

Building Adaptation Capacity to Climate Change

- KACCC Supporting Programs for Local Government-

2015.11.??

Korea Adaptation Center for Climate Change
Korea Environment Institute

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IV. 2015 and the Way Forward



Cause of Climate Change

Causes

Increased
Greenhouse
Gas

Increased
amount of
Garbage

Deforestation

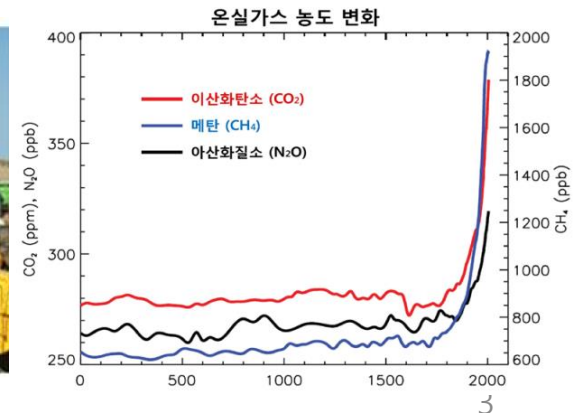
- Due to the increase of concentrated greenhouse gas, the temperature of the globe has highly risen, causing climate change.

- Before Industrialization 280ppm → After Industrialization (2005) 379ppm (30% increase)

- During 1960~2005, the average concentration of CO2 has increased to 1.4ppm/year

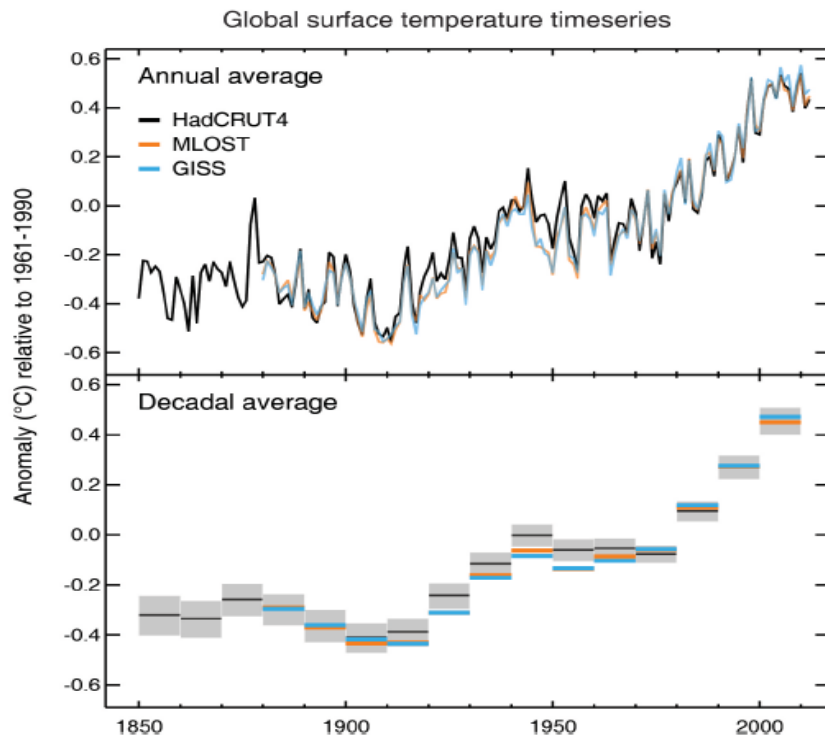
- Methane and other greenhouse gases caused through the process of decomposing garbage.

- The forest has lost its function of naturally absorbing CO2

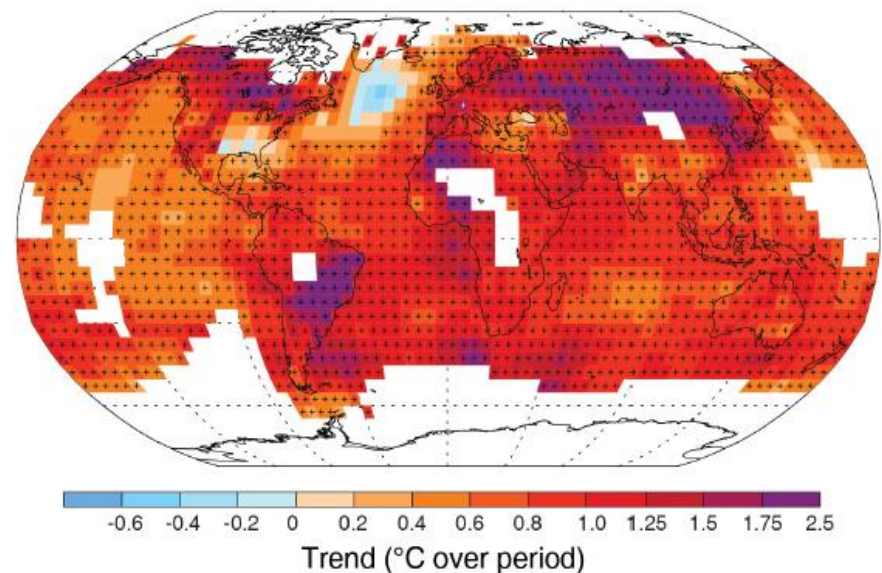


Temperature: Observed Changes

- For the past 133 years, (1880-2012) there was a 0.85°C increase in the global temperature [$0.65\text{--}1.06^{\circ}\text{C}$]



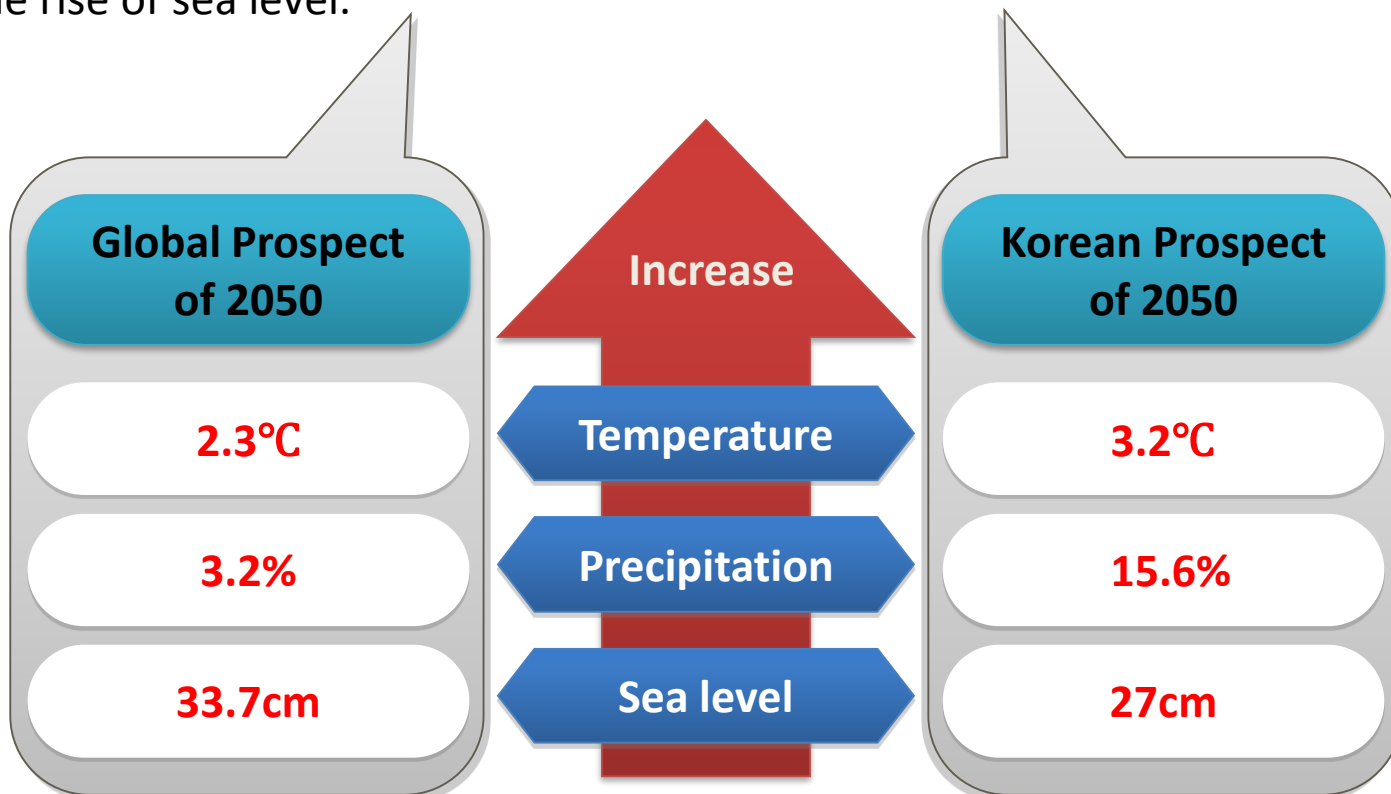
Change in global surface temperature 1901-2012



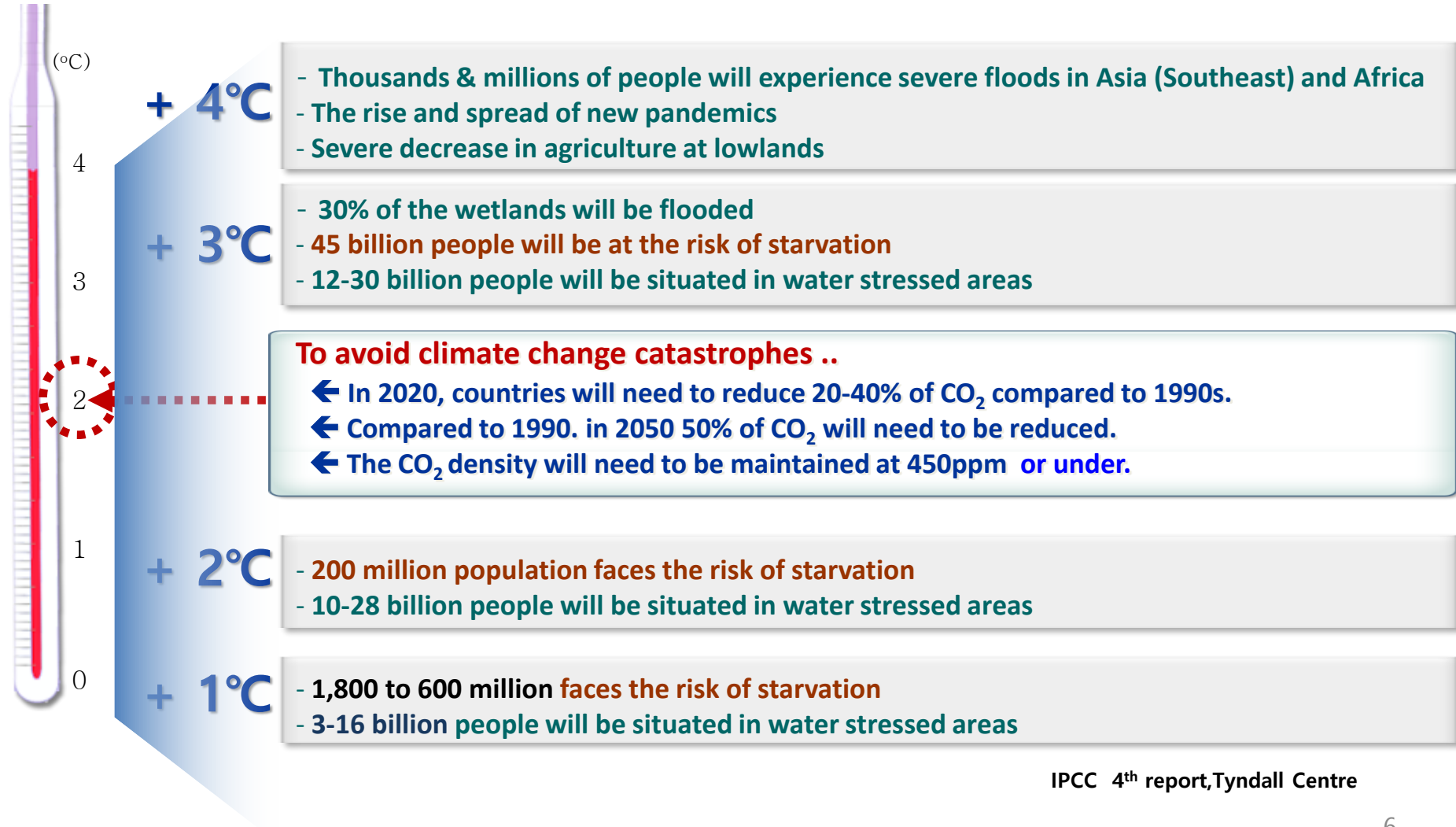
- Temperature: Expectations

“Reflected in IPCC AR5 (2013)”

The temperature in Korea is expected to increase 1.1 °C ~1.5°C until 2020 and approximately 3.2 °C until 2050. This will accompany the increase of precipitation and the rise of sea level.



Diverse Global Impact from the rise of mean temperature



Climate Change Impact on Korea

Business as Usual Scenario

1. Climate Change will be accelerated 3times faster
 - Past century- 1.8°C increase
 - Future century- 5.6°C increase
 - In 70-90 years, the temperature of Pyongyang will be as same as Seogwipo-si. (16.6°C)
2. In the late 21st century extreme weather changes are expected
 - Heatwaves 10.1days → 40.4days
 - Tropical nights 3.8days → 52.1days
 - Heavy Rain 2.3days → 3.2days



Drastic GHG Reduced Scenario

1. Delayed speed of climate change increase
 - Rise of 2.8°C in the next 100 years
2. Precipitation will increase in both cases.
 - Difficulties in predicting the exact amount of precipitation
3. Heatwaves, Tropical nights and extreme weather changes will be highly eased, reducing the amount of GH emissions
 - Heatwaves 10.1days → 17.9days
 - Tropical nights 3.8days → 22.1days

I. Introduction *Climate Change Impact and Adaptation*

Climate Change Impact on Korea

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

I. Introduction

Climate Change Impact and Adaptation

Climate Change Impact on Korea

Agriculture



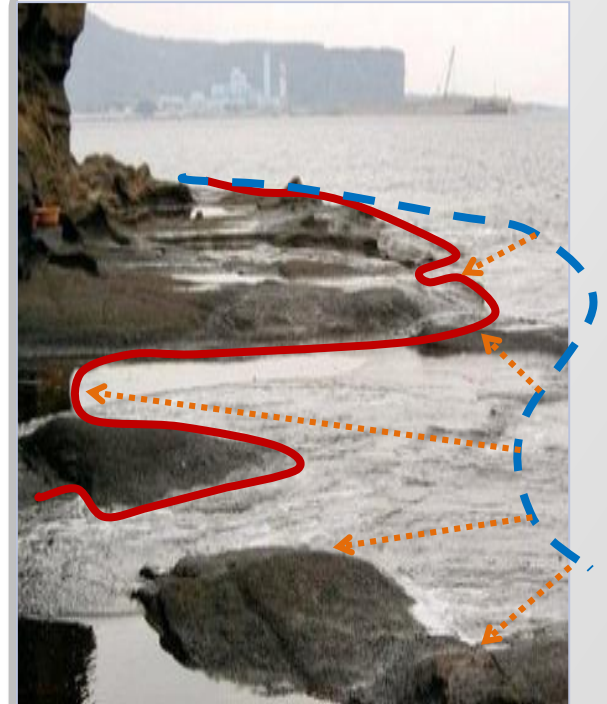
❖ A shift in cultivation area

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)

● Response to climate change

❖ **Mitigation/Adaptation**

- The ways to deal with climate change can be categorized as **Reducing GHG emission** and **Adaptation to climate change**
- Mitigation is a way to reduce or absorb, which is a response to the causes
 - Using renewable Energy, Saving Energy
 - Recycling
- Adaptation is a strategy to minimize the danger from climate change, while maximizing our opportunities, which is a response to impacts
 - Reducing outdoor activities when having heat waves
 - Maintenance of sewage systems

• Response to Climate Change– Adaptation

Climate Change Adaptation ?

- **“Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.”**

(IPCC TAR, 2001)

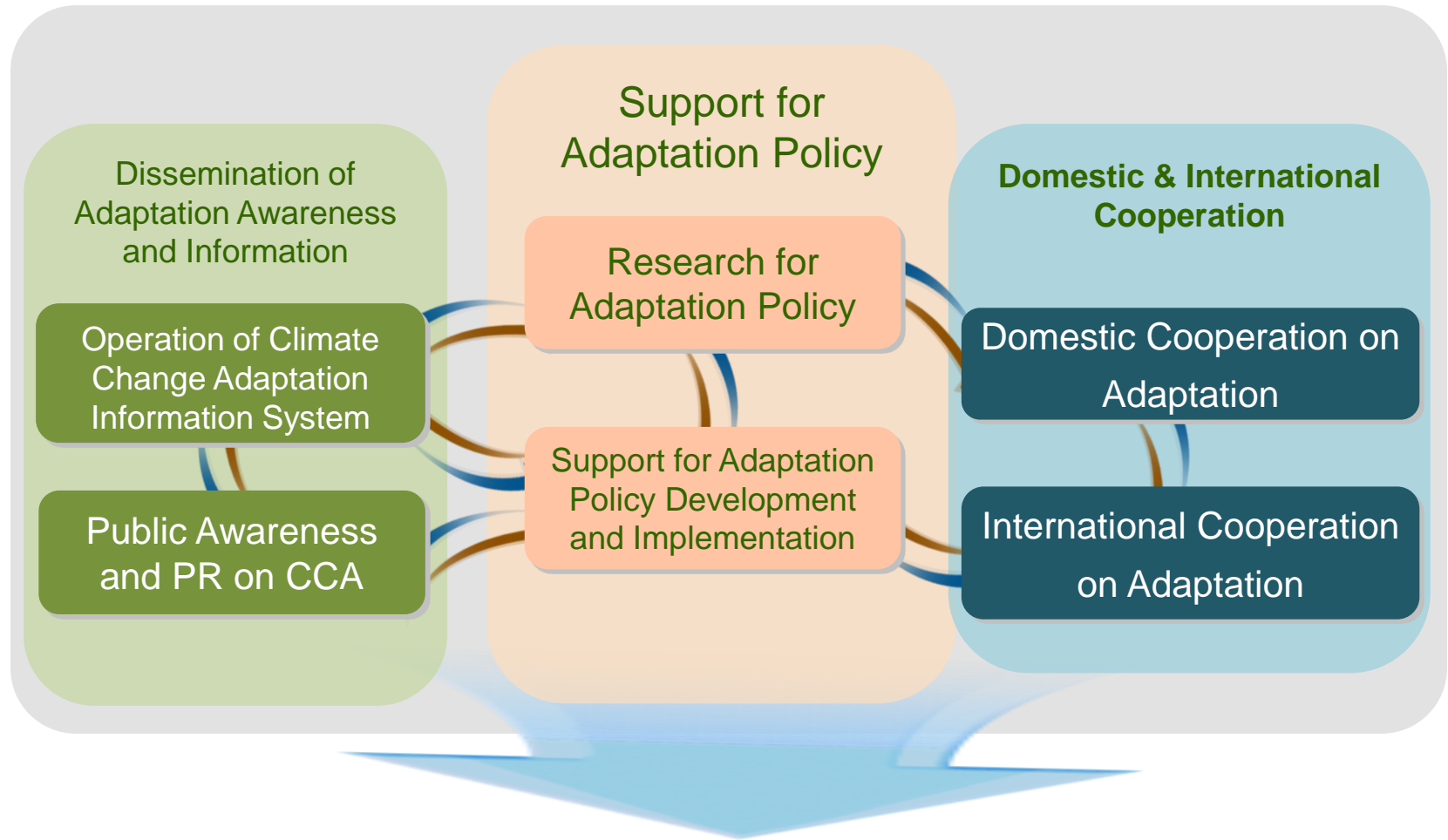
- **Establishment of KACCC**

- KACCC was established on July 1, 2009, based on “the Ministry of Environment Instruction No. 850”
- The items on the operation of KACCC was legalized by “the Clean Air Conservation Act” (Revised on May, 2012)
- The center collaborates closely with the Ministry of Environment

- **Main Roles of KACCC**

- Support development and implementation of CCA policy and plans
- Provide information & enhance awareness on CCA
- Establish national and international networks
- Carry out researches regarding CCA

- Supporting Task of KACCC



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

II. Framework for CCA in Korea

1. 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

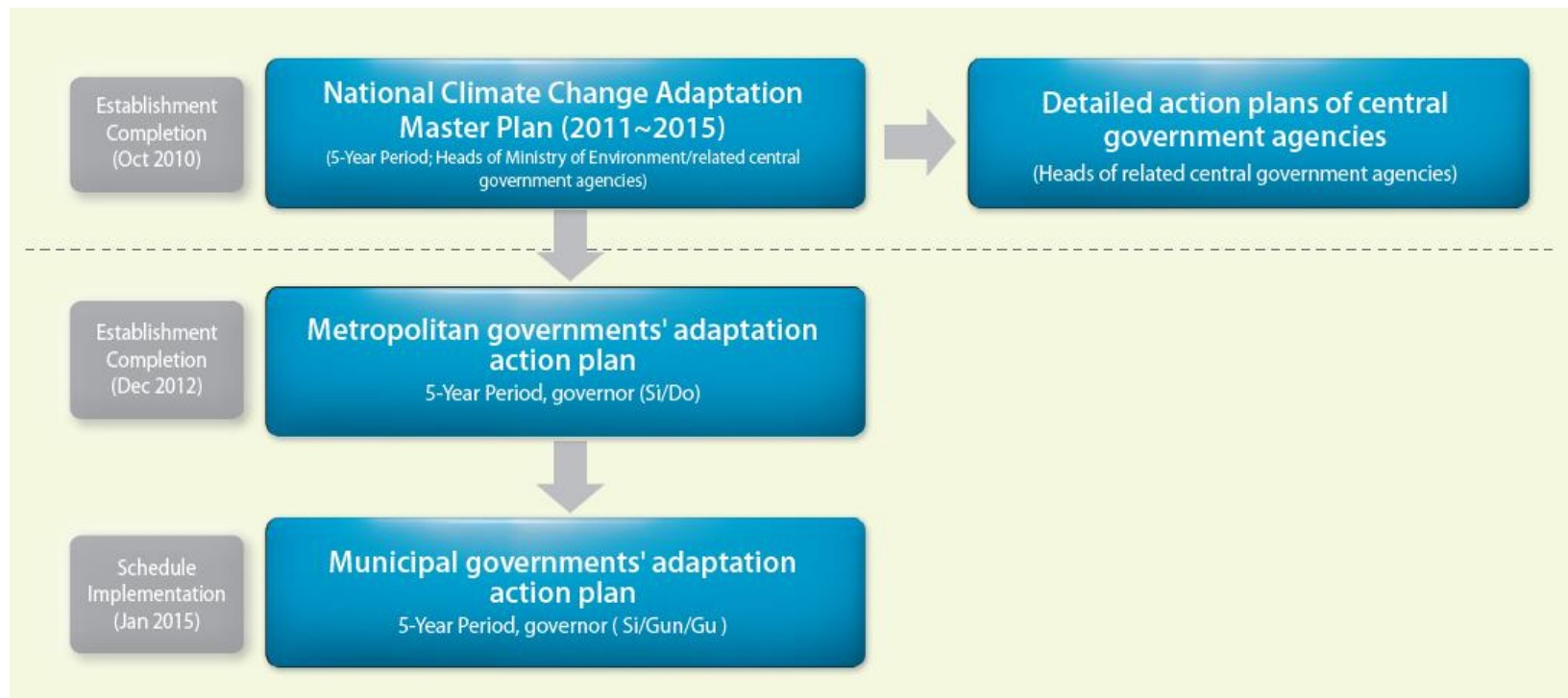


Fig. Climate Change Adaptation Policy Framework in Korea (KEI, 2010)

- National Climate Change Adaptation Master Plan
 - Low Carbon , Green Growth Act Article 48 and 38
 - 1st phase(2011~2015), 5-year rolling plan, 13 related ministries participated
 - 86 major projects for 10 sectors
 - Updated with new RCP scenario in 2012, 9 sectors-67 major projects



- Local Adaptation Action Plan
 - Comprehensive measures including directions and strategies for the changes by climate change and adaption sector-specific action plans.
 - Legal Basis : Article 38 Clause 2 of the 'Enforcement Decree of Framework Act on Low Carbon, Green Growth'
 - Establishing Entities : Regional(Metropolitan Cities/Provinces) and municipal(Si/Gun/Gu) governments
 - Scale : (period) 5-year ; (spatial) administrative district

- **All 17 regional governments have completed LAP and their proceeding to the phase of implementation**
- **By 2012 to 2014, 44 municipal governments have completed LAP and rest 182 municipal gov. are now in planning progress**

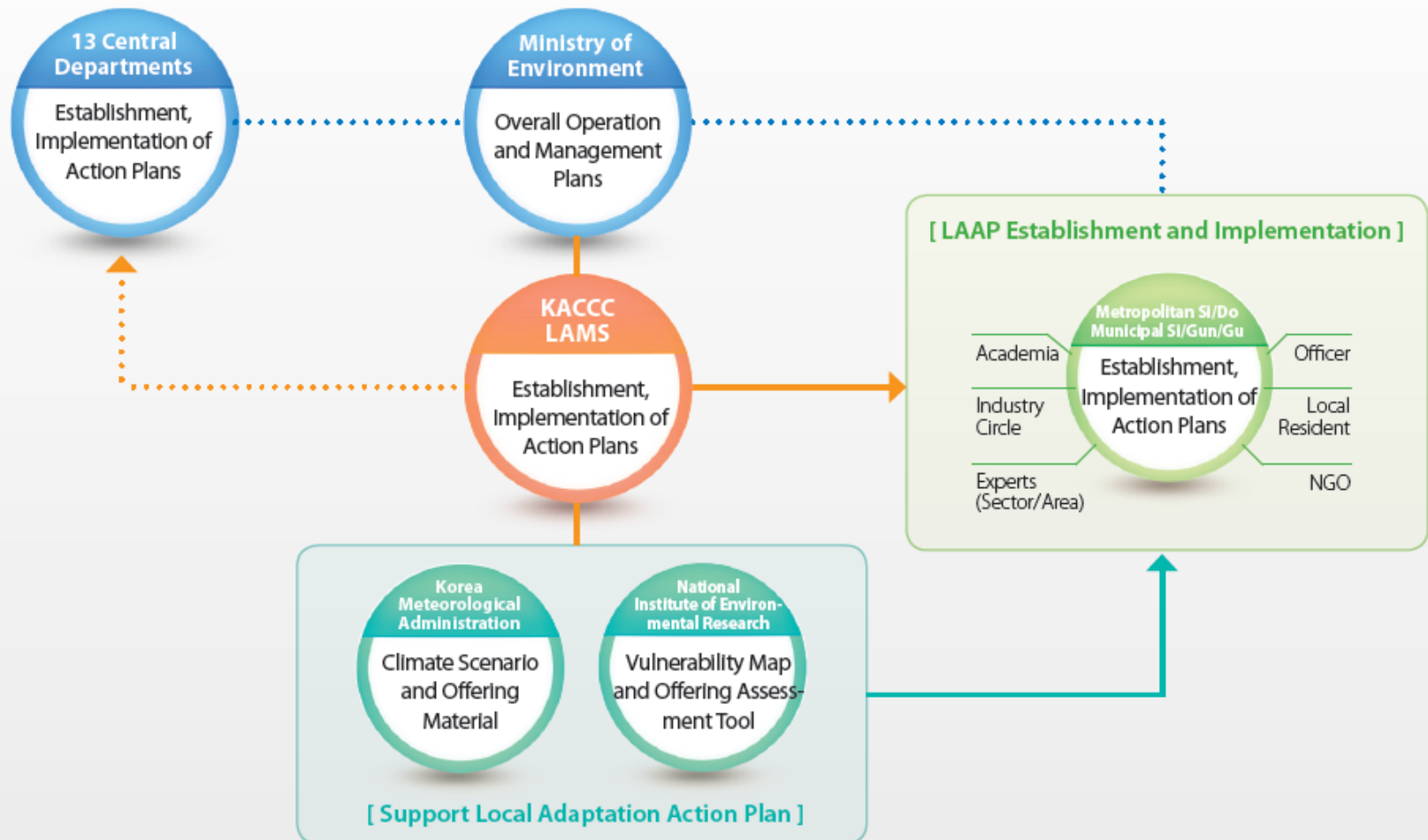
II. Framework for CCA in Korea

3. Facilitating factors

- Introduce Top-down Approach to cope with Climate Change
 - Korea composed a National government adaptation committee with 13 ministries to implement the National Adaptation Strategy
 - 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 by Framework Act on Low Carbon, Green Growth and set up the committee to implement the NCCAMP successfully
 - In 2011, MOE allocated about 4billion(USD) in supporting regional government adaptation plan
 - Setting 35 pilot project for municipal level adaptation planning
- 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

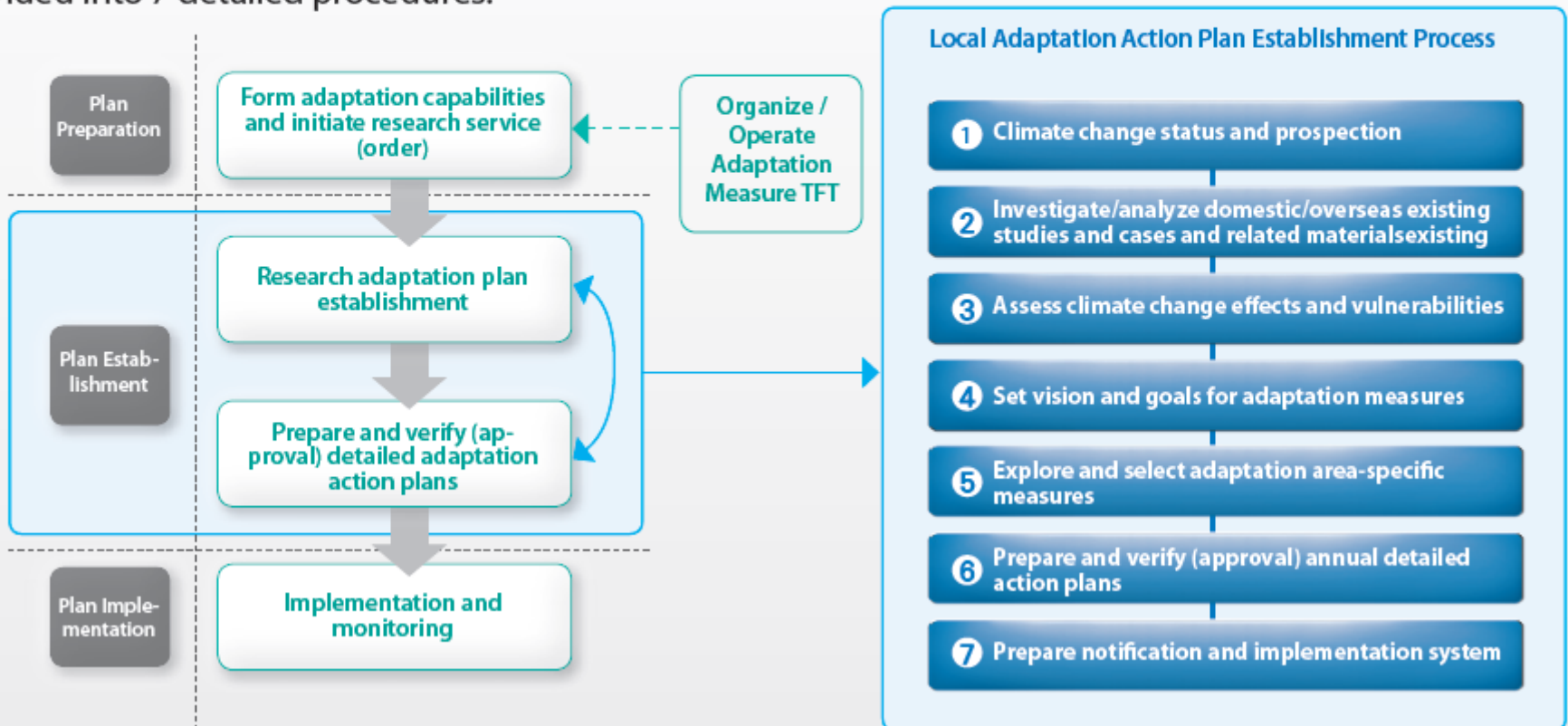
III. Implementing Adaptation Framework *1. Actors in LAP Planning*

- A local government establishes LAAP by commissioning a research project.
- The Ministry of Environment, KACCC LAMS and related agencies support for the planning.



III. Implementing Adaptation Framework 2. Planning process

- The Ministry of Environment and KACCC LAMS have, for maintaining the coherence among LAAPs and smooth progress, provided a procedure for establishing plans which the local governments can adopt in common.
- The procedure is comprised of 3 Phases, which cover Plan Preparation - Establishment - Implementation, or divided into 7 detailed procedures.



III. Implementing Adaptation Framework 3. LAP supporting system

Central government launched supporting programs for LAP with KACCC in 2010~2015

- Systematic and various supporting programs were launched to help local governments to enhance their adaptation knowledge and build adaptation capacity
- Supporting programs are divided into 3 categories and are now in 3 phase

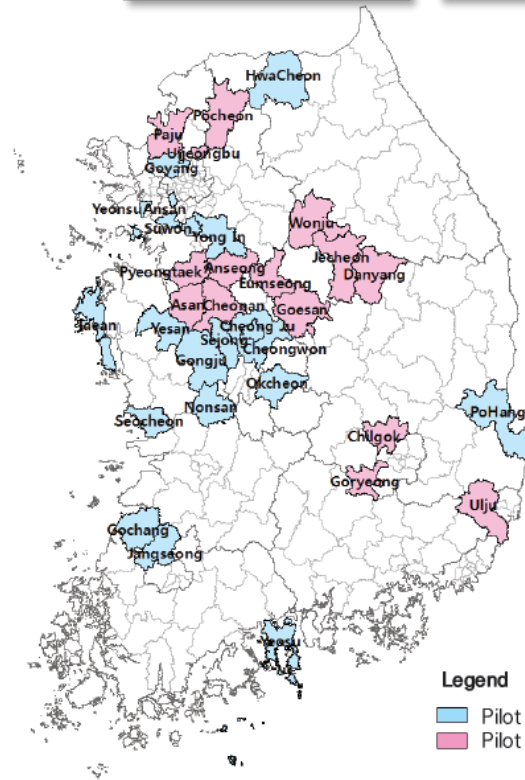
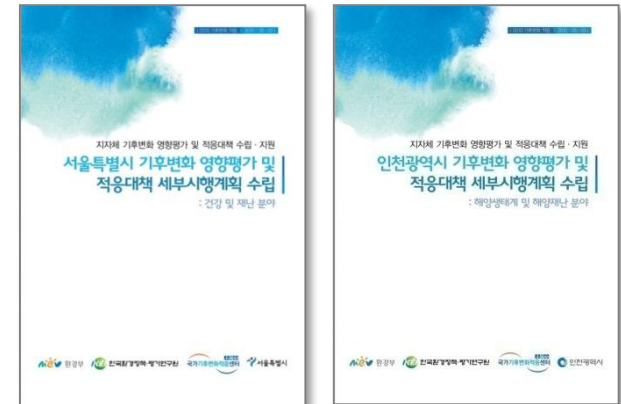
	Guiding & Consulting	Informing	Communicating
	To help local governments prepare for climate change by recommending easy-to understand preparedness based on resources, tools, examples and communication		
Phase 1 (2010)	<ul style="list-style-type: none">• LAP Guideline• LAP Pilot studies	<ul style="list-style-type: none">• Inventory of adaptation policy options (national)	<ul style="list-style-type: none">• Workshops, seminars
Phase 2-1 (2011~2012)	<ul style="list-style-type: none">• LAP Consultation• Manual for adaptation planning in regional level	<ul style="list-style-type: none">• Climate change projection• Vulnerability assessment• Updating inventory (local and other nations)	<ul style="list-style-type: none">• Workshops, seminars, expert forum• On-off line community
Phase 2-2 (2012~2015)	<ul style="list-style-type: none">• LAP Consultation• Guidelines and best practice	<ul style="list-style-type: none">• Climate change projection• Vulnerability assessment• Updating inventory	<ul style="list-style-type: none">• Workshops, training and educating seminars• On-off line community

Fig. Supporting system for LAP by National government

III. Implementing Adaptation Framework 2. Phase I : preparing LAP

1) Pilot projects, showing what is LAP

- Example of adaptation planning at the local level
 - Seoul metropolitan city Adaptation Plan - Health and Hazards
 - Incheon metropolis – Coastal and Sea
- The adaptation action plans of 35 pilot Si/Gun/Gu are established in the same procedure used for Metropolitan Si/do

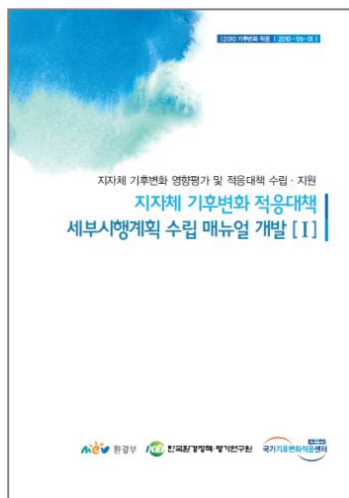


Legend

- Pilot project area (2012)
- Pilot project area (2013)

2) Developing guidelines for LAP

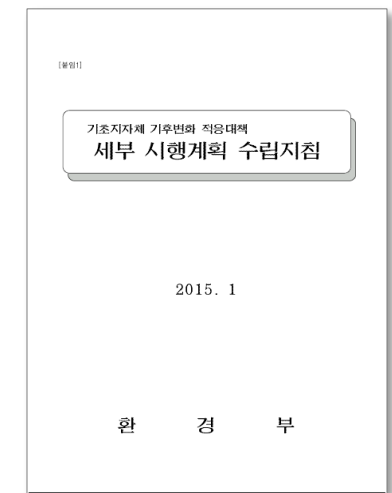
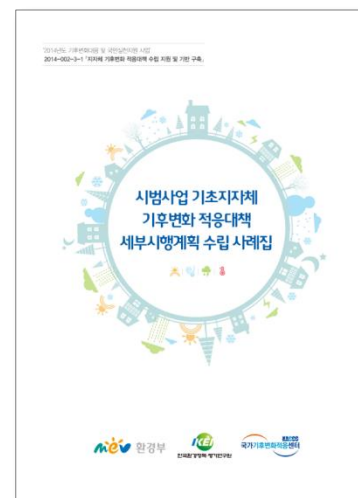
- Guideline for regional level LAP
 - By updating 2009 guideline with experience of 2 pilot studies, local authorities can establish a more realistic and efficient adaptation plan
 - Guidebook begins with introduction(ch1), LAP related concepts and definitions (ch2&3), LAP process and methods(ch4), each sector planning methods(ch5)
- Guideline and best practices for municipal level LAP



[광역지자체용 매뉴얼]



[기초지자체 용 가이드라인 및 사례집]

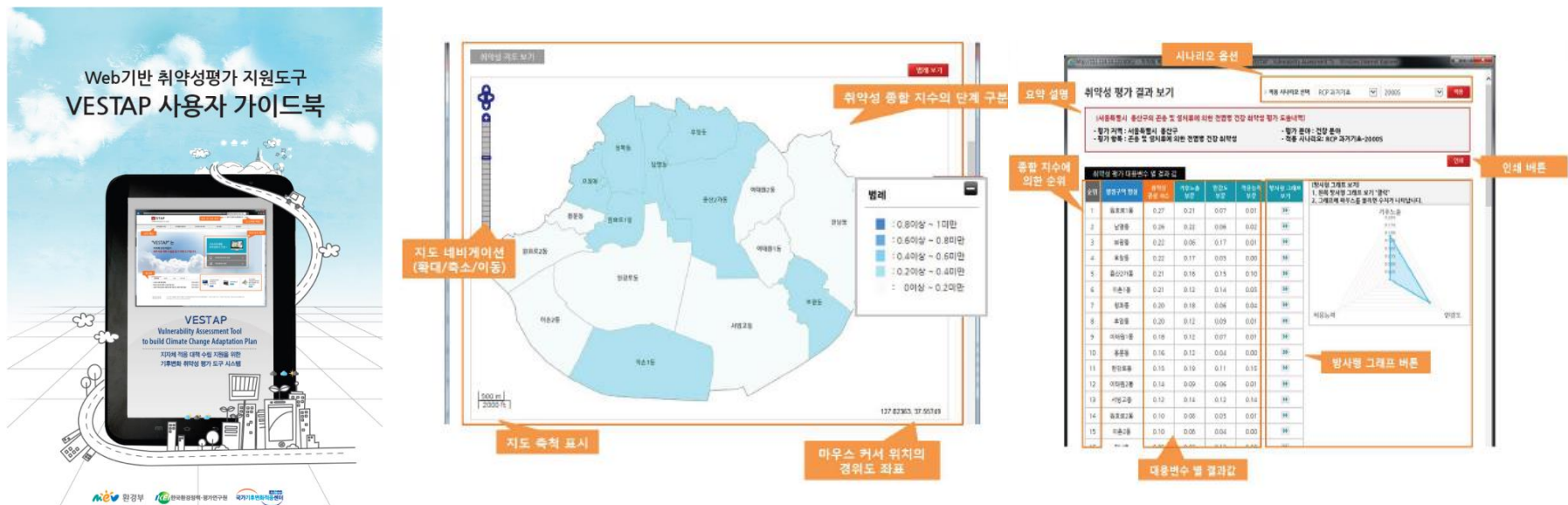


[지자체 세부시행계획 수립지침]

III. Implementing Adaptation Framework 3. Phase II : Developing LAP

3) Vulnerability assessment tools

- To identify the areas and regions that need to be emphasized and managed by comprehensively taking into consideration the potential environmental changes and the response conditions of local governments



[Vulnerability Assessment tool to Build Climate Change Adaption Plan (VESTAP, 2014)]

III. Implementing Adaptation Framework 3. LAP supporting system

4) Management and Supporting LAP

- Since 2010, KEI KACCC(LAMS) has been endeavoring to provide specialized-practical-driven support and operation

Classification	Application Period	Operation / Support Method
Preparing and providing criteria, etc.	<ul style="list-style-type: none">· Prior to start of plan establishment· By plan establishment step, when necessary	<ul style="list-style-type: none">· Preparing and providing related guidelines that reflect the realities and characteristics of each of the levels of metropolitan Si/Do and Si/Gun/Gu (task instructions, adaptation action plan preparation table of contents, forms, etc.)
Cooperation and information-sharing by related agencies	<ul style="list-style-type: none">· Consideration of plan progress status (start/midpoint/finish)	<ul style="list-style-type: none">· Hosting by-period overall workshops; providing related information; increasing sharing of experiences and information among local governments.
Frequent support and operation of plan establishment	<ul style="list-style-type: none">· Throughout plan establishment process (as needed)	<ul style="list-style-type: none">· Studying by period the needed items for establishing adaptation measures and providing relevant information.· Reviewing requested items from basic local governments and providing support as needed.
Operation of adaptation measure consulting team	<ul style="list-style-type: none">· Throughout plan establishment process (as needed)	<ul style="list-style-type: none">· Providing expert resource pool; providing support of training and consulting, customized-consulting (specialized information, etc.)
Monitoring of plan establishment process	<ul style="list-style-type: none">· Throughout plan establishment process	<ul style="list-style-type: none">· Establishing and applying system for monitoring.· Conducting inspections (plan establishment compliance items, schedule management between local governments) via visiting the sites of basic local governments (start, midterm, final reporting sessions, etc.)

III. Implementing Adaptation Framework *3. Phase II : Developing LAP*

Under National Adaptation Strategy KACCC is in charge of supporting and managing local level adaptation planning

- Finding needs and issues during the preparation and development steps
- Discussing and sharing knowledge with province LAP groups by attending meetings and briefings
- Monitoring planning process and linking MOEs with local governments
- Helping 17 regional and 226 municipal governments to have networking and sharing their knowledge and experiences
- Launch advisory group to support various adaptation sector issues



III. Implementing Adaptation Framework 2. Phase II : developing LAP

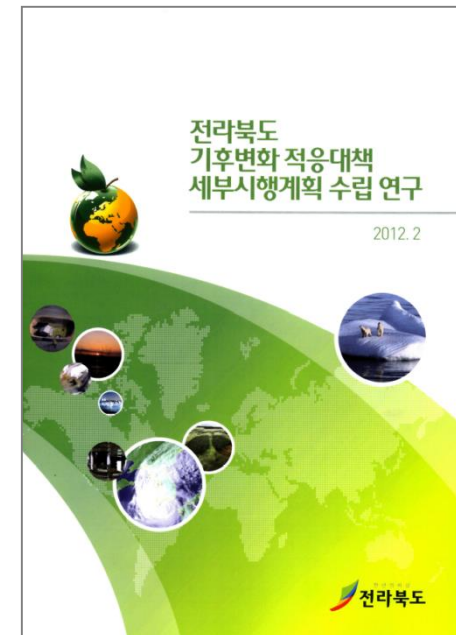
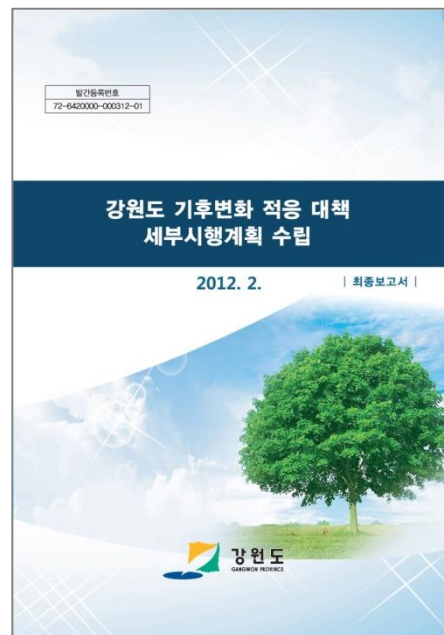
Sharing adaptation knowledge and communicating with stakeholders

- Hold meetings, workshops, seminars to share knowledge, know-how with experts, national/local governors and citizens
 - Share knowledge from who already experienced LAP
 - Find issues in preparing and planning LAP by communicating with local governments with national
- Bring out adaptation issues by publishing news letters



IV. Adaptation Achievements and Lessens *1. Main challenges*

- All 17 regional government developed their “Adaptation Action Plan(12~16)”
- All 226 municipal government will establish LAP in May, 2016
 - Approx. 80% will finish their LAP in December 2015
- Finding the most important sector and policy within local districts to adapt in changing climate
- Having a brief system for locals to implement their adaptation actions



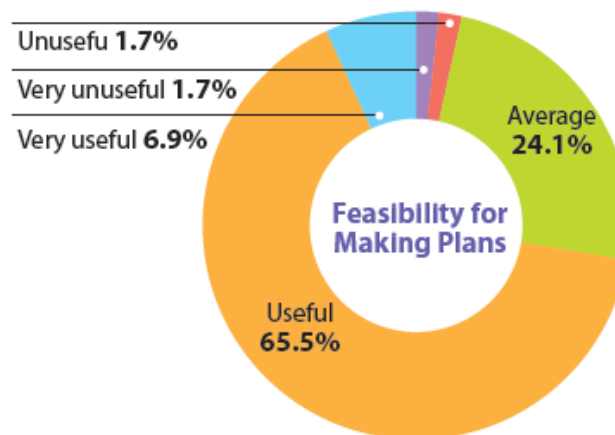
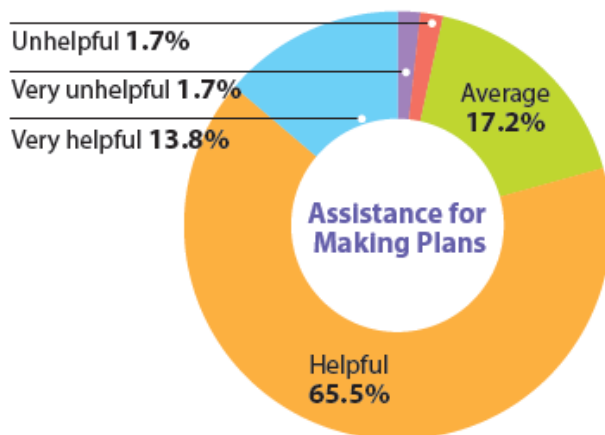
[Adaptation Plans for Municipal governments]

IV. Adaptation Achievements and Lessens *1. Main challenges*

- Finding the needs and issues in each adaptation planning
- Finding and linking specialists in local and local-to-local
- Recognizing the importance and purpose of local adaptation
- Building their adaptation knowledge and enhancing their capacity
 - About 86% says : By developing LAP, me and my colleague were encouraged to understand and apply our adaptation knowledge
 - About 70% says : adaptation knowledge in our local area have improved
- Extend adaptation planning unit from province to local government

IV. Adaptation Achievements and Lessons 2. Lessons from 2010~present

- Scientific research results(ex, climate change scenario, impact assessment, vulnerability assessment) needed
- Finding and securing local adaptation specialists
- In adaptation planning and preparing implementation participation of various stakeholders are necessary
- Implementation must be considered in the previous planning procedure



Thank you!