Implications for Green Growth and Job Creation

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The Five Year Green Growth Plan (2009-2013)

Three Strategies
1. Measures for climate change and securing energy independence
2. Creation of new growth engine
3. Improving quality of life and strengthening the status of the economy

- Green Investment: 107.4 trillion KRW
- Production Inducement: 181.7~206.0
- Value-Added Inducement: 75.0~94.9
- Job Creation: 1,561~1,805 T

July 2009
Green Workforces and Creation of Green Jobs

November 2009

Green jobs
in 64 out of 169 KSIC industries
610,000 (2008) → 810,000 (2013): annually 6.0% (vs. 1.3%)

Green job creation in
- Renewable energy: 30
- Energy efficiency improvement: 72
- Greening industries and space: 278
- Environment protection & recycle: 127
- Low carbon activities: 307

Changes in employment structure

Green Industry
- New Green Industry
  - New Green Jobs
  - More Green Jobs
  - Jobs w/dif. tasks
  - Jobs w/o change
  - Jobs disappeared

Non-Green Industry
- Non-Green Industry
  - Jobs disappeared
Green Workforces and Creation of Green Jobs

Issues on green workforces

- The market structure to support creation of decent green jobs
  - More and better green jobs for better educated labor forces

- Forecast of demand for and supply of green workforce
  - Definition of green jobs and its classification system

- Education and (re)training workforces for the greener job world
  - New and more green jobs
  - Changes in tasks
  - Reemploying those who lose their jobs

- Professional and highly-skilled workforces
Green Workforces and Creation of Green Jobs

The virtuous cycle of green growth and green job creation

- Investment in infrastructure for green job creation
- Expansion of TVET for green workforce
- Investment in core green workforces

Linkage bw. GG and employment
- Green job network & LMI system
- Decent green jobs
- Promotion of employing green jobs

Skilled workers for new growth engine of green industries
- Smooth transition of workforces in greening existing industries
- Demand for green workforce by SME’s and local labor market
- The National Technical Qualification System

Expansion of investment in green technologies
- Core R&D professionals
- Professional & skilled workers in green service industries
- Career counseling/education for future green workforces

1.88 trillion KRW over 2009-2013
Green Jobs

United Nations Environment Programme (UNEP)
“Green Jobs: Towards decent work in a sustainable, low-carbon world”
(September, 2008)

“Green jobs as positions in
- agriculture, manufacturing, construction, installation, and maintenance, as well as
- scientific and technical, administrative, and service-related activities, that
- contribute substantially to preserving or restoring environmental quality”

Green jobs include jobs that help to
- protect and restore ecosystems and biodiversity
- reduce energy, material, water consumption through high-efficiency and avoidance strategies
- decarbonize the economy
- minimize or altogether avoid generation of all forms of waste and pollution

“Green jobs also need to be good jobs that
meet longstanding demands and goals of the labor movement, i.e. adequate wages, safe working conditions, and worker rights, including the right to organize labor unions”
A Model of Employment in Green World

Production: \( y + b = f(L, R; K, \ldots) \)

Input
- \( L \): human capital
- \( R \): natural resources
- \( K \): physical capital

Output
- \( y \)
- \( b = b(R) \): byproduct (waste, pollution, etc)

Profit Max. w/o considering byproduct: \( \pi = py - (wL + rR) \)
A Model of Employment in Green World

Profit Max. w/ considering byproduct: \( \pi = py - (wL + rR) - g(b(R)) \)

higher relative price of resources \( \rightarrow \) less resource-intensive production
less byproduct

Workers related w/ byproduct

\( b = b(R) \)

\( R_0 \)

\( R_1 \)

\( e_0 \)

\( e_1 \)

\( L_0 \)

\( L_1 \)

\( L_{b1} \)

\( b_0 \)

\( b_1 \)

\( L_{b1} = g(b) \)
A Model of Employment in Green World

Profit Max. w/ green technology to reduce byproduct

\[ \pi = py - (wL + rR) - g(b'(R)) - (R&D \text{ per output}) \]

There is cost related with byproduct and R&D
A Model of Employment in Green World

Profit Max. w/ green technology to reduce byproduct
Less resource-intensive technology or more workers
New demand for workers related with byproduct
New demand for R&D workers

\[ b' = b'(R) \]
\[ b = b(R) \]

\[ R_0 \]
\[ R_2 \]
\[ L_0 \]
\[ L_2 \]

\[ L_b_2 \]
Reports on Green Jobs

United Nations Environment Programme (UNEP)
“Green Jobs: Towards sustainable work in a low-carbon world” (Dec. 2007)
“Green Jobs Initiative in Global Challenge for Sustainable Development: Strategies for Green Jobs” (May 2008)
“Green Jobs: Towards decent work in a sustainable, low-carbon world” (2008.09)

Shades of Green
New production/consumption model
  durability and repairability
  low consumption level more public forms of consumption
New approach to working hours: flexibility & 4-day workweek
  time sovereignty-break ‘work-and-spend’
a time credit system (Belgium)
job rotation w/paid, educational, childcare, sabbatical leaves (Denmark)
work time reductions (Netherlands)

A Fair and Just Transition
Reports on Green Jobs

The European Employment Summit (Nov. 1997)
Commission of the European Communities, Communication on environment and employment (Building a Sustainable Europe)
“environmental policy, if well designed, should be seen as a strong driving force for investment and the building of a sustainable Europe, creating both growth and employment.”

EU Focus on Green Jobs (1999)
Employment through environmental activities
EU environment and employment: Future Action

Eco-industry
The EU Eco-industry's export potential(1999)
Analysis of the EU Eco-industries, Employment and Export Potential (2002)
Econ-industry, its size, perspectives and barriers to growth in the enlarged EU(2006)
Study on the Competitiveness of the EU Eco-industry-Within the Framework Contract of Sectoral Competitiveness Studies(2009)
Reports on Green Jobs

Environment and labour force skill: Overview of the links between the skills profile of the labour force and environmental factors  (Dec 2008) “jobs in the environmental sector and/or jobs requiring specific environment-related skills”

1. Additional job creation
2. Substitution
3. Destruction
4. Change

The Impacts of Climate Change on European Employment and Skills In the Short to Medium-Term: A Review of the Literature-Final Report (2009)
The Impacts of Climate Change on European Employment and Skills in the Short to Medium-Term: Company Case Studies-Final Report (2009)
Environment and ageing(2008)
Links between the environment, economy, and jobs(2007)
Facts and Figures: the links between EU's economy and the environment(2007)
Reports on Green Jobs

OECD


Declaration on Green Growth (June, 2009)
the Meeting of the Council at Ministerial Level; Ministerial Council Meeting

A Proposal for Developing a Green Growth Strategy (November, 2009)
Framework for the Green Growth Strategy (November, 2009)

Green Growth: Overcoming the Crisis and Beyond (2009)
Creating green-collar jobs
USA

The Green Jobs Act of 2007
‘An Act To move the United States toward greater energy independence and security, to increase the production of clean renewable fuels, to protect consumers, to increase the efficiency of products, buildings, and vehicles, to promote research on and deploy greenhouse gas capture and storage options, and to improve the energy performance of the Federal Government, and for other purposes.’

Greening of the World of Work: Implications for O*NET-SOC and New and Emerging Occupations
(The National Center for O*NET Development; 2009)
64 Green Increased Demand Occupations
60 Green Enhanced Skills Occupations
45 Green New and Emerging (N&E) Occupation
46 New candidate occupations

Reports on Green Jobs

- The ECO Guide to Careers that Make a Difference; Environmental Work for a Sustainable World (The Environmental Careers Organization) (ECO & Kevin Doyle; 2004)
- Great Jobs for Environmental Studies Majors (Great Jobs Series) (Julie DeGalan; 2008)
- Green Careers (Wetfeet Insiders Guide) (Frank Marquardt; 2008)
- Careers in Renewable Energy: Get a Green Energy Job (Gregory McNamee; 2008)
- Green Careers: Choosing Work for a Sustainable Future (Jim Cassio & Alice Rush; 2009)
- The Complete Idio's Guide to Green Careers (Barbara Parks & Jodi Helmer; 2009)
- DC Green Jobs and Careers (Anca Novacovici & Dan Triman; 2009)
- 7 Myths about Green Jobs (Andrew P. Morris, William T. Bogart, & Laura Huggins; 2009)
- Green Collar Jobs: Environmental Careers for the 21st Century (Scott M. Deitche; 2010)
- Green Careers for Dummies (Carol McCleland; 2010)
- Job in Green Travel and Tourism (Green Careers) (Jacqueline Ching; 2010)
- Jobs as Green Builders and Planners (Green Careers) (Ann Byers; 2010)
More on Green Jobs

Definition
Classification and Forecast

Changes in the employment structure
micro level (firm)
macro level (local, regional, and national)

Human resource policies
education
(re)training

Economic policies

Labor market policies
Thanks for all!