

# Introduction of National Climate Change Adaptation Plan of Korea

2013. 7. 24

Director, Division of Planning and Cooperation  
Korea Adaptation Center for Climate Change

Jeongho Lee



The background of the slide is a composite image. The top half features a blue sky with a grid of lighter blue squares. The bottom half shows a large, detailed image of the Earth (Globe) partially obscured by tall green grass in the foreground. The text is overlaid on the sky and globe areas.

# **I . Background**

## **II. Climate Change Prospects**

### **III. Korea's Climate Change Adaptation Policies**

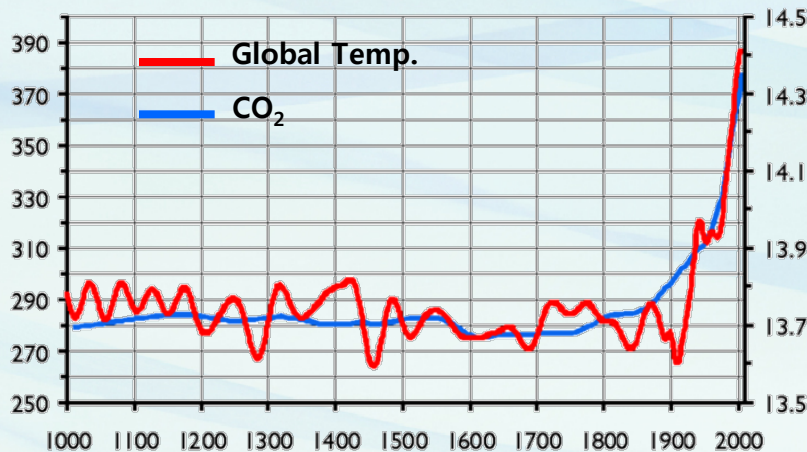


# I . Background



# 1. Background : Climate Change Trends

## GHGs and Global Warming



Annual Increase rate of

GHG concentration : **~ 2ppm**

Global temperature : **+0.74°C/100yrs**

\* Source : IPCC Fourth Assessment Report (AR4)

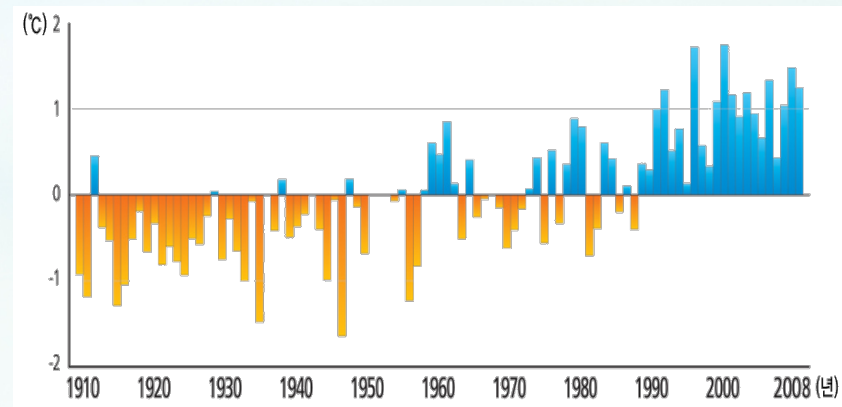
## Trends in Korea

Temp. rise: **+1.8°C/100yrs** (6 major Cities)

Sea-Level rise: **+22cm /40yrs**

Seawater temp. rise: **+1.2~1.6°C/100yrs**

\* Source : Korea Meteorological Administration



▲ Temperature Change of 6 Major Cities in Korea



## 2. Impacts of climate change in Korea (1)

### Health



- ❖ Increase in incidence rate of infectious diseases and heat wave

### Disaster



- ❖ Increase in damages of extreme weather events

### Forest

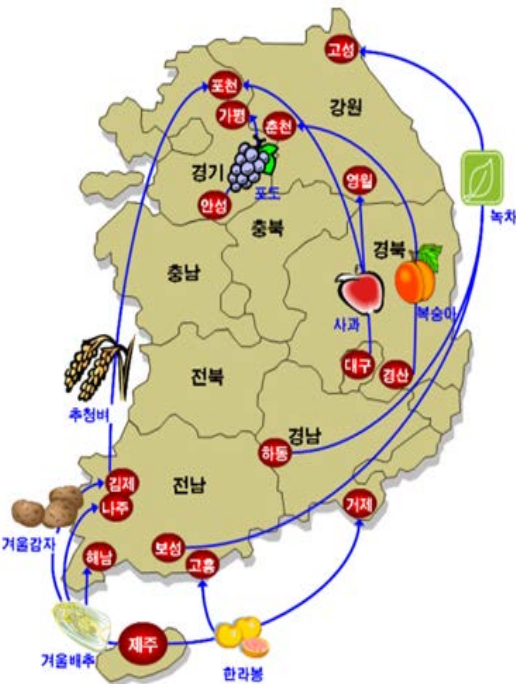


- ❖ Frequent landslides due to heavy rainfalls



## 2. Impacts of climate change in Korea (2)

### Agriculture



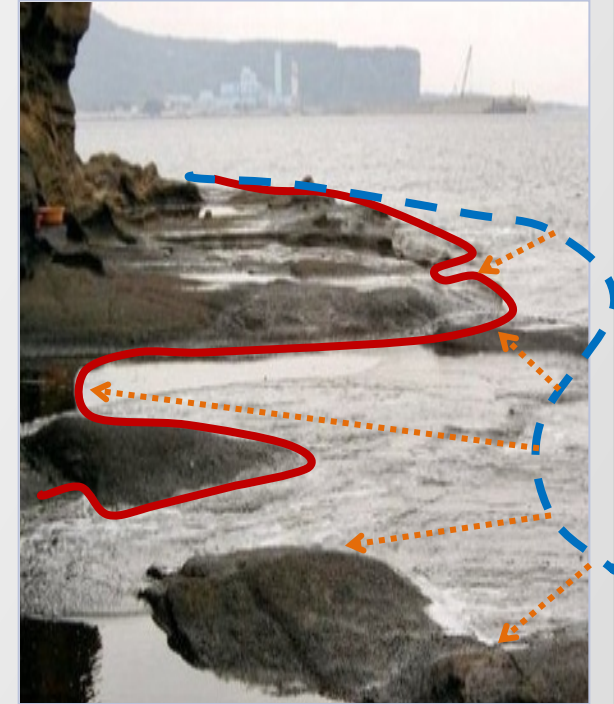
- ❖ A shift in cultivation area

### Ecosystem



- ❖ Increasing vulnerability of subtropical zone and mountain area

### Sea-level rise



- ❖ Sea level rise at Yong-Mu-Ri, Jeju: 22cm over the past 43 years (Global mean=8cm)

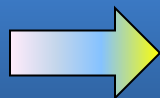




## II. Climate Change Prospects

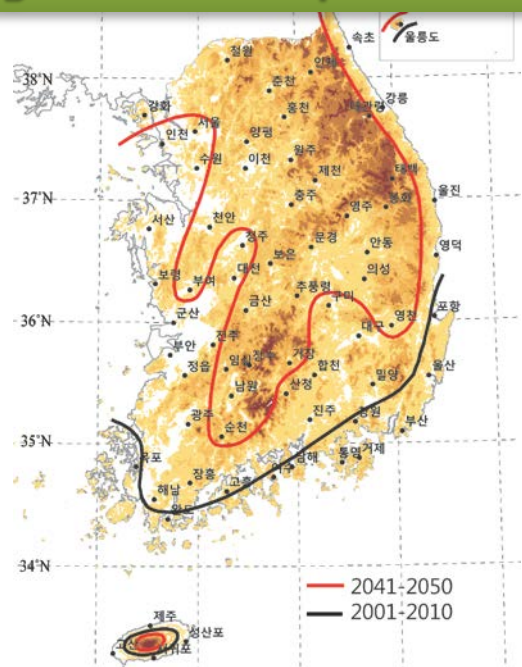
# 1. Future prospects (1)

<Past>  
1.8°C increase  
for last 100 years



<Projected by 2050>  
**(New Scenario) +3.2°C**  
※ Old SRES Scenario +2.0°C

## Change into Subtropical Climate



The climate of Seoul will become similar to that of current Busan.

## Change in Length of Season

Spring and summer will get longer, but winter will get shorter.

	1	2	3	4	5	6	7	8	9	10	11	12
'10	winter		spring		summer				autumn			
'50	겨울 (-27일)		봄 (+10일)		여름 (+19일)				가을 (-2일)			

<Change in Length of Season(Seoul)>

In Seoul, Spring will begin in Feb., and Summer will end in Oct.

Winter of Jeju and Ulleung islands  
will be disappeared.



# 1. Future prospects (2)

## Increase of heat wave & tropical night and Sea-level rise

### Heat Wave

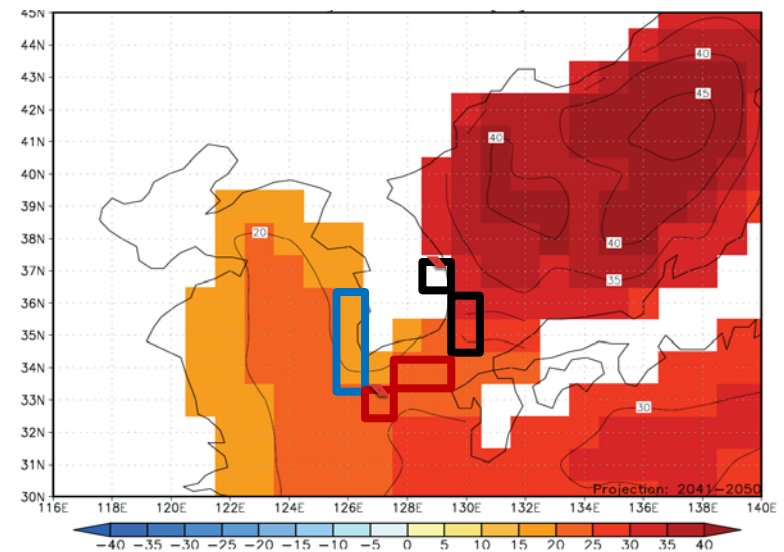


### Tropical Night



### Sea-level

#### A 27cm rise by 2050



<Sea-level rise around the Korean Peninsula>

**Eastern coast 34.9cm ↑,**  
**Southern coast 23.4cm ↑,**  
**Western coast 22.8cm ↑**



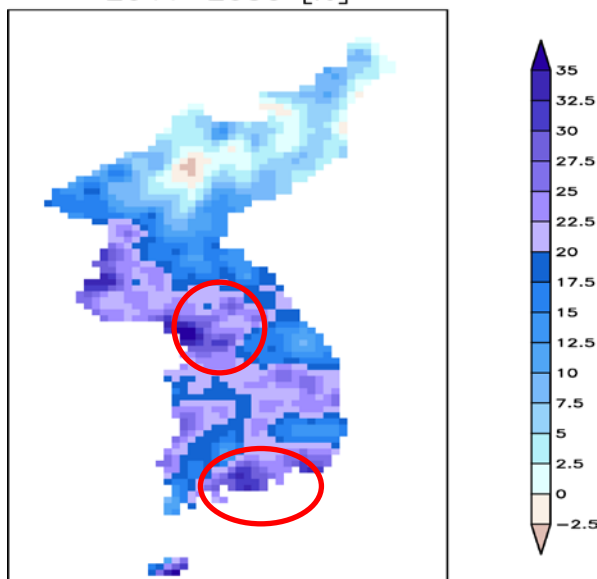
# 1. Future Prospects (3)

Increase of precipitation → Increase of both heavy rain and drought

## Precipitation

15.6% increase by 2050

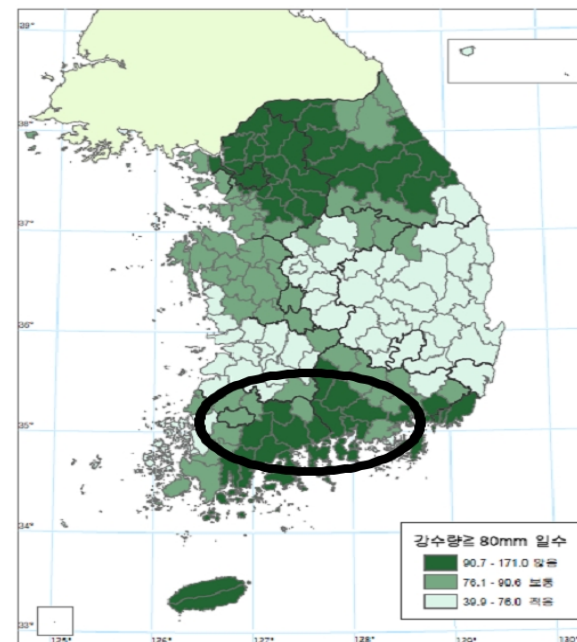
2041-2050 [%]



<Precipitation Map>

**A large increase in precipitation:**  
**Southern coast, Seoul Metropolitan Area**

## Heavy Rain



(Present) Annual average days of localized heavy rain: 2.20

(2010 by RCP 4.5): 6.54(+4.24)

(2010 by RCP 8.5): 6.59(+4.39)



# III. Korea's Climate Change adaptation policies



# 1. National Adaptation Plan(2011~2015)

## Foundation and Characteristics

- Legal foundation: Clause 4, § 48 of the **Framework Act on Low Carbon, Green Growth** and § 38 of its implementing ordinances
- First legal National Adaptation Plan on April 4<sup>th</sup> of 2010
- A master plan to establish detailed action plans for national & local governments
- **5 year** rolling plan considering uncertainty of climate change impacts

### Governmental Level Committee

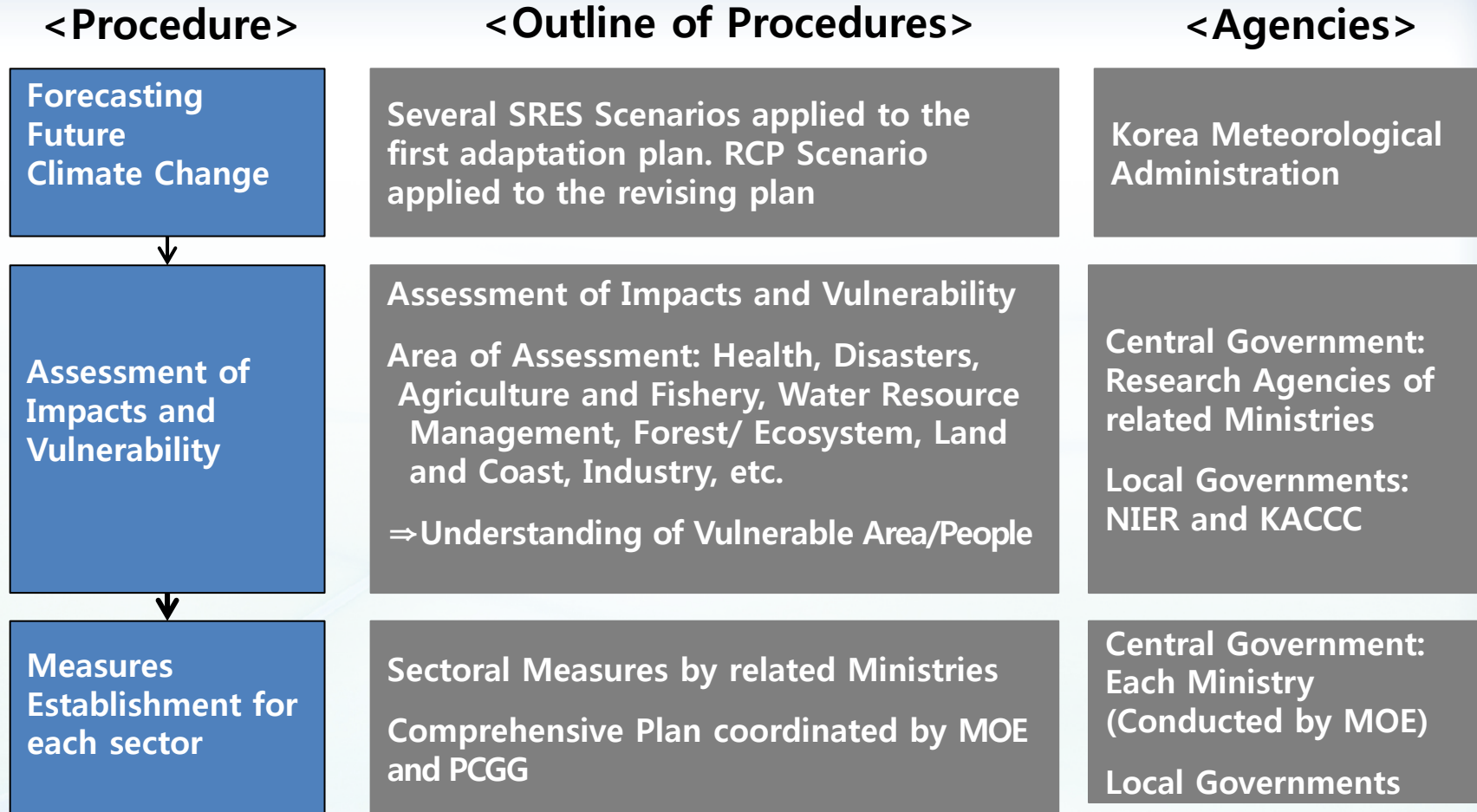
Chairperson : Head of environment policy department

### Climate Change Adaptation Committee



# 1. National Adaptation Plan(2011~2015)

## Procedure for establishing adaptation plan



MOE: Ministry of Environment , PCGG: Presidential Committee of Green Growth,  
NIER: National Institute of Environment Research



## 2. Major Directions (1)

### Consistent Responding System from Forecast to Recovery

#### Constructing a Consistent System Based on New C.C. Scenario

- Reflecting the outcome of new climate change scenario(12.9)
- Constructing('13) and Enhancing(~'16) an 「Integrated Climate Change Information Support System」

#### Constructing a Safety Infrastructure

- Improving city disaster management infrastructure to prevent from landslides and floods, and establishing an unified disaster prevention guideline
- Improving DB management, providing shelters and operating 'Safety Care Service' for vulnerable groups to heat wave

#### Constructing a Prompt Recovery System

- Assessing emergency medical care needs and providing a tailored medical care in the event of climate disaster

## 2. Major Directions (2)

# Expansion of Adaptation Framework to all sectors

### Expanding to Local Level

- Establishing local climate change adaptation implementation plans
  - '12: 16 Metropolitan Cities and provinces, '13~'15: Community-level governments

### Expanding to Private Sector

- Adopting an **Evaluation System to Assess Risks and Adaptation Capacity of Climate Change**, starting from public organizations ('12)
- Developing and disseminating **climate change risk management evaluation framework** ('12)

### Establishing Global Partnership

- Sharing the result of study for outlook of other countries' climate change applied by new climate change scenario and adaptation measures.
- Enhancing partnership with IGOs such as UNEP, IPCC, APAN and promoting adaptation ODAs



## 2. Major Directions (3)

### Improving Efficiency with 「Selection and Focus」

#### Supporting and Protecting Vulnerable Regions and Groups

- Constructing the **database of vulnerable regions and groups** based on new C.C. scenario('12.6)
- Establishing the **prevention strategy for vulnerable regions and groups**

#### Implementing according to Priority

- Establishing a **socio-economic infrastructure management strategy** based on impacts studies on sea-level rise
- Expanding **disaster insurances** and supporting **new adaptation business opportunities**
- Establishing a **Food Security Framework** with Analysis on Change in Major Food Production and Map of Appropriate Cultivation Location Considering Climate Change

# 3-1. Sectoral Measures : Health

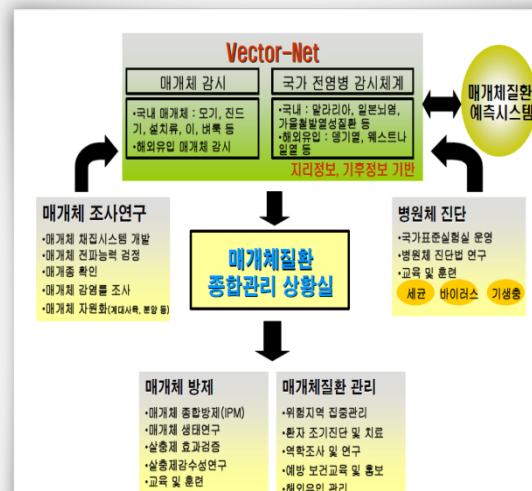
## Protecting people from extreme weather events and infectious diseases

- Heat wave forecast & Alert system
- Emergency management
- Heat wave shelter
- Manual & Guideline



▲ Cooling fog system

- Monitoring and management of infectious diseases
- forecast and warning system



▲ Integrated Management System of Vehicle Diseases

- health care program for climate vulnerable class
- management of hazardous microbe



▲ Researching for the management of hazardous microbe



## 3-2. Sectoral Measures : Agriculture

### Switch to adaptation-based agricultural system and Create new opportunity

- Expansion of monitoring system
- Development of harvest forecast model
- Improvement of agricultural facility for increasing extreme weather events



▲ Farm –product Monitoring using app. offered by K.T of Korea

- Development of new species enduring expected climate change
- Change of crops and methods into adaptive ones



▲ modified seeds against climate change

- prevention system for damages from storms, floods, diseases, and pests affecting crops/livestock



▲ Manual of Major Crop Diseases and Pest Control

# 3-3. Sectoral Measures : Water Management

## Building secure water management system from disastrous droughts & floods

- future flood/drought forecast technology
- Formulate a flood prediction map



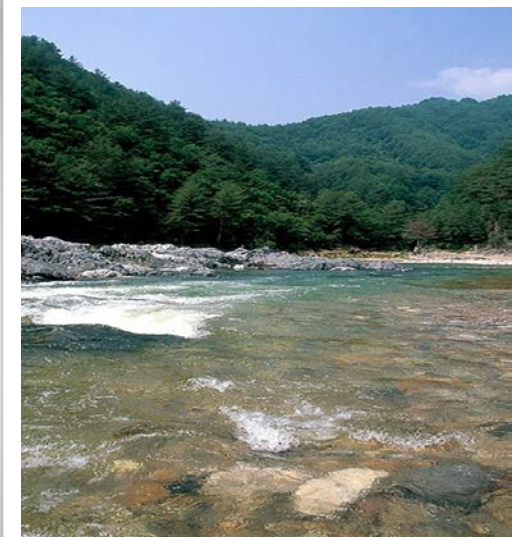
▲ Weather forecast by on line from Korea Meteorological Administration

- fundamental technology for mitigation of water management vulnerability



▲ Water Management Information Networking System (MLTM, 2010)

- water quality management and conservation of streams and lakes



▲ Conservation of Freshwater Ecosystems



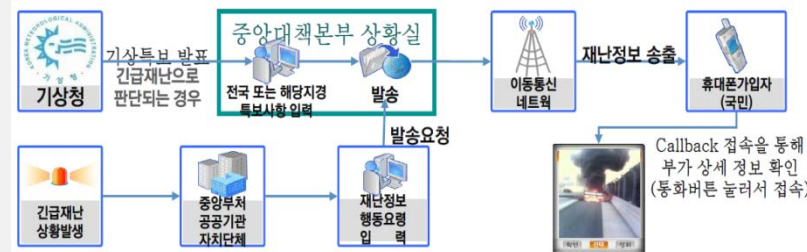
# 3-4. Sectoral Measures : Disaster

## Minimizing damages through improvement of disaster alert system and the construction of necessary infrastructure

- Enhancing vulnerability analyses of climate change and raise the standard of disaster prevention
- Repairing disaster risk facilities



- Establishing a disaster prevention information delivery system
- Improving storage and infiltration facilities to reduce run-off



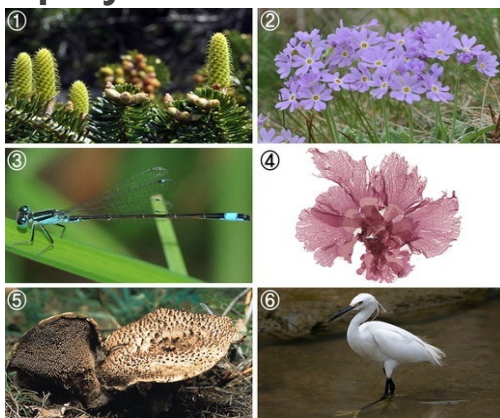
- Establishing a climate-friendly land use and management system
- Improving adaptation capacity of cities
- Establish a Landslide prevention and management system



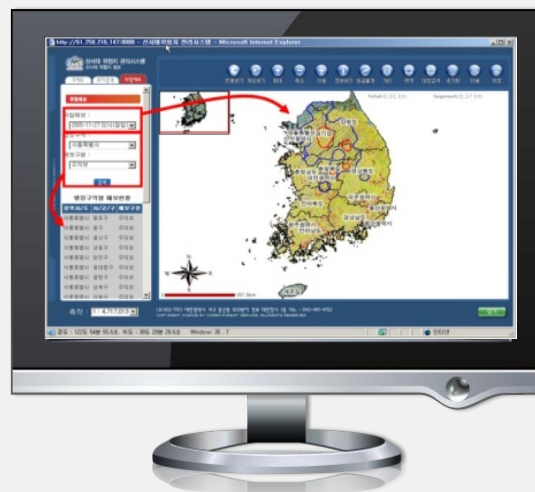
# 3-5. Sectoral Measures : Ecosystem/Forest

## Securing biological diversity through ecosystem conservation and restoration

- Monitor ecosystem and species and assess vulnerability
- Plant species and genetic resources conservation, restoration and advancement of ecosystem network projects

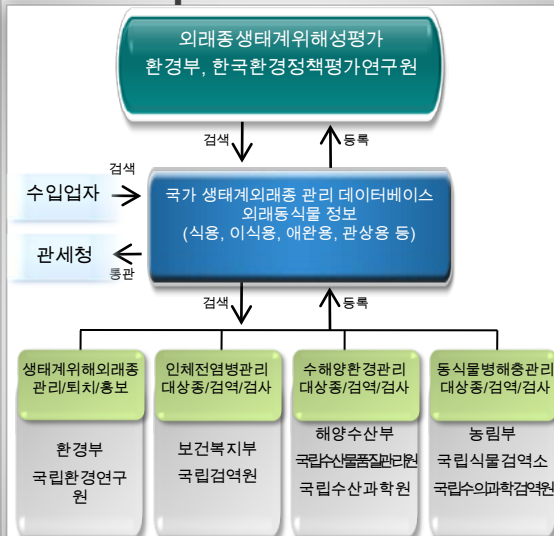


- Improving forestry productivity through regional and species vulnerability assessments



▲ Quantitative Risk Assessment of Landslide System (KFA, 2010)

- Making damage prevention and management plan for alien species and unexpected outbreaks



▲ National Alien Species Integrated Management Plan (Bang et al., 2004)



# 3-6. Sectoral Measures : Land & Coastal Area

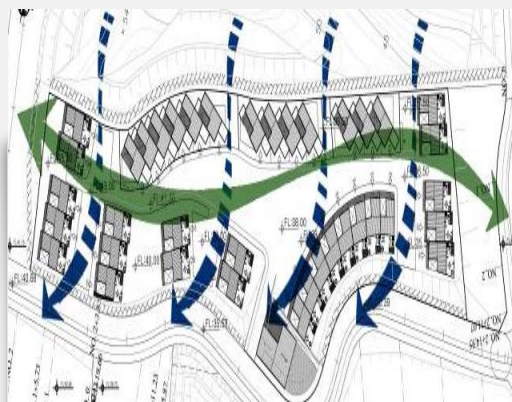
## Reflection of climate change into new development plans and policies Conservation of coastal area from sea-level rising

- Incorporating climate change adaptation into environment impact assessments



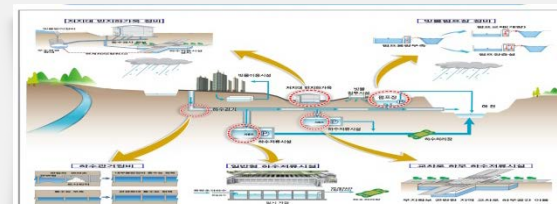
- ▲ plan for construction of green network at Dong-tan new town of Gyeong-gi Province of Korea

- Securing wind flows in downtown area and developing ecological zones



- ▲ Lay out as to construction of Se-jong city in Korea

- Enhancing the forecasting ability in sea-level rise and establishing vulnerability assessment framework in low-lying areas
- Consolidating safety standard for facilities in coastal area
- Flood protection projects in the port and surrounding town



# 3-7. Sectoral Measures : Industry and Energy



Korea Environment Institute

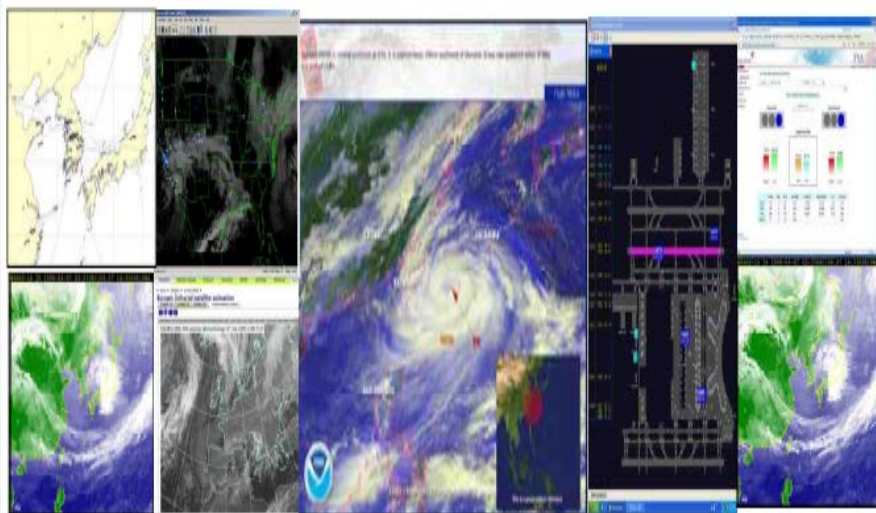


Korea Adaptation Center for Climate Change



## Supporting the capacity building for climate change adaptation aiming at industrial sector

- Introducing a reporting system on climate change adaptation to public corporations
- Establishing and disseminating industrial sector adaptation plans and guidelines for strengthening industries' adaptation capacity
- Developing “new adaptation” businesses and creating new jobs



✈ New flight plan system reflecting weather information by ASIANA AIR in Korea





# Thank You

[www.me.go.kr](http://www.me.go.kr)