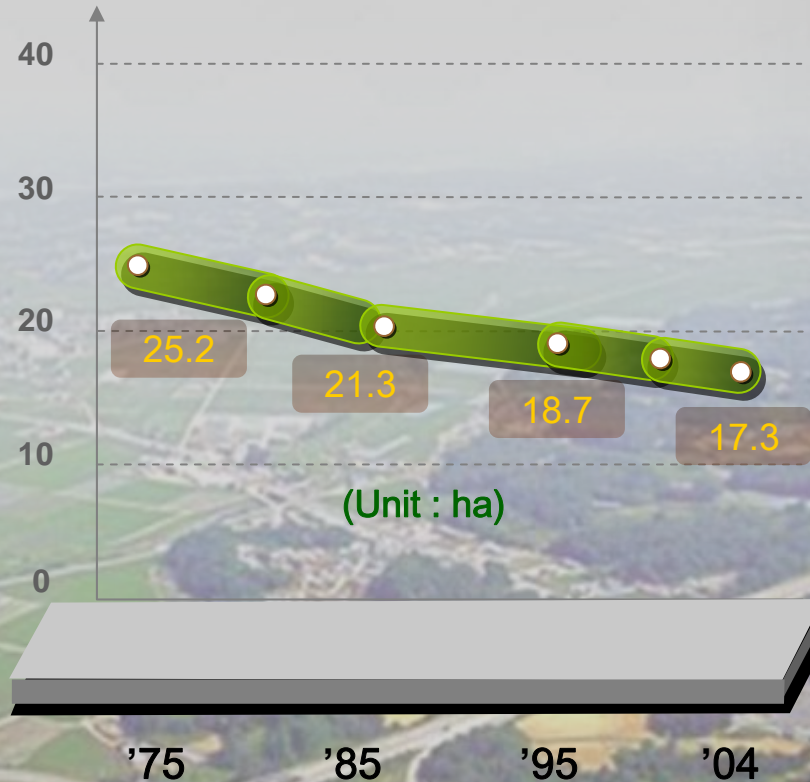


※ During the last two decades  
(1980s-2000s)

## natural area/person

Natural area = cropland + woody area

Natural area/person gradually declined





# Response

## □ Responses to Protect Natural Resources and Biodiversity

- **Enactment of new laws**
- **Amendment of the existing laws**
- **Establishment of the new authority for the natural resource management and biodiversity conservation**
- **Establishment of management policies and plans at national and local levels**
- **Designation of protected areas for wildlife habitat and ecosystem (e.g.wildlife protected areas and wetland protected areas)**
- **Establishment of natural environment monitoring system**
- **Increase in investment in natural resource and biodiversity researches**
- **Regional and global cooperation**

# Response

Legislation	Government Agency
Natural Environment Conservation Act	Ministry of Environment
Natural Park Act	National Park Agency
Ecosystem Conservation Act on Island	Ministry of Environment
Wetland Conservation Act	MOE, MOMAF
Environmental Impact Assessment Act	Ministry of Environment
Baekdudaegan Protection Act	Forest Service
Wildlife Protection Act	Ministry of Environment
Cultural Heritage Protection Act	Cultural Heritage Administration
Marine Ecosystem Conservation Act	Ministry of Fishery & Marine Affairs

## Budget on Nature Conservation





# Success

## Institutional and Legal framework



- Enactment of nine Natural Resource-related Law (i.e., Wildlife Protection Act of 2004)

## Ecological Axes on Korean Peninsula



- Establishment of three ecological axes conservation plan, Designation of protected area (11.2% of total area)

## Database Construction on Natural Resources



- Introduction of Strategic Environment Assessment('06.6), GIS DB on Natural Resources('07.4), Nationwide Survey on Natural Resources

## Master Plan for Natural Resource Mgmt



- Establishment of Master Plan for Biological Resource Conservation('05.1), Wildlife and Habitat Protection ('05.12)
- Protected wildlife 221 spp.('05.1)

# Critical Issues

Ratio of Protected Area(11.2%) is less than the average ratio of OECD (16.4%)

Unawareness on Ecological Restoration and Eco-tourism (\$\$\$)

Lack of Spp. Sample and Ecosystem Survey (6,800 sample collected among 30,000 spp.)

**Weakness**

Invasive species and insufficient framework for species and ecosystem mgnt

Reliability is low in ecological assessment system (map accuracy)

# **Policy Measures for Nature Conservation**



# Policy Objective

## Ecosystem and Preventive Management



### Scientific Knowledge of Natural Resources

- Continuous survey on natural resources
- Monitoring on critical habitat and ecosystem
- GIS development for spp. and ecosystem

### Advanced Natural Resource Management System

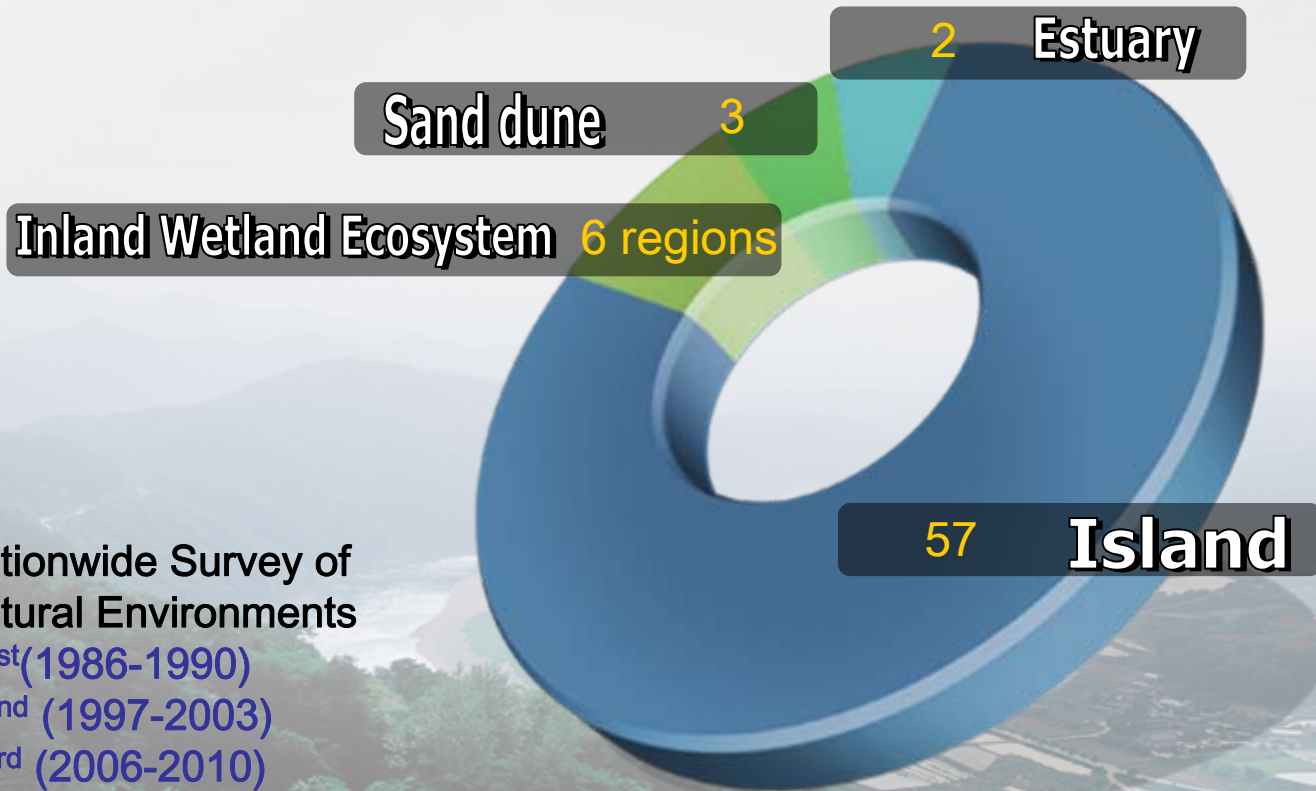
- More protected area and better management
- Wetland Conservation
- Ecological Restoration and Ecotourism

### Preventive Management for Sustainable Development

- Reconcile Nature into Land Development
- Integrated strategic environment assessment implementation

# Nationwide Ecosystem Survey

## Nationwide Survey on Ecologically Important Area





# Protected Area

## More Protected Area

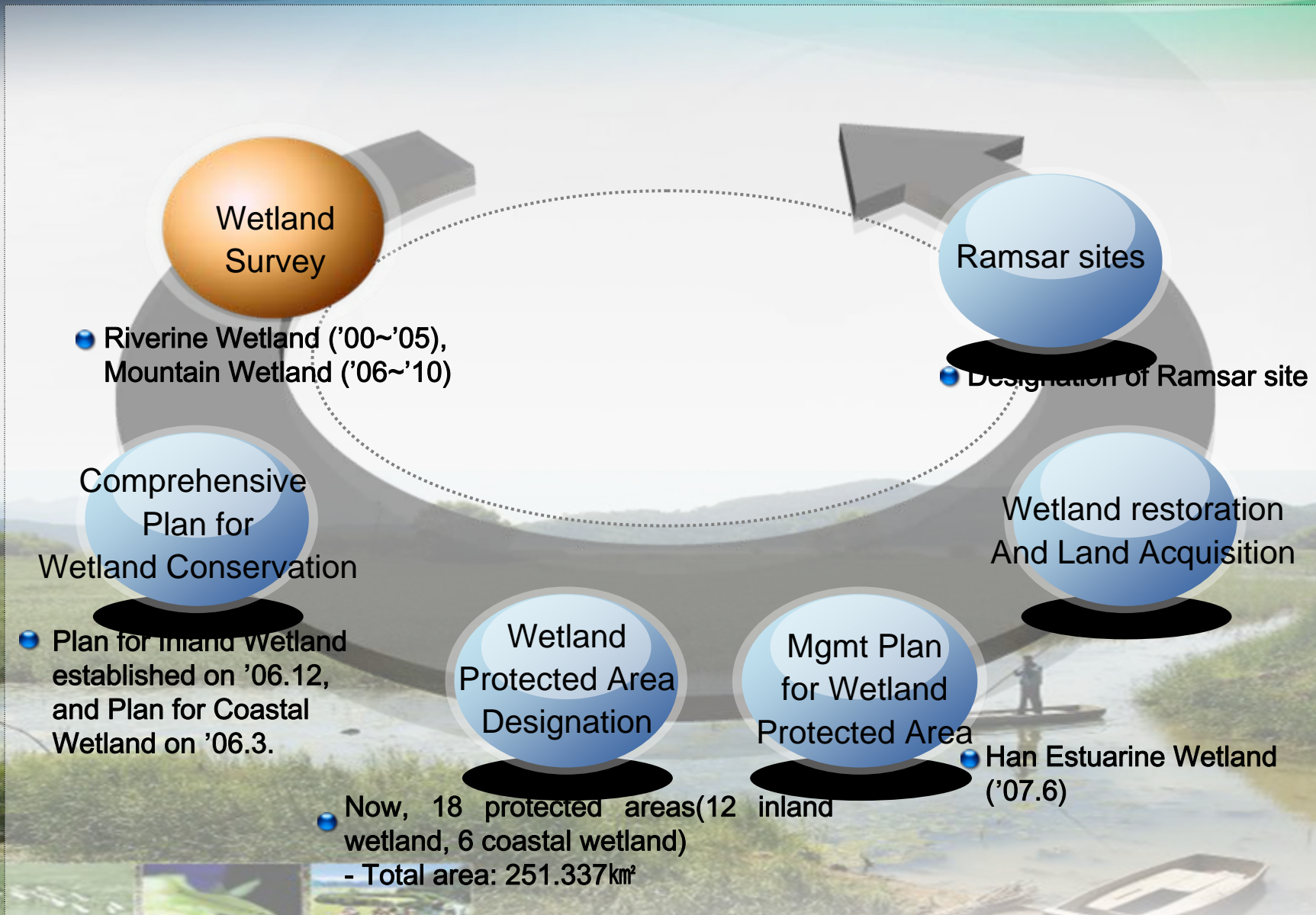
- Wetland Protected Area 2,  
Ecosystem Protected Area 1,  
Designated Islands 3
  - ※'06. 12 : Ecosystem Protected Area 30  
Wetland Protected Area 18  
Designated Islands 153
- Ramsar wetland: 2 sites in '07
  - ※'06.12: 5 sites designated as Ramsar
    1. Higher Moor, Yongneup of Mt. Daeam
    2. Upo Wetland
    3. Suncheon Bay
    4. Mulyeongari-oreum
    5. Jangdo Island High Moor

## Clear Criteria & Better Mgmt

- Clear Criteria to make boundary and designate protected area
  - ※ Ecological value and socio-economic factors affecting ecosystem
  - ※ Public participation and systematic criteria for rational decision-making
- Revision of Institutional Mechanism for Protected Area: Review on different alternative
  - ※ Lack of follow-up actions after designation



# Wetland Conservation



# Nationwide Ecosystem Management

## 3 Ecological Axes (Baekdudaegan, DMZ, Coastal zone)

- Ecological survey : Baekdudaegan('06-'08), DMZ('07-'11), Island('06-'14)
- Designate protected area, particularly DMZ, based on ecological survey
- Long-term Plan for UNESCO Biosphere Reserve on Baekdudaegan, DMZ

## Ecosystem Conservation for National Parks

- Sabbatical System for more national parks (07.1),  
Natural Resource Monitoring and ecological restoration ('07.1-'07.12)
- Management index development for ecological capacity of individual park ('07.12)



# Natural Resource Management

## Ecological Village Extension

- Public facility construction, incentive and financial support for residents in Ecological Village

※ 2006: 75 villages  
→ 2007: 84 villages



## No Net Loss Policy in Natural Resource Mgmt

- Wetland, Vegetated Area are key target for **No Net Loss** policy
- 2007: feasibility study





# Ecological Restoration

## Institutional and Legal Framework

- Enactment of New Law on restoration
  - ✂ concept, principle, method, project and programme
- Qualified Practitioner certified wetland scientist, and College curriculum



## Master Plan for Ecological Restoration

- Ecological Forum consisted of experts, NGO and land manager ('07.1~12)



## Sufficient Funding for Ecological Restoration

- Developer-Pay-Principles
- Land developer must pay the cost for ecosystem restoration



# Environmentally-friendly Use on Natural Resources

## Eco-tourism and environmental education

- Certified Eco-Guide Program (25person/yr)
- National eco-tourism Program



## Public awareness and outreach activities

- Conservation Facilities for Natural Environment :  
33 facilities → 46 facilities
- ✕ education, awareness, watching, experience opportunities for residents and visitors



# Reintroduction of Endangered Species

## National Park Agency

### Recovery project National Park Agency

- Ecological Botanical Garden to protect wild flora (endangered spp.)
  - ※ '2007 Sobaek National Park (*Iris odaesanensis* Y.Lee, etc.)
  - ※ '2007-2013: One garden of each National Park (total 17 gardens)

### Target Species of Each National Park

- Asiatic Black Bear: Jiri National Park, Amur Goral: Worak National Park



# Wildlife protection and illegal hunting

## Establishment of animal rescue center

- '2006, established 6 centers, '2007~'2011, plan to establish 2 centers each year
- 1 animal rescue center of each province, total 16 centers



## Stopping illegal hunting and wildlife trade

- More efforts to stop illegal hunting and wildlife trade
- Law enforcement and education to stop the illegal hunting, possession, trade, and buying

(1yr prison OR \$5,000 fine)

※ Wildlife : 13 endangered spp.  
(Eurasian Otter, Amur Goral, etc) +  
19 generalist spp. (Water deer, Wild boar, etc)

# Biodiversity management

## International Cooperation for Migratory Birds

- Migratory Bird Agreement with China ('07.4.10)

※ '2006: agreement with australia



## Off-site Conservation Institute

- Birds, Mammals, Amphibian, Reptile, Fish and Insects

※ Now, 12 institutes running  
2007: one more 1 institute





# Advanced Natural Resource Management

## Invasive Spp Mgnt

- Monitoring on Invasive spp.
  - Risk Assessment on invasive spp.
- ※ Guideline for “release of wild fauna and flora” ('07.12)

## Living Modified Organisms: Risk Assessment

- Evaluation Criteria and Items on Risk Assessment of LMO ('07.12)

## International Cooperation Global Ecosystem

- '07: cooperation with s.e. Asia
- '07-'11: s. America, Africa,

## Long-Term Ecological Research

- LTER researches (>10yrs studies) on Climate Change and Ecological Process
- ※ Forest, Stream, Wetland, Coastal, Estuary, Island, Wildlife, others