Green R&D Policy

for Green Growth

The 1st Korea-China-Japan Green Technology Forum

Mar 14, 2012 / Tokyo

Ministry of Education, Science and Technology (MEST)

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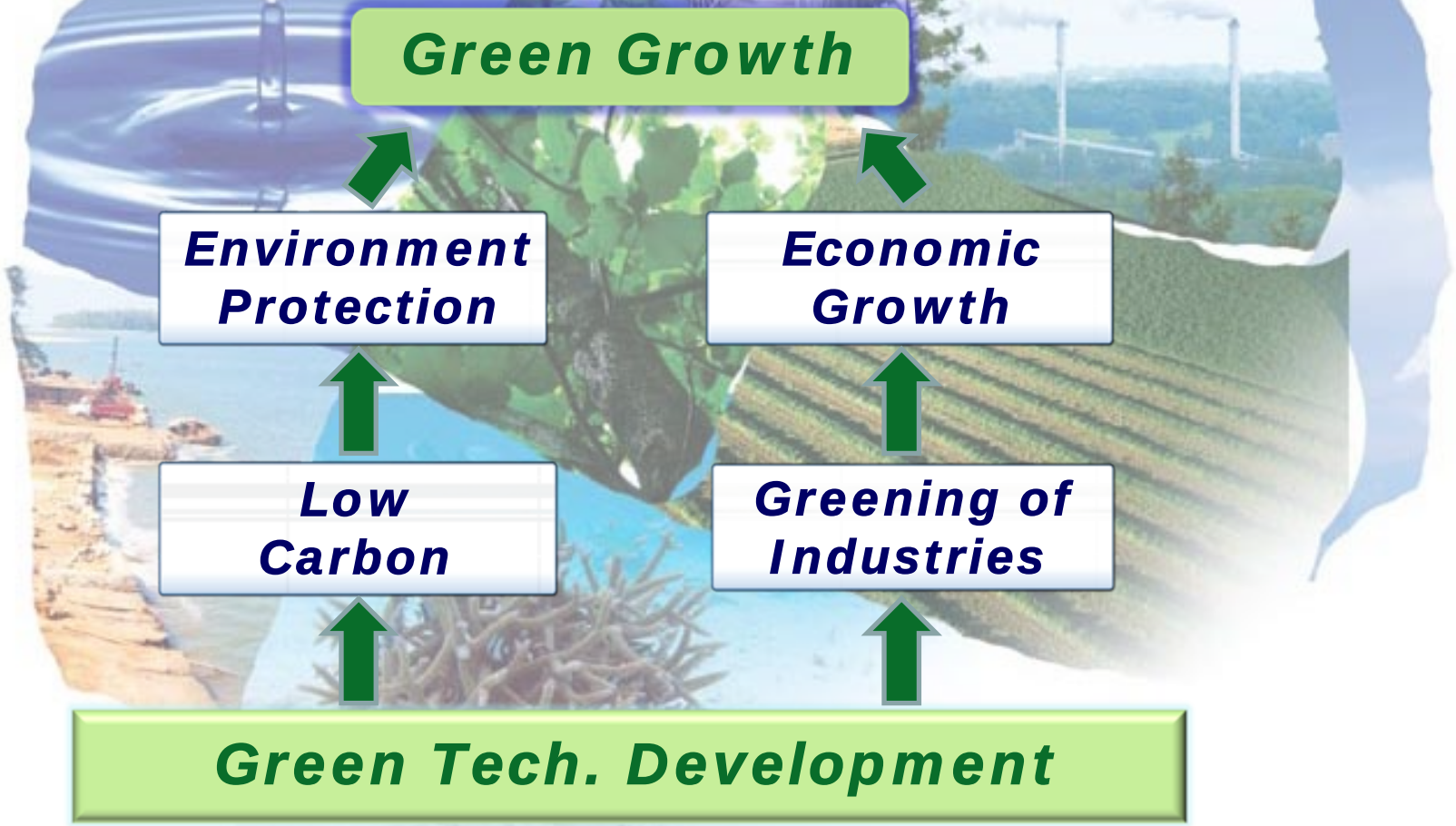
Introduction

Importance of Green Technology

Green Technology : The core of Green Growth



Growing Focus on Green Growth

[US] DOE and EPA increased investment in clean energy for economic boost and deficit reduction

[Japan] Government set Green Innovation through climate change response and realization of low carbon society as the key strategy for national growth

[China] Government plans to invest a total of USD 440 billion from 2011 to 2015 in clean energy, energy conservation, etc.

[EU] FP7(2007-2013) puts priorities on making investment in climate change/energy-related projects

Korea's Green Technology Policies

◆ **Low Carbon Green Growth through green technology and clean energy - the new national vision for the next 60 years**

(President Lee, Aug.2008)

- **27 Key Green Technologies selected as priority for investment**
  (National R&D Plan for Green Technologies, Jan.2009)
- **Introduction of 10 policy tasks for Green Growth including green tech. development and creation of new growth engine**
  (National Strategy and 5-year Plan for Green Growth, Jul.2009)
- **Adoption of green technology and green industries as core engines for economic growth**
  (Framework Act on Low Carbon Green Growth, Apr.2010)

National R&D Plan for Green Technologies

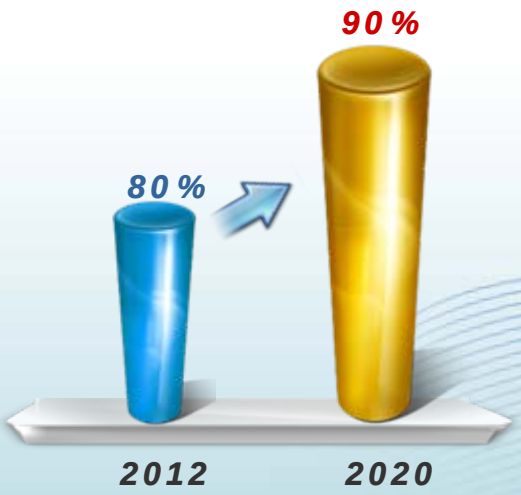
Vision and Goals

Green Leader through Development of Green Technology

3 Goals

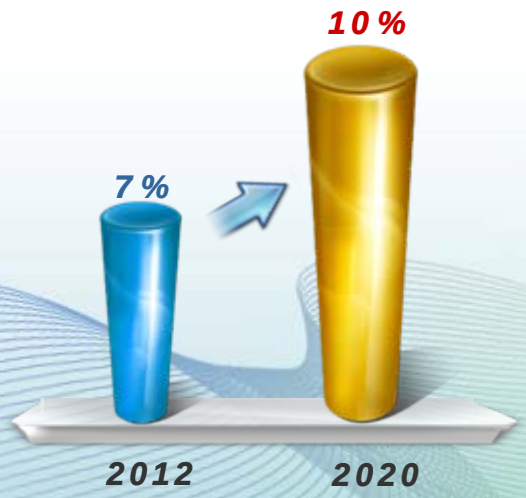
Green S&T Capability

Technology level
(compared with advanced countries)



Green Industry Competitiveness

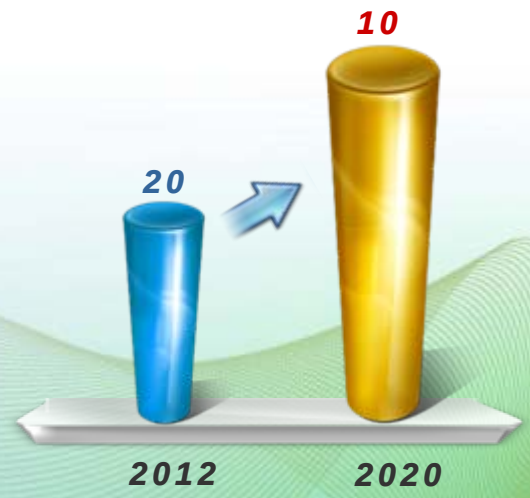
Global market share



Creating green technology jobs
- (2012) more than 160,000 jobs

Environmental Sustainability

Join the ranks of top
(OECD countries)



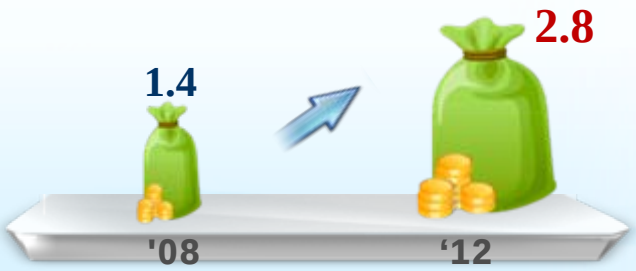
Investment in Green Technology

Green Tech R&D Investment Expansion

Double total investment by 2012

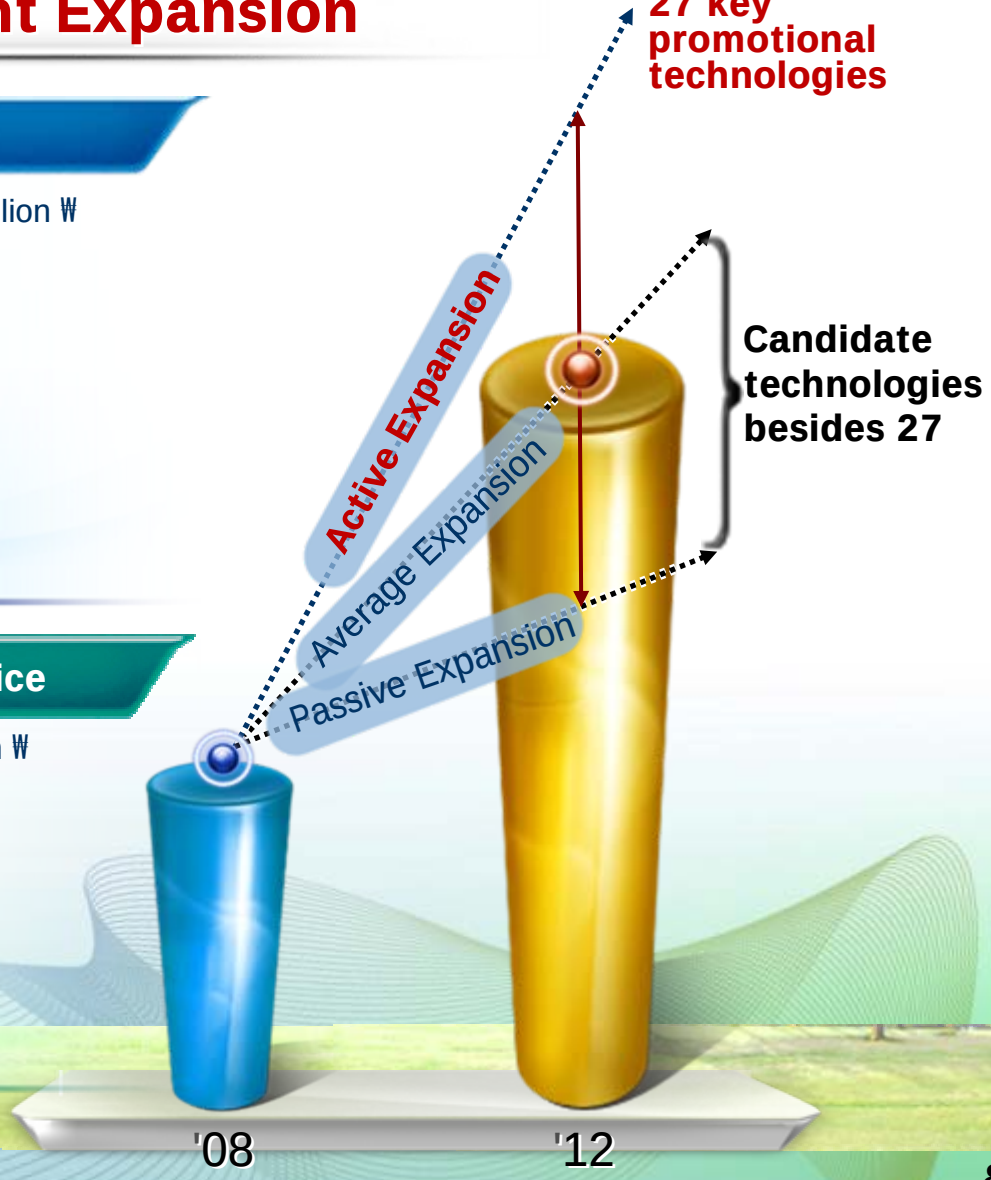
Unit : trillion ₩

'08-'12 Total : 10.9 trillion ₩



27 key green technologies : more than twice

Unit : trillion ₩



Investment in Green Technology

Investment in 27 Key Green Technologies

Climate Change Forecast Technology

Monitoring and modeling for climate change, Climate change assessment and adaptation [2]

Energy Source Technology

Solar Cells, Light-water reactor, Bio-energy, High efficiency fuel cell, etc [8]

Technology development & commercialization in short, mid and long-term

High Efficiency Technology

High-efficiency LED, Green IT, High-efficiency secondary batteries, Smart grid, etc [10]

After-usage Disposal Technology

Alternative water Resources, CCS, Monitoring and processing for hazardous substance, etc [6]

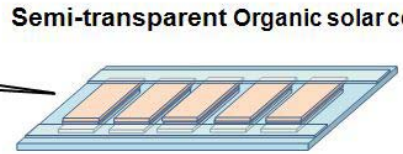
Non-pollution Industry Economy

Virtual reality technology [1]

Development Strategy (1):
- Promoting Convergence Technologies -

Necessity

■ **Development of Breakthrough Technologies by promoting interaction among different technologies**(IT+BT+NT+…) → Creation of new market opportunities **※ i.e. solar module market with semi-conductor tech.**



Solar cells applicable on windows

How to Support

■ **Increasing investment in green technology convergence**
- **Strengthening support for creative and challenging green fusion tech.**

■ **Expanding fusion R&D units leading future green growth**
- **Establishing research centers for green tech. fusion**
- **Facilitating network for sharing information and green tech. fusion program.**

Development Strategy (2):
- Support for Basic Research and Green Industry -

Expanding Basic Research

■ Expanding basic R&D share in green technology R&D
- Expanding government's basic R&D share 17.4%(2008) → 35%
- Strengthening basic R&D planning function

■ Investing in future-type energy technologies
- Developing Generation IV Nuclear Energy System and nuclear fusion technologies

Nurturing Green Industry and New Growth Engine

■ Aiming at environment-friendly, low energy consumption industry structure
- Investment in green growth industry bringing early creation of market

Development Strategy (3):
- Building Green Technology Infrastructure -

Creating Research Hubs

■ Establishing joint research center with universities, government-funded research institutes

- Establishing green technology cluster and test bed

Supporting tech. transfer & business development

■ Strengthening collaboration among industry, universities, and institutes

- R&D result sharing & supporting business development

Building Global Cooperation Network

■ Increasing participation in international partnership for joint development of up-to-date technologies

- Attracting leading overseas research institutes and increasing human resource exchange

Development Strategy (4):
- HRST for Green Growth -

Green Capacity Building of Univs.

■ Supporting post-graduate programs for green tech.

- Launching green tech. oriented 13 programs by `13

※ i.e. Renewable energy, Climate Change, Energy Policy etc

Green Industry-oriented HRST

■ Bridging univ. education & newly emerging green industries' recruiting demand

※ i.e. support for collaborative education between univ. & industry

Green Education in Schools

■ Environment education, Green job career development education, Provision of green programs for teachers etc

Investment & Achievements

R&D Investment by Year

Government

(unit : trillion ₩, %)

		2008	2009	2010	2011	2012 (expected)
Science and Technology R&D		10.99	12.41	13.68	14.9	16.0
Green Technology R&D	Amount	1.46	1.95	2.24	2.74	3.0
	% (GT/Total R&D)	13.3	15.7	16.4	18.4	18.8
27 Core Green Technologies R&D	Amount	1.05	1.43	1.71	1.99	-
	% (27 GT/Total R&D)	9.55	11.5	12.5	13.4	-

Private

Investment in Green Technology made by 30 Major Companies:
KRW 15.1 trillion (2008-2010) → KRW 22.4 trillion (2011-2013)

Major Achievements and Limitations

Achievements

- **Gradual increase in the share of Green Technology R&D investment in total R&D expenditure : 13.3%('08)→18.8%('12)**
- **Expansion of Green R&D Infrastructure and strengthening of Green Technology capacity**

  - Korea's technology level of 27 Core Green Technologies compared with advanced countries: 50.9%(2009)→77.7%(2011)

  - Green Technologies at 80%+ level:

1 (Advanced light water reactor) → **5 (Silicon-based solar battery, Advanced light water reactor, LED for lighting, CCS, Smart greed)**

Limitations

- **Lack of Investment in Basic/ Fundamental Technologies : 24.8%(2010)**
  * Target for 2012: 35%
- **No World Leading Technology**
  - Green Technologies at 50%- level:
  · Green Process technologies considering certain environmental loads and expectation of energy consumption
  · Estimating the quality of water and management technology
  · Monitoring and processing technology for harmful substances, etc.

IV Future Strategies & Expected Results

Future Strategies

Goal : Development of World Leading Technologies

- Expansion of investment in ***Basic/Fundamental technologies***
- Development of ***highly trained and skilled professionals***
- Selection of ***new Core Green Technologies*** **reflecting technological development and market changes (including wind energy)**

◆ ***Green Technology Center(GTC) :***

- Will be established as a central coordinating body of green technology development and international cooperation in March 2012

- Evaluation of Green Technology level, technical support in the designing and implementation of Green Technology R&D policies

- International cooperation activities, HR cooperation, etc.

Expected Results

Entering into the Leading Nations in Green Technology

- Achieving technological excellence
- Early commercializing up-to-date products with converged green technology

Promoting Sustainable Economic Growth through Green Tech. R&D

- Leading the high value-added green markets with green technology
- Creating green jobs through green technology R&D

Realizing Low Carbon, Green Society together with Citizens

- Spreading and Internationalization of National Vision, “Low Carbon Society"
- Enhancing competitiveness in environmental sustainability


To save our only planet “Earth“,
nations should collaborate to solve
the challenges of climate change.

Thank you !

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