The Republic of Korea’s Green Growth Policy And Adaptation Policy

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   Background to Green Growth Policy
   Green Growth Paradigm
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   Korea’s Efforts for Climate Change Adaptation
Background to Green Growth Policy

Need for New Economic Engine

- Decline of National Economic Growth since Asian Financial Crisis in late 1990s
- World Economic Crisis Leading to Decline of National Growth & Exports

Transition of Korean Economy

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP (US$)</th>
<th>Industrial Growth</th>
<th>Knowledge-based Growth</th>
<th>Green Growth</th>
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<tbody>
<tr>
<td>1960</td>
<td>5,000</td>
<td></td>
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<td>1990</td>
<td>20,000</td>
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<tr>
<td>1996</td>
<td>15,000</td>
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<td>2008~</td>
<td>25,000</td>
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<tr>
<td>2009</td>
<td>30,000</td>
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Economy Slow down

- GDP Growth Rate (%): 7.1, 9.0, 5.7, 4.6
- Yearly Export Increase Rates:
  - 2003: 19.3
  - 2004: 12
  - 2005: 14.4
  - 2006: 14.1
  - 2007: 13.6
  - 2008: -13.8
Background to Green Growth Policy

Climate Change Impact

- Annual average temp. increase in Korea: 1.8 °C (1911 ~ 2010)
- Worldwide: 0.75 °C (1911 ~ 2010) = 0.075°C/10yrs, but 0.128°C/10yrs (1961-2010)

Cause of Warming

- Urbanization
- CO₂ Emission

Current Situation

Mean Temperature (Global)
Mean Temperature (Korea)

Source: IPCC AR4
Source: PGGC
Background to Green Growth Policy

Energy Security Vulnerability

- Mostly dependent on Fossil Fuel, Lack of Renewable Energy
- Imports 97% of Energy from External Sources, Sensitive to Price Variations

Share of total primary energy supply in Korea (2007)

- Nuclear 16.8%
- Hydro 0.1%
- Comb. renew. & waste 1.2%
- Coal/peat 25.3%
- Gas 14.0%
- Oil 42.5%

* Excl. electricity trade

Source: IEA Energy Statistics 2009

Changes in global oil price

2nd Oil Shock
Gulf War
July, 08

Source: OPEC

Net hydroelectric power generation (2006)

- China, 431.43
- Czech Republic, 253
- Poland, 202
- Portugal, 108.9
- Spain, 25.31
- Greece, 5.81
- Turkey, 43.60
- Japan, 84.90
- Korea, South, 3.43
- India, 112.46
- Russia, 173.65

Projected growth of energy demand in Korea

Source: Ministry of Knowledge and Economy

Background to Green Growth Policy

Vision for Next 60 years

NEED FOR NEW ECONOMIC ENGINE
Economic Slow-Down

CLIMATE CHANGE IMPACT
Average Temperature Rising in Korea: 1.8 °C
(twice more than world)

Energy Security Vulnerability
Sensitive to energy price variations

Last 60 years
Economic Growth
(Quantitative input & Modernization)

Next 60 years
Low Carbon Green Growth
(Qualitative Growth)

New Paradigm
GREEN GROWTH
Announcement by President Lee Myung-bak on the 60th Anniversary on the founding of the Republic of Korea, August 15, 2008

Excerpt:
“Today, on the occasion of the 60th anniversary of the founding of the Republic of Korea, I want to put forward ‘Low Carbon Green Growth’ as the core of the Republic’s new vision.

Green growth refers to sustainable growth that mitigates greenhouse gas emissions and prevents environmental degradation. It is also a new national development paradigm that creates new growth engines and jobs through green technology and clean energy.”
Green Growth Paradigm

**Elements of Green Growth**

- Conventional view of growth and environment: trade-off
- Green Growth view: turn trade-off to synergy
Green Growth Paradigm

Presidental Committee on Green Growth

Overview
- Established under the direct control of the President on January 5th 2009
- Implement the national project of ‘Low Carbon Green Growth’

Tasks
- Coordinate and review low carbon green growth policies
- Set up action plans and policy measures for green growth

Progress
- Five Year National Plan for Green Growth finalized (Jul. 2009)
Green Growth Paradigm

National Strategy for Green Growth

Background
- Approved on July 6 by the Presidential Committee & the Cabinet Meeting
- It is a project that a multi-agency and research institute are participating

Vision and Mission

To become the World 7th Green Power by 2020, and the 5th by 2050

Three Objectives, Ten Policy Directions

1. Effective mitigation of greenhouse gas emissions
2. Reduction of the use of fossil fuels and the enhancement of energy independence
3. Strengthening the capacity to adapt to climate change
4. Development of green technologies
5. The “greening” of existing industries and promotion of green industries
6. Advancement of industrial structure
7. Engineering a structural basis for the green economy
8. Greening the land, water and building the green transportation infrastructure
9. Bringing green revolution into our daily lives
10. Becoming a role-model for the international community as a green growth leader

Source: Presidential Committee on Green Growth
Green Growth Paradigm

Five – Year Plan for Green Growth

Background
- Adopted a Five-Year Plan for Green Growth in July 2009
- The first one covering the period between 2009 and 2013
- To serve as a medium-term plan for implementing a ‘Low Carbon, Green Growth Vision’
- The outcome of broad-based discussions among the civil society, businesses and government on how to implement the ten policy directions under the National Strategy over the next five years

Source: Presidential Committee on Green Growth
[I] CC & Energy – (1) Low Carbon Society

Strategies
- To achieve its mid-term (2020) mitigation target for GHG and carbon visibility, establish carbon monitoring and mitigation system
- Make it mandatory for relevant economic players to report their GHG emission
- Pursue forestation and sustainable forest management to increase carbon absorption.
- Support a ‘Green Korean Peninsula’ through the rehabilitation and restoration of degraded forests in North Korea

Source: Presidential Committee on Green Growth
[I] CC & Energy – (2) Energy Security

Strategies
- Reduce energy intensity: (toe/1,000 US$)
  0.371 in 2009 → 0.290 in 2013 → 0.233 in 2020
- Increase new and renewable energy supply:
  2.7% in 2009 → 3.78% in 2013 → 6.08% in 2020
- Enlarge the use of nuclear energy:
  26% in 2009 → 27% in 2013 → 32% in 2020
- Expand off-shore energy development

Source: Presidential Committee on Green Growth
Policy Actions for Each of Ten Policy Directions

[I] CC & Energy – (3) Adapt to Climate Change

Strategies
- Establish climate change monitoring and early warning system
- Improve climate adaption and address related health risks
- Food Security: eco-friendly agriculture product 4.5% in 2009 → 18% in 2020
- Improve water resources management by ‘4 Major River Restoration Project’
- Build urban forests and green areas to increase and protect forest resources
- Strengthen the protection of forest ecosystems

Source: Presidential Committee on Green Growth
Policy Actions for Each of Ten Policy Directions

[II] GG & Economy – (4) Develop Green Technologies

**Strategies**
- Development of Green tech innovation
- Increase global market share in green technology sectors to 8% in five years
  * silicon-based solar cells, bio-energy, advanced light water reactor, high-efficiency fuel cells, integrated coal gasification combined cycle technology, smart grids
- Increase in Green R&D: 1.2 billion US$ in 2008 → 2.4 billion US$ in 2013
- Encourage and foster collaborative projects with world’s leading green research institutes

**Targets of Major Green Indicators**

- Korea’s market share in global green tech product market:
  - 2% in 2009
  - 8% in 2013
  - 10% in 2020

- Number of foreign specialists in green tech working in Korea:
  - 25 in 2009
  - 100 in 2013
  - 250 in 2020

Source: Presidential Committee on Green Growth
Strategies
- Greening conventional industries: steel, ship building, etc
  - upgrade industrial park for green cluster
  - innovate each link of value chain
  - apply energy efficient technology
- Increase the number of participating enterprises in green partnerships: 685 in 2009 → 1,500 in 2013 → 2,900 in 2020
- Increase the resource – circulation rate: 15% in 2009 → 18% in 2020
Strategies
- Promoting lower energy intensity per unit/value industry will help Korea to pursue climate change mitigation and sustainable development simultaneously
- High value-added industry: healthcare services, education, financing and banking contents industry, software, and tourism industry
- The state-of-the-art convergence technology industry: broadcasting and telecommunications, ICT, robotics, new materials, nano-materials, bio resources, medical appliances, and green food industry

Targets of Major Green Indicators

- Number of foreign patients receiving healthcare in Korea
  - 27,000 in 2009, 200,000 in 2013, 350,000 in 2020

- Broadcasting and telecommunications convergence industry exports
  - USD 52 billion in 2009, USD 123.7 billion in 2013, USD 240 billion in 2020

Source: Presidential Committee on Green Growth
Policy Actions for Each of Ten Policy Directions

[II] GG & Economy – (7) Build Green Economy Basis

Strategies
- Develop carbon Market: 0.4 billion US$ in 2013, 1.6 billion US$ in 2020
  - Cap and trade system, emission related business
- Promote Green Financial Infrastructure
  - Green certificate system
  - Eco-tax
- Create green jobs: green social enterprises will be intensively cultivated 300 companies by 2013, 500 companies by 2020

Source: Presidential Committee on Green Growth
Policy Actions for Each of Ten Policy Directions

[II] GG & Economy – (8) Green Land-Transportation

- Strategies
  - Green Home & Green Building rating system
  - Green city model
  - Green Transportation: promote green cars (hybrid, EV), bicycle, railway

Source: Presidential Committee on Green Growth
Policy Actions for Each of Ten Policy Directions

[III] People & Earth – (9) Green Revolution Into Daily Lives

**Strategies**
- Promote green consumption and green lifestyle
- Introduce Eco-point system and expand carbon footprint labeling
- Launch green growth campaigns and education for public awareness

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**Targets of Major Green Indicators**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
<th>2009</th>
<th>2013</th>
<th>2020</th>
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<tbody>
<tr>
<td>Number of green households</td>
<td>1.5 million</td>
<td>160,000</td>
<td>300,000</td>
<td>2020</td>
</tr>
<tr>
<td>Number of categories of goods for carbon footprint labeling</td>
<td>1,000</td>
<td>50</td>
<td>500</td>
<td>2009</td>
</tr>
<tr>
<td>Amount of mandatory procurement of low carbon green goods in the public sector</td>
<td>10 trillion KRW</td>
<td>2.5 trillion KRW</td>
<td>4 trillion KRW</td>
<td>2009</td>
</tr>
<tr>
<td>Number of green village centers</td>
<td>500</td>
<td>100</td>
<td>500</td>
<td>2009</td>
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</table>

*Source: Presidential Committee on Green Growth*
Korea launched the East Asia Climate Partnership Initiative in 2008.

Korea is increasing green ODA: 20% by 2013 → 30% by 2020
- EACP, GEF, and ADB Carbon Fund for the Future

Korea launched Global Green Growth Institute in June 2010
to promote green growth as a new paradigm for developing countries.

The 18th UNFCCC Conference of Parities (COP)
Korea has conceded the bid to host COP 18 to Qatar but will host Pre-COP18 Ministerial Meeting.
# Climate Change Impacts in Korea

## Observed Climate Change Impacts on Korea Peninsula

1. **Temperature Increase of Korean 6 major cities**: +1.8°C/100yr

## Current and Expected Climate Change Impacts on Sectors

### Health
- Increase of infectious diseases and heat wave

### Infrastructure
- Highway and bridge damage by heavy rainfall

### Disaster
- Increase of the cost of extreme weather event

### Ecosystem
- More vulnerable over subtropical zone and mountain area

### Forest
- Frequent land sliding due to heavy rainfall

### Agriculture
- Cultivation area shifting

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### Observed Climate Change Impacts on Korea Peninsula

- **Temperature Increase**: 1.8°C increase
- **Sea level rise**: Yong-Mo-Ri, Jeju: 22cm in the past 43 years (Global mean=8cm)
Climate Change Impacts in Korea

Climate Change Adaptation and Its Needs

Definition of Climate Change Adaptation

- Climate Change Adaptation: Actions for moderating the adverse impacts of Climate Change and exploiting the opportunities by the planned actions at the vulnerable system

Mitigation & Adaptation

< Mitigation >
- Reduced Air Travel
- Energy Conservation
- Active Transportation
- Captured Landfill Gas
- Expand Transit Use

< Adaptation >
- Green Roofs
- Better Insulation
- Permeable Pavement
- Reduced Peak Demand
- Expand Tree Canopy
- Etc.
- Sewer Upgrade
- Heat Alert System
- Business Continuity Planning
- Vector Eradication
- Control of Invasive Species

Climate Change Adaptation in Korea

National Strategic Plan for Climate Change Adaptation

- National Strategic Plan for Climate Change Adaptation (‘11-15)
  - The 1st legal plan by the Basic Act on Low Carbon, Green Growth (‘10.4)
  - Set up the plan with 13 participating ministries
  - The master plan helping and leading for the local governments action plan
  - The Guideline for civil movement of Climate Change Adaptation

“Vision and Plans of Climate Change Adaptation Strategies”

VISION
Establishment of a Safe Society & Support for Green Growth through Climate Change Adaptation

Sectoral Adaptation Plans
- Health
- Disaster
- Agriculture
- Forestry
- Coastal/Marine Resources
- Water Resources
- Biodiversity

Adaptation Based Plans
- Climate Change Monitoring and Prediction
- Adaptation Industry /Energy
- Education, PR & International Cooperation

Protect people from heat waves & air pollution
Minimize damage through the consolidation of disaster prevention foundation
Switch to adaptation based agricultural system create a new opportunity
Improve forestry health & reduce forestry disaster
Respond to sea-level rise & secure stable marine resources
Build secure water management system from flood and drought
Secure biodiversity through restoration and protection
Provide foundation data & minimize uncertainty
Find new and promising businesses for climate change adaptation
Enhance domestic and international communication on adaptation
Climate Change Adaptation in Korea

National Strategic Plan for Climate Change Adaptation

National Strategic Plan for Climate Change Adaptation (‘11-15)
- Sectoral Goal and Details

- Monitoring and Projection
  - Providing sound basis of adaptation with the optimized climate change prediction

- Ecosystem
  - Protecting the vulnerable species and preserving biodiversity

- Forest
  - Improving the forestry productivity and preventing landslide
Climate Change Adaptation in Korea

National Strategic Plan for Climate Change Adaptation

- National Strategic Plan for Climate Change Adaptation (‘11-‘15)
  - Sectoral Goal and Details

1. **Agriculture**
   - Improving the agricultural productivity by management of agricultural and livestock product in an adaptive manner

2. **Marine/Fishery**
   - Strengthening competitiveness of marine and fishery by coping with sea level rise and sea surface temperature increase

3. **Water**
   - Making water supply more stable and preserving aquatic ecosystem
Climate Change Adaptation in Korea

National Strategic Plan for Climate Change Adaptation

- National Strategic Plan for Climate Change Adaptation (‘11-‘15)
  - Sectoral Goal and Details

- **Health**
  - Taking adaptation action based on people's life style by protecting the vulnerable from extreme heat wave and infectious diseases

- **Disaster/Infrastructure**
  - Minimizing damage of citizen by operating early warning system and promoting insurance related in disaster

- **Adaptation Business**
  - Developing new adaptation business and minimizing damage in energy and other industry
Climate Change Adaptation in Korea

Korea Adaptation Center for Climate Change

Vision and Role of KACCC

Leading Climate Change Adaptation Research and Policy

Korea Adaptation Center for Climate Change

Climate Change Adaptation in Korea

Korea Adaptation Center for Climate Change

Tasks of KACCC

- International cooperation
- Constructing the network of adaptation
- Education and Public Relation

Development of Climate Adaptation Policy & Adaptation Options

- Climate Adaptation Policy Inventory
- Korea Climate Change Adaptation Integrated Assessment Model
- Support local community Climate Adaptation policy-setting

Climate Change Adaptation Knowledge Sharing platform

- Raise awareness through Climate Adaptation portal
- Establish & Operate Climate Adaptation Information System
- Publish Climate Adaptation Newsletter

Providing Climate adaptation options and Sharing Information

- Policy makers, Adaptation Relevant Institutes, and Vulnerable People, etc.
THANK YOU