

# Climate Change Adaptation Policy and Future Direction in Korea

Young Han Kwon

Korea Adaptation Center for Climate Change (KACCC)  
at  
Korea Environment Institute (KEI)

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 Climate Change in Korea

 National Climate Change Adaptation Master Plan

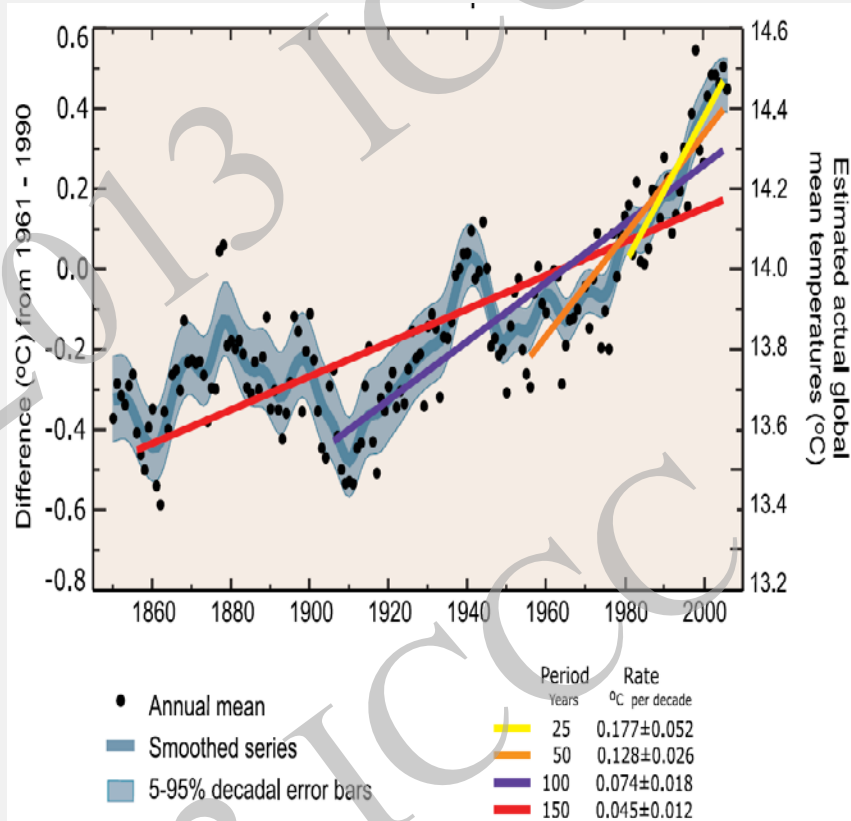
 Future Direction

 KACCC

A wooden signpost with a single arrow pointing right, set in a lush green field. In the background, there are rolling green hills and a line of trees under a clear blue sky. The image is overlaid with a large, semi-transparent watermark that reads '2013 IPCC' diagonally across the center.

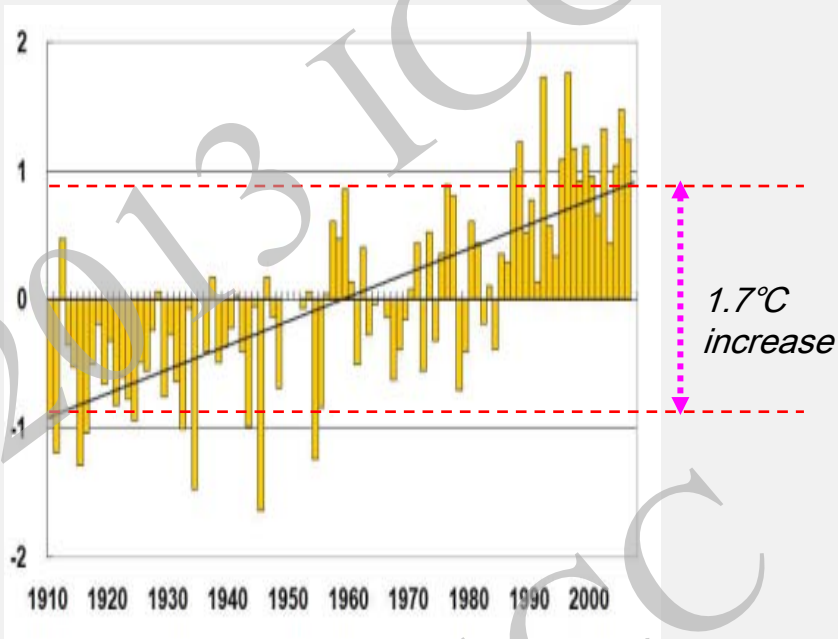
# **I. Climate Change Impacts in Korea**

# I. Global Mean Temperature Rise



❖ 0.74°C up in the past 100 years (land: 0.9°C)

# I. Observed Climate Change in the Korean Peninsula



- ❖ Temperature Increase of Korean 6 major cities: +1.7°C/100yr



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

# I. Current and Expected Sectoral Impacts

## Ecosystem



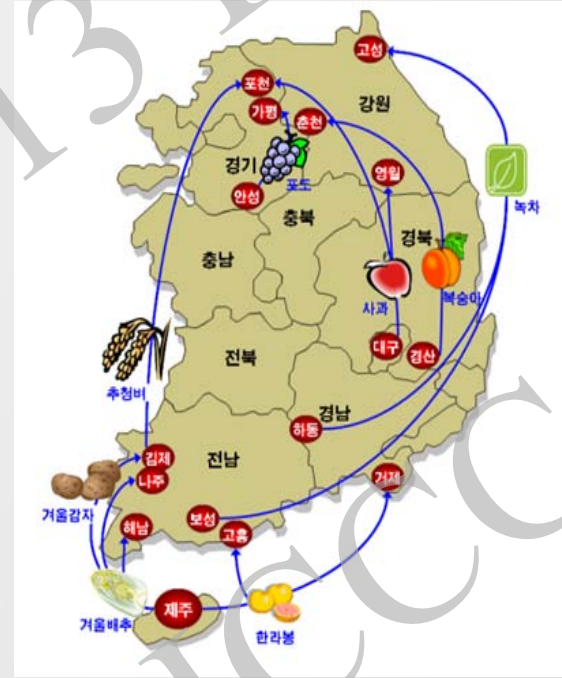
- ❖ More vulnerable over subtropical zone and mountain area

## Forest



- ❖ Frequent land sliding due to heavy rainfall

## Agriculture



- ❖ Cultivation area shifting

# I. Current and Expected Sectoral Impacts

## Health



- ❖ Increase of infectious diseases and heat wave

## Social Infrastructure



- ❖ Highway and bridge damage by heavy rainfall

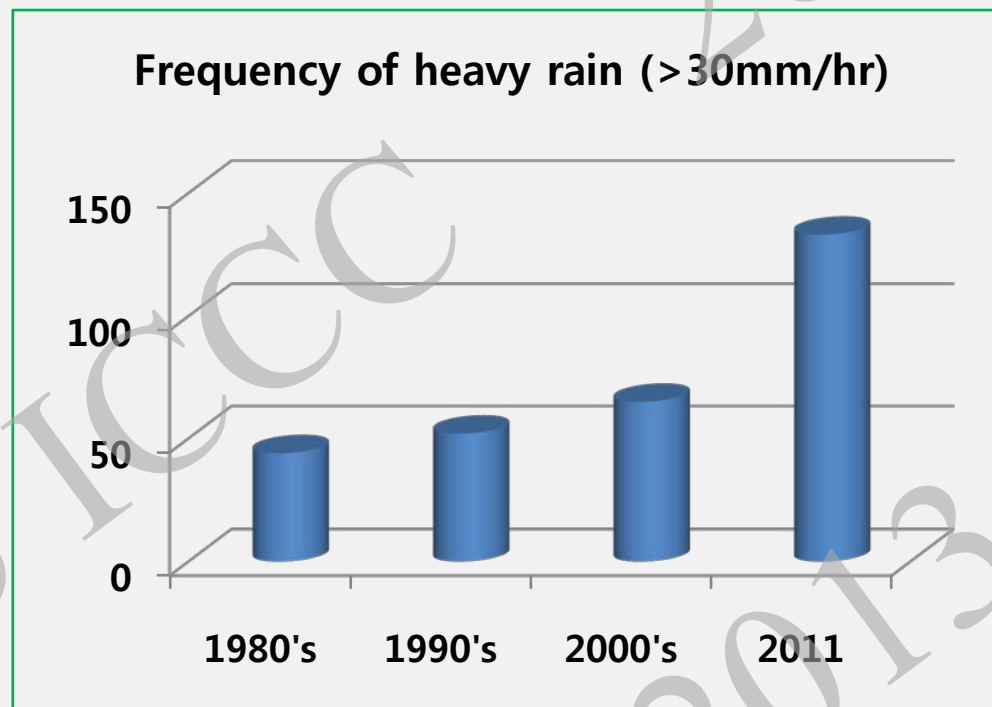
## Disaster



- ❖ Increase of the cost of extreme weather event

# I. Current Extreme Events

Extreme events (heat waves, heavy rain, heavy snow, drought, etc.) were increased in both frequency and intensity : the amount of damage increased more than 3 times compared to 1980's (e.g., the frequency and the amount of damage of global disaster increased 50%).

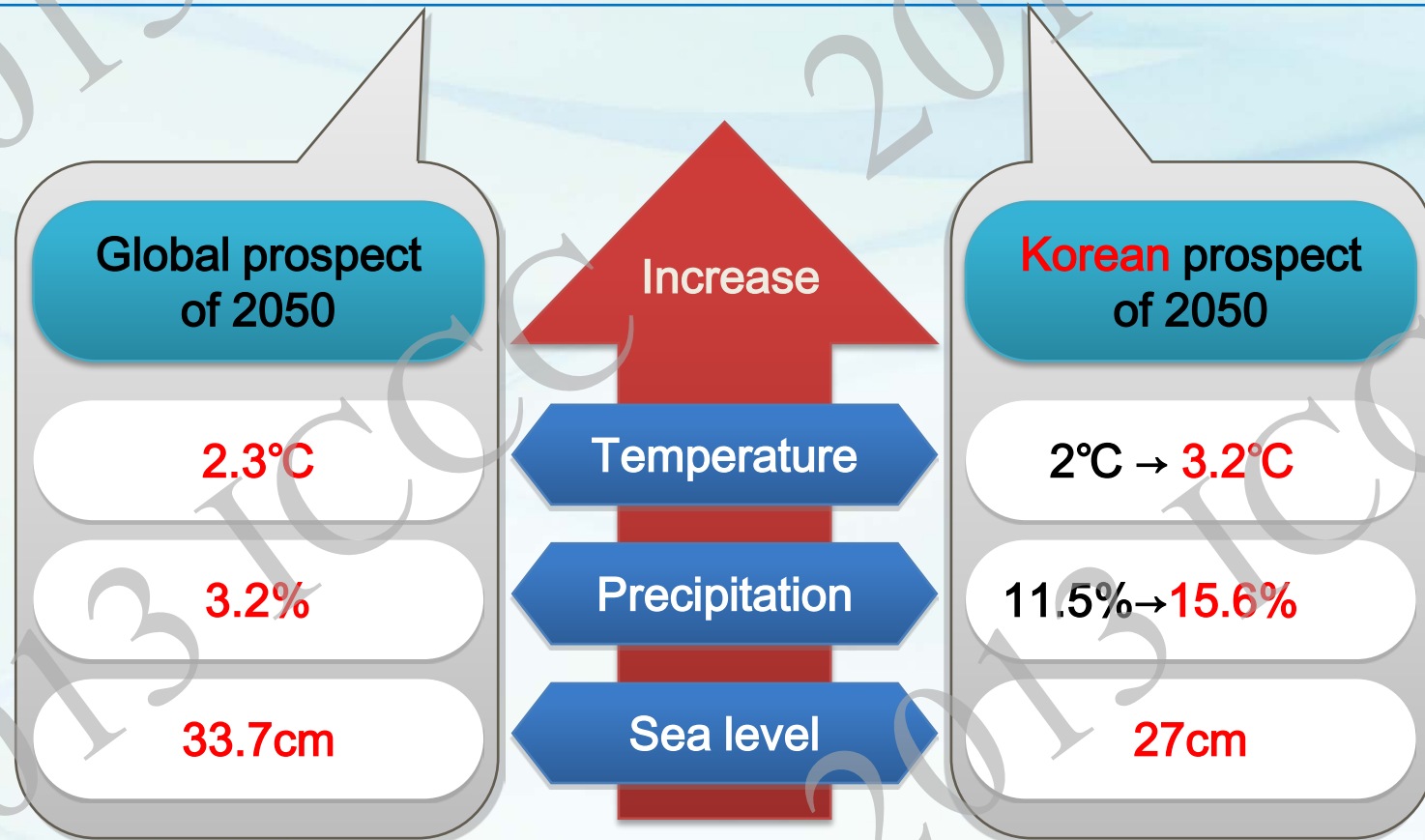




# I. Prospect of Climate Change by RCP Scenarios

**“ Reflected in IPCC AR5 (2013)”**

The temperature in Korea is expected to increase 1.1 °C ~1.5°C until 2020. In the worst case, the 1.8°C increase of temperature that occurred during the past 100 years may happen within 2020.

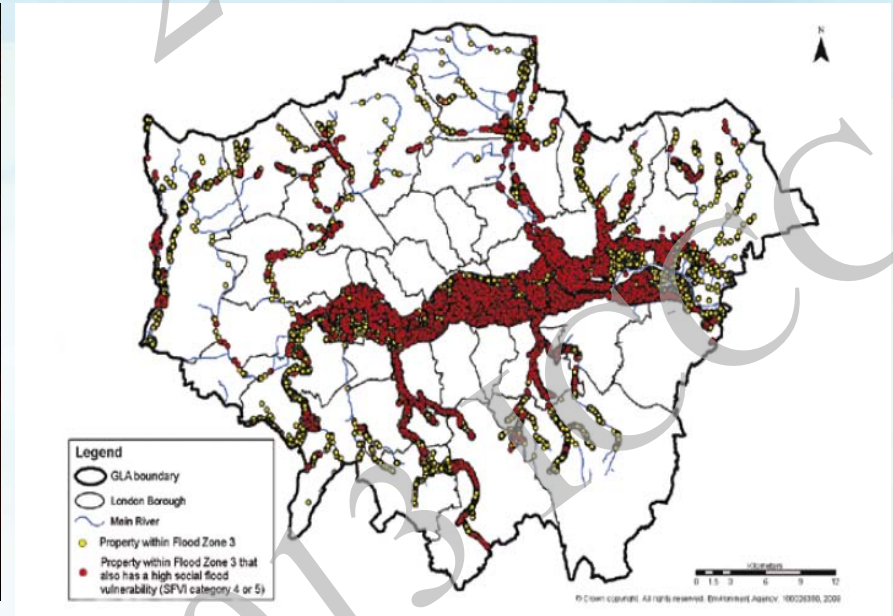


# I. Needs for Climate Change Adaptation

- ❖ Preparing the new climate system in future with adaptive manner
- ❖ Proactive action for the vulnerable from the adverse Climate Change impacts
- ❖ Risk management and plan for vulnerable regions



▲ Vaccination Shot



▲ vulnerability Map

A wooden signpost with a single arrow pointing to the right, set in a lush green field. In the background, there are rolling green hills and a line of trees under a clear blue sky. The image is overlaid with a semi-transparent blue grid and a large, faint watermark that reads "2013 IPCC".

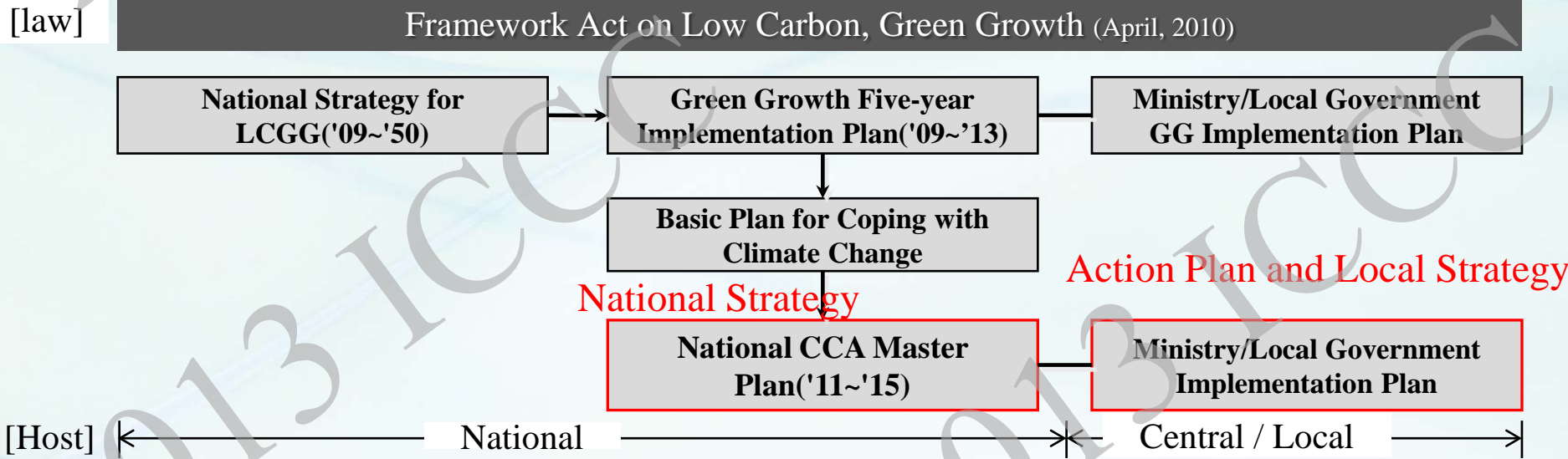
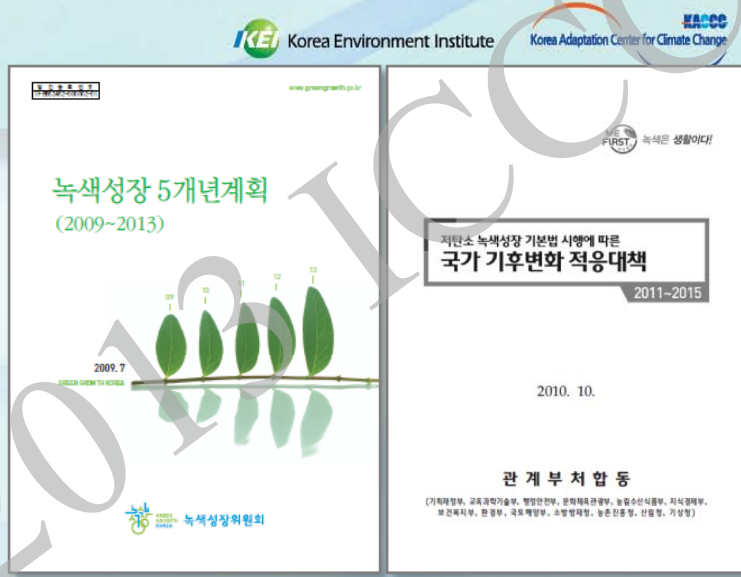
## **II. National Climate Change Adaptation Master Plan**

# II. Backgrounds

- There were definite evidences of climate change and its impacts in every related sector in Korea
  - Temperature increase of 6 major cities was 1.7°C in 100yr
  - Annual precipitation of 6 major cities increased 19% in 100yr
  - Rainfall intensity was doubled than 1970s
  - Sea level rise increased about 22cm in the past 43yr
- Estimates on the impact costs of climate change are **about 2.7 trillions KRW** in 2100yr (MOE, 2011) (1US dollar=1,070 KRW)
- **In 2010**, Korea established the “**Framework Act on Low Carbon, Green Growth and National Adaptation Strategy**” and started to cooperate and communicate with local governments in adaptation.
- **In 2012, 16 regional governments** established their **adaptation plans** and pilot studies of 35 local governments are **in progress to establish in 2013**.

# II. Adaptation Policy

- “Framework Act on Low Carbon, Green Growth” and enforcement ordinance enters into effect on April 14, 2010
- Plans that directly related to CCA are Green Growth Five-year Action Plan, Basic Plan for Coping with Climate Change, National Climate CCA Master Plan



Climate Change Adaptation Policy Framework in Korea (KEI, 2010)

# II. Facilitating factors for Adaptation Policy

- **Introduce Top-down Approach** to cope with Climate Change
  - Korea composed a **National government adaptation committee(NGAC)** with 13 ministries to implement the National Adaptation Strategy(**NAS**)
  - **The Ministry of Environment(MOE)** is in charge of the NAS and supporting local governments
- **Build up Ground for Adaptation** : Policy and Budget
  - In August, 2010, Korea has established the “**National Climate Change Adaptation Master Plan(NCCAMP)**” by “**Framework Act on Low Carbon, Green Growth**” and set up the committee to implement the NCCAMP successfully
  - In 2011, MOE allocated about **4billion(US\$)** in supporting local government adaptation plan
- **Establish a National Task Force Center** for Adaptation
  - MOE launched a national task force for climate change adaptation , **Korea Adaptation Center for Climate Change(KACCC)** in 1st July 2009 at KEI
  - MOE and KACCC are working closely to support successful local adaptation plan

# II. National Climate Change Adaptation Master Plan ('11-15)

## Characteristics of the Plan

- ❖ The 1st legal plan by the Basic Act on Low Carbon, Green Growth('10.4)
- ❖ 13 related ministries were participated
- ❖ Subsequent departmental and local action plans have been prepared
- ❖ Revision based on the new climate change scenario was done in 2012.

## Ministerial Level Committee

### 정부부처협의체



# II. Sectoral Goal and Details

**Monitoring**



**Ecosystem**



**Forest**



- ❖ Providing sound basis of adaptation with the optimized climate change prediction
- ❖ Protecting the vulnerable species and preserving biodiversity
- ❖ Improving the forestry productivity and preventing landslide

**Agriculture**



**Marine/ Fishery**



**Water**



- ❖ Improving the agricultural productivity by management of agricultural and livestock product in an adaptive manner
- ❖ Strengthening competitiveness of marine and fishery by coping with sea level rise and sea surface temperature increase
- ❖ Making water supply more stable and preserving aquatic ecosystem

**Health**



**Disaster**



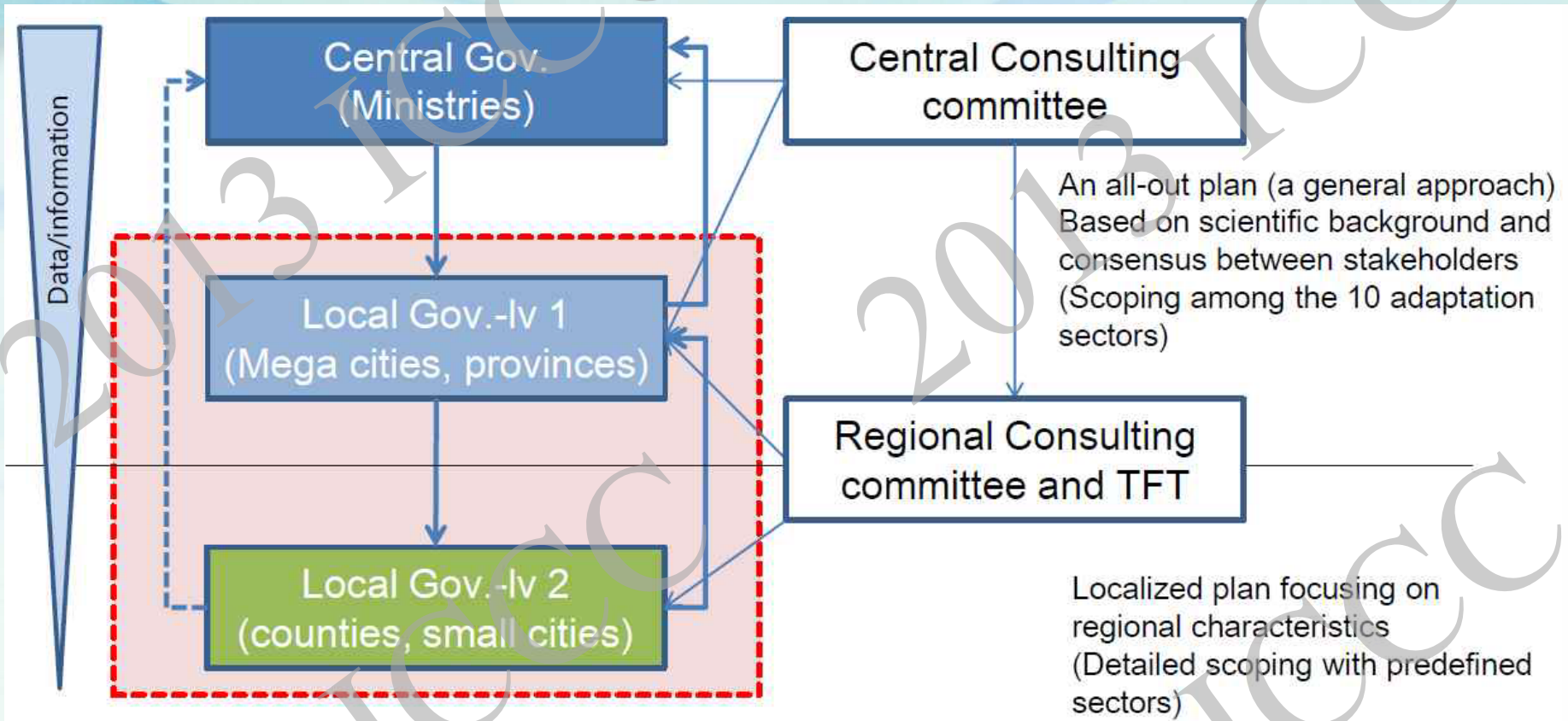
**Adapt**



- ❖ Taking adaptation action based on people's life style by protecting the vulnerable from extreme heat wave and infectious diseases
- ❖ Minimizing damage of citizen by operating early warning system and promoting insurance related in disaster
- ❖ Developing w adaptation business and minimizing damage in energy and other industry



# II. Flow of planning process and challenges in implementation



- **Limits of planning authorities** based on their executive power and capacity
  - Feedback process from/to upper authority (vertical integration)
  - Feedback process from/to related sections (lateral integration)
  - Most dangerous vulnerable sectors are not always ≠ the priority of action
  - Planning ≠ implementation
- Planning and implementing stage consider the **main bodies(By) and receptors(To)**
- Integration between **public and private sectors** in planning and implementation stage

# Definition & Objectives of LAP

Definition of Local Adaptation Plan (LAP) is

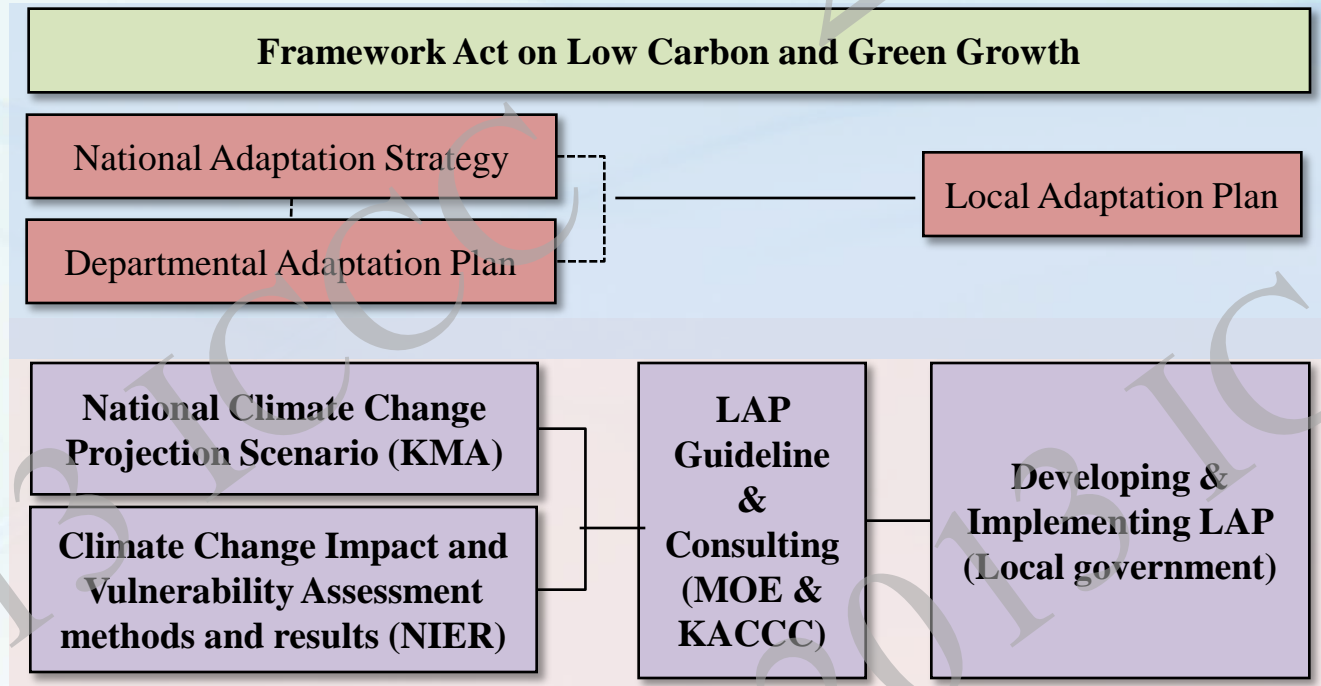
*A practical and proactive plan in order to help local governments improve their resiliency to climate change impact*

- **Objectives** of LAP are....
  - ✓ **Strategies for adapting in** changing climate for local governments with considering **their own situation**
  - ✓ Actions for **practical implementation**
  - ✓ **Chains for linking national adaptation** strategies with local level
  - ✓ Processes for **building adaptation capacity**
  - ✓ Measures for **developing adaptation awareness** and **involving various stakeholders**

# Overall approach: Local-level Adaptation in Korea

## National government drew a picture of how to manage LAP

- Local government promoted LAP with national government(MOE) and related organizations
- Korea Meteorological Administration(KMA), National Institute of Environmental Research(NIER), Korea Adaptation Center for Climate Change(KACCC)



# II. Revision of NCCAMP

NCCAMP: '11~'15

New Climate  
Change Scenario  
Produced by  
KMA(Jan. '12)



Limit of NCCAMP

Overlapped policies

Little consideration  
for vulnerable ppl.

Absence of impacts  
and vulnerable  
assessment

No prioritization of  
policies



For more science-based and efficient/effective  
NCCAMP

A wooden signpost made of horizontal planks is mounted on a vertical post, pointing to the right. The signpost is in the foreground on the left side of the image. The background consists of a vast, green field of tall grass or crops, extending to a line of trees and rolling hills under a clear blue sky. The overall scene is bright and open, suggesting a rural or natural setting.

## III. Future Direction

# III. New Policy and Research Direction

## New Policy Direction for Adaptation

- The **bottom-up approach** should be further introduced focusing on the private sectors and vulnerable social groups.
- The **adaptive capacity to extreme climate change impacts** should be enhanced.
- Climate change adaptation should be **mainstreamed in national security and national resource management**.
- A **new business opportunity** induced by climate change should be discovered and nurtured.

## Reinforcement of Adaptation Researches

- **R&D on adaptation** should be reinforced for more effective and efficient policies.
- An **integrated climate change adaptation information supporting system** should be developed.
- Further **researches on risk management strategies** responding to climate change should be conducted.
- **Cooperative researches and projects** with national and international adaptation organizations should be enhanced.

# III. International Cooperation Activities

## Leap forward to bridge developed and undeveloped countries

- Contribution to improvement of adaptation capacity of Korea and the international society
  - Korea joined the Development Assistance Committee (DAC) of OECD in 2010
  - Green ODA will be increased up to 30% of the total ODA
  - International cooperation on climate change adaptation have increased domestically

## Needs from international community

- Adaptation has become more important in **UNFCCC**. **APAN** also expands the supports for developing countries.
- A secretariat of **GCF** in Korea will be operated in 2013.

## Needs from developing countries

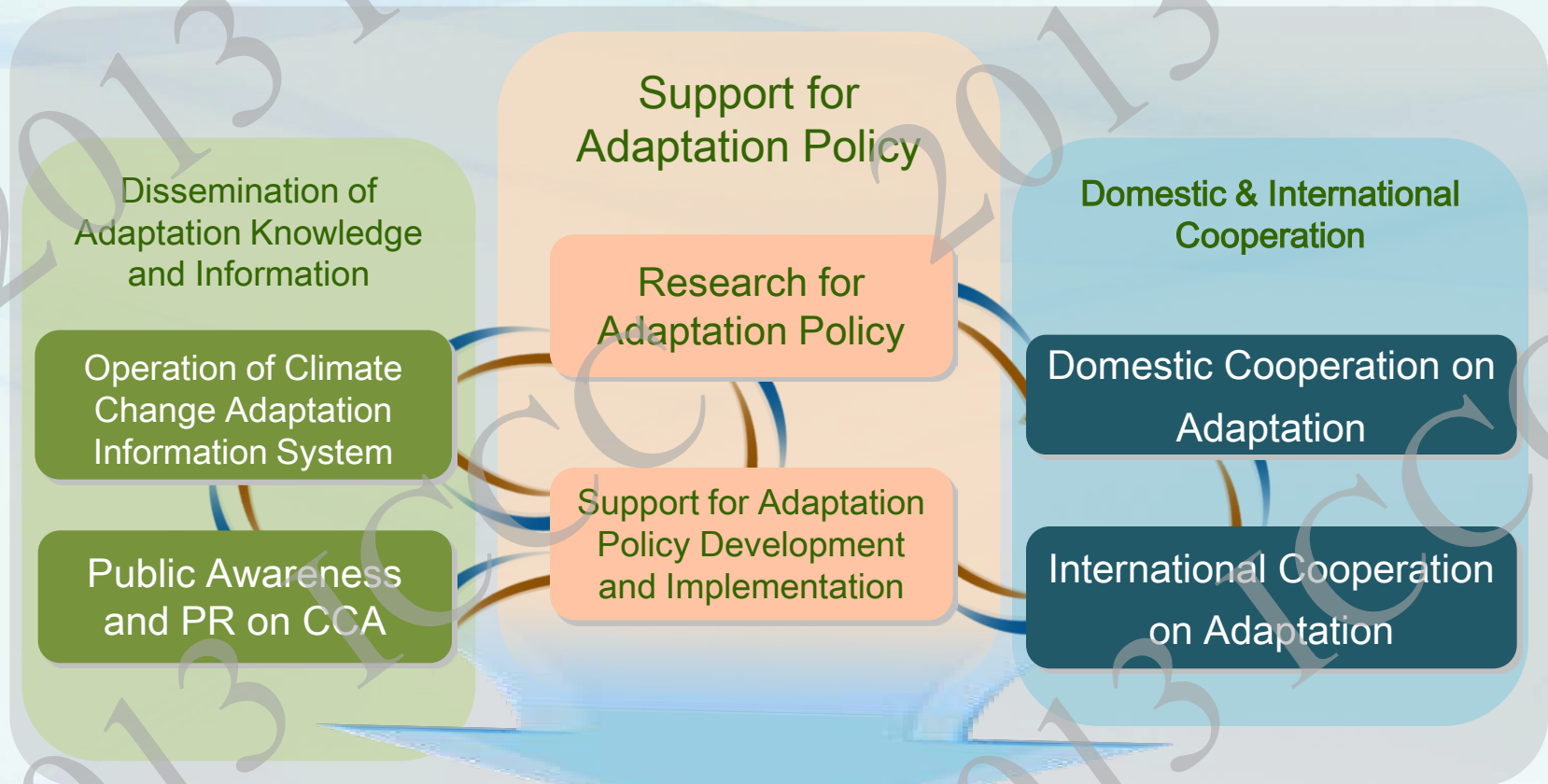
- Most developing countries are vulnerable to climate change so that cooperation needs in **primary industries** and **risk management**.
- Adaptation is most urgent, but only a few counties have adaptation strategies and capacity to adapt.

# **IV. Korea Adaptation Center for Climate Change**



# IV. Korea Adaptation Center for Climate Change

## Main Task of KACCC



**Leading Policy Development and Research  
for Enhancement of National Adaptation Capacity**

# IV. Korea Adaptation Center for Climate Change

## Support for Adaptation Policy

### 01 Support for Adaptation Policy Development and Implementation

#### Support for Development of NCCAMP(2011~2015)

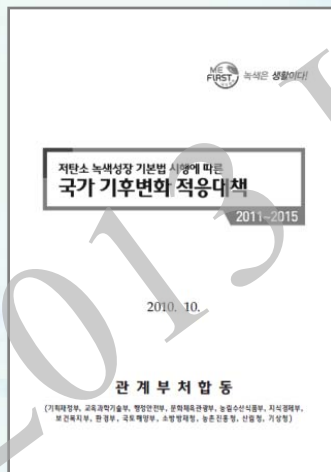
- Facilitated experts' meetings
- Drafted NCCAMP(2011~2015)

#### Support for Local Government's Adaptation

- Developed a manual for local adaptation planning
- Offered training and consulting

#### Development of Adaptation Policy Inventory

- Developed an inventory of adaptation related policies
- Evaluated a policy scheme



# IV. Korea Adaptation Center for Climate Change

## Support for Adaptation Policy

### 02 Research for Adaptation Policy

- ❖ Economics of Climate Change in Korea
- ❖ Evaluation of Climate Change Adaptation Policies and Establishment of Climate Change Adaptation Policy Inventory
- ❖ Research to Support Climate Change Adaptation Policy I- A Study on Incorporating Climate Change Adaptation Considerations in Environmental Impact Assessment
- ❖ Research to Support Climate Change Adaptation Policy - A Study on CCA Policy to Improve Legal Framework
- ❖ Research for Seoul's Climate Change Adaptation Strategies

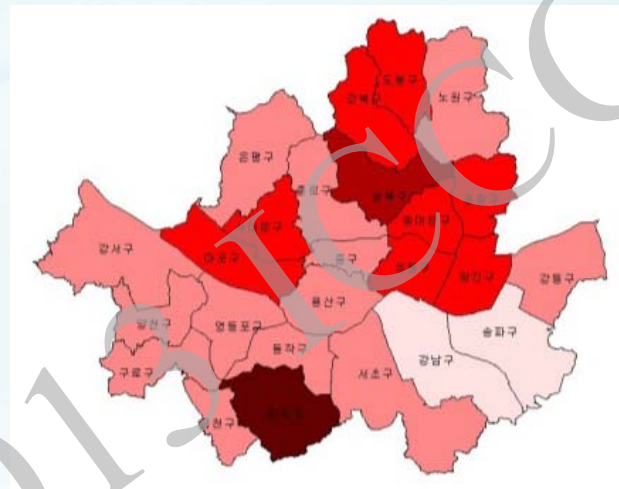
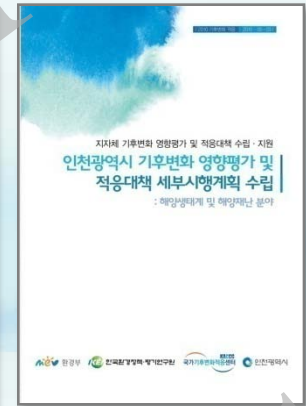
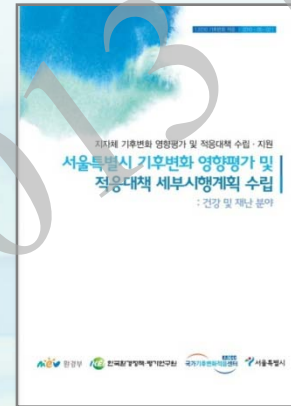
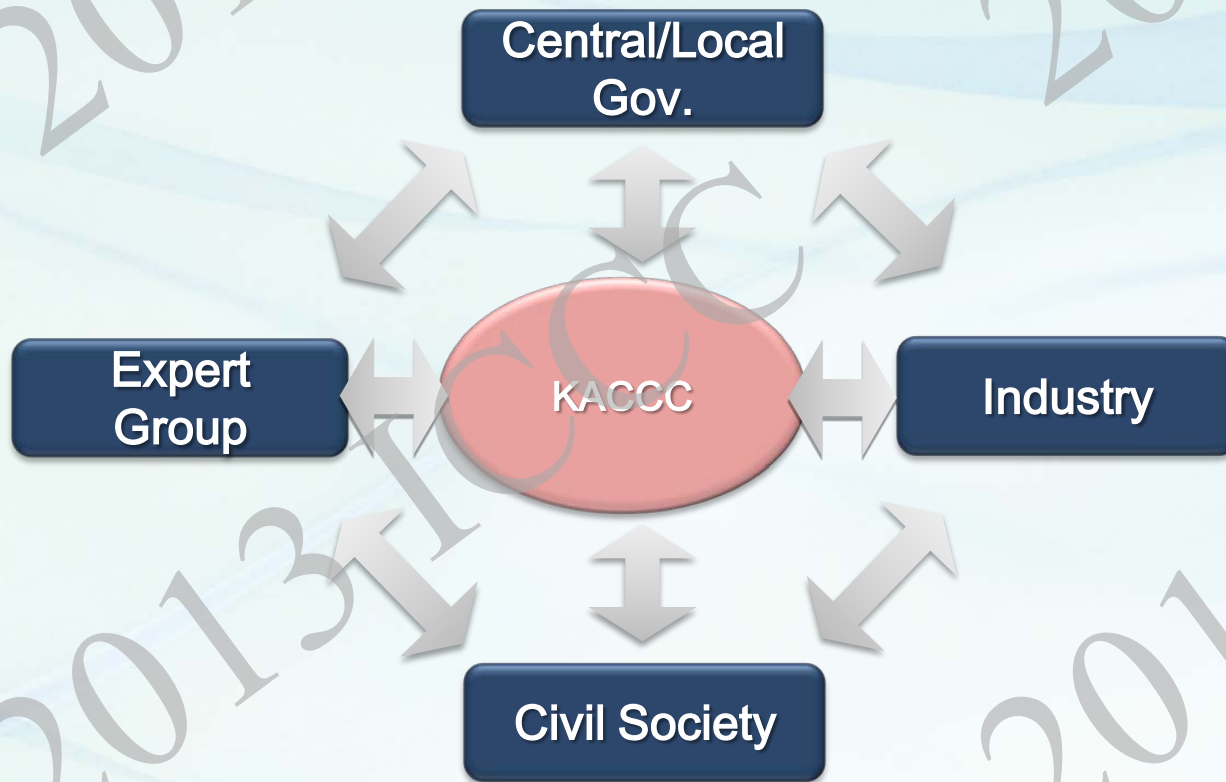


Fig. 50-year Flood Vulnerability Map in Seoul

# IV. Korea Adaptation Center for Climate Change

## Domestic & International Cooperation

### 01 Domestic Cooperation



# IV. Korea Adaptation Center for Climate Change

## Domestic & International Cooperation

### 02 International Cooperation

- International Symposium on Climate Change Adaptation
- Training on Climate Change Adaptation Planning for Asia and the Pacific Countries
- Support for international negotiations (ex, IPCC, UNFCCC)



# IV. Korea Adaptation Center for Climate Change

## Dissemination of Adaptation Knowledge and Information

### 01 Operation of Climate Change Adaptation Information System

#### Climate Change Adaptation Information System

- Climate Change Adaptation Portal
- Climate Change Adaptation Information System



Climate Change Adaptation Portal  
(For General Public)



Climate Change Adaptation Information System  
(For Experts)

# IV. Korea Adaptation Center for Climate Change

## Dissemination of Adaptation Knowledge and Information

### 02 Public Awareness and PR on CCA

Adaptation Newsletter  
(Monthly)

Media Support  
for Adaptation Report

Climate Change  
Adaptation Supporters



**For capacity building against changing climate!**

# Thank You for your attention!

