A Measurement Strategy for Green Economy in Korea

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1. Background

- Sustainable Development (3 pillars): Economic Development, Environmental Sustainability, Social Development
- Green Economy with ecological sustainability
  - Investment on ecological resources and services will be an opportunity for profit, employment and growth
- Green Growth with low carbon
  - Focus on synergistic relationship between economic growth and environmental protection
  - Sustainable development policy for promoting a Green Economy
  - Strategy to arrive at the Green Economy

Statistics for Green Economy and Measurement Strategy

- Indicator Set
  - Green growth
  - Green lifestyle
- Paradigm Change
  - From Quantitative Growth to Qualitative Growth
- Low Carbon Green Growth
- New Vision As Growth Strategy
  - Worsening Environment
  - ex) Global Warming
  - New Growth Engine
  - ex) Sustainable Development

Long-term Plan for Green Growth in Korea

- Circulation between Environment and Economy
- Improvement of Life’s Quality
- Green Innovation on Lifestyle
2. Framework of Green Growth Indicators

Green Growth

3 Objectives

- Make People Live Better
- Promote New Growth Engines
- Contribute to International Efforts

- Promote eco-friendly new growth engines for the national economy
- Improve people’s quality of life and help them lead greener lifestyles
- Contribute to international efforts to fight climate change and other environmental trends

Not labelled as “Official Statistics”
Green Growth Indicator
Green Lifestyle Indicator

Multi-Purpose

Accounting systems

Primary information from surveys, registers etc.

Composite indicators

Indicators (sets)

Specific Purpose

Green Industry Statistics

SEEA
**Development Process for Indicator Set**

1. **Definition**
   - Determine concepts of green growth (or life-style)
   - Scope
   - Definition

2. **Framework Design**
   - Review theoretical background of indicators
     - Green Growth Policies (Laws)
     - Indicators in International Organization (for comparison)

3. **Indicator Selection**
   - Potential Indicator Set
   - Select Tentative Indicators
   - Experts’ Insights
   - Policy Relevance
   - Data Reliability

4. **Indicator Metadata**
   - Metadata Information
     - Definition
     - Related Policies
     - Policy Targets of Indicators
     - No Data --- Should be compiled

5. **Utilization Plan**
   - Indicator Analysis
     - Comparisons with Targets
   - Calculate Index for Status
     - Standardization of Indicators

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**Framework of GGIs in Korea**

- A framework of GGIs is based on the policy structure and targets which were derived from 5-Year Action Plan (2009) as Green Growth’s National Strategy.
  - This Action Plan consists of 3 strategies and 10 policy directions

- **30 Core indicators** were selected by criteria of indicator selection (ex: policy relevance**, analytical soundness, data availability).
  - Some indicators were selected because the policy relevance is high.

  - **GGIs have also 3 categories and 10 groups of indicators.**
  - Each indicator is calculated from nation-wide economic, social and environmental statistics.
3 Categories and 10 Groups of GGIs in Korea

<table>
<thead>
<tr>
<th>Category</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mitigation of Climate Change and Energy Self-reliance</td>
<td>Effective reduction of green-house gas emissions&lt;br&gt;Enhancement of energy-reliance for post petroleum paradigm&lt;br&gt;Strengthening capacity to adapt climate change</td>
</tr>
<tr>
<td>2. Creation of New Engines for Growth</td>
<td>Development of green technology for growth engine&lt;br&gt;Greening existing industries and fostering green industries&lt;br&gt;Improvement of industrial structure for large service industry&lt;br&gt;Engineering structural basis for green economy</td>
</tr>
<tr>
<td>3. Improvement in Quality of Life and Enhancement in National Status</td>
<td>Building green territory and green transportation system&lt;br&gt;Green innovation in daily life&lt;br&gt;Becoming role-model nation as green growth leader</td>
</tr>
</tbody>
</table>

3. Framework of Green Life-style Indicators

- **Green Revolution requires changes to green life-styles in every way.**
  - Policy makers and citizens should understand current patterns of life-styles
  - For green revolution policies, their life-style patterns need to be monitored by a statistical tool such as Green Life-style Indicators (GLIs)
    - *Statistical data are collected mainly from the survey on households*

- **Sample framework of Green Life-style Survey**
  - May of 2011; 9,700 households
    - Questionnaire; 41 items, Respondents; 19,000 household members (age ≥20)
  - March of 2013; 9,750 households
    - Questionnaire; 46 items, Respondents; 19,000 household members (age ≥20)
Work Flows of Compiling GLIs in Korea

- Project on Development on GLIs (Review and Select Indicator Set)
- Research on Survey Methodology
- Conduct Green Life Survey (Households, 2011, 2013)
- Collect Administrative Data (DB on Records)
- Editing Data and Compiling Indicators
- Evaluate green life-style policies and publicize GLIs

3 Categories and 7 Groups of GLIs in Korea

<table>
<thead>
<tr>
<th>Category</th>
<th>Group</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Green Life-style at Home</td>
<td>Purchase of eco-friendly products</td>
<td>7 3</td>
</tr>
<tr>
<td></td>
<td>Efficient use of energy</td>
<td>5 1</td>
</tr>
<tr>
<td></td>
<td>Saving of resources and expansion of re-uses</td>
<td>5 2</td>
</tr>
<tr>
<td></td>
<td>Reduction of polluted materials and solid waste</td>
<td>3 2</td>
</tr>
<tr>
<td>2. Green Life-style in Transportation</td>
<td>Installation of habits to use cars economically</td>
<td>6 2</td>
</tr>
<tr>
<td></td>
<td>Use of eco-friendly transportation</td>
<td>2 2</td>
</tr>
<tr>
<td>3. Green Life-style in Community</td>
<td>Activation of green life campaign</td>
<td>13 1</td>
</tr>
</tbody>
</table>

- Current Activities on SEEA-CF; two accounts / statistics
- Environmental Protection and Expenditure Accounts (EPEA)
  - Has been compiled since 2006
  - Ministry of Environment and Korea Environment Institute
  - 3 main tables and 1 appended table
  - EPER (Environmental Protection and Expenditure Revenues)
- Statistics on Environmental Goods and Services Sector / Industry (EGSS)
  - Environment Industry Survey has been conducted since 2005
  - Ministry of Environment and Korea Environment Corporation
  - Sample Size (2011): about 34,000 establishments
  - Coverage: Pollution Management Group (production of equipment and specific materials, construction and installation, provision services), Resource Management Group (water supply, recycled materials)

Future Activities and Research Agenda

- Future Activities
  - Implementation of SEEA-CF; long-term schedule for SEEA development during 2014-2022 (draft principal directions and potential targets)
  - Statistical Infrastructure will be reviewed
  - Cooperation Network and Technical Advisory Group (TAG) will be built
- Research Agenda
  - Pilot compilation of EW-MFA (Economy-Wide Material Flow Accounts)
  - Study on methodology of Air Emission Accounts (AEA)
  - 12 materials: 6 greenhouse gases (CO₂, N₂O, CH₄, HFCs, SF₆), 6 non-greenhouse gases (CO, NOx, SOx, NH₃, VOC, PM10)
  - Two accounts will be reviewed in 2014 to be approved as official statistic.
5. Compilation of Green Industry Statistics

Conceptual Definition

- Green Industry; Industrial special activities for achieving green growth with low carbon by producing following green products:
  - Enhancing efficiencies of energy and resources
  - Minimizing environmental pollution
  - Protecting or improving the environment

Classification of Green Products (Goods and Services)

- 4 Categories (15 groups, and 47 classes) according to purposes, functions or other characteristics of green products
  - Green Energy
  - Pollution Control
  - Enhancement of Energy Efficiency
  - Enhancement of Resource Efficiency

Survey Framework and Estimation

Survey Framework

- Designed in the Economic Census of 2010
- A question on green activity with 3 items;
  - Category of green industry which activity belongs to
  - Detailed descriptions of green goods or services
  - Sales of green products
- Survey conduction: only establishments for 9 industries
  - A. Agriculture, forestry and fishing, B. Mining and quarrying
  - C. Manufacturing, D. Electricity, gas, steam, and water supply
  - E. Sewerage, waste management and remediation activities
  - F. Construction, J. Information and communication
  - M. Professional, scientific and technical activities
  - N. Administrative and support service activities
Survey Framework and Estimation

Data Collection

- Data; Conducting additional survey in Economic Census of 2010
- Editing process
  - External information from registered data which were obtained from industry associations and government organizations
  - Lists of establishments with a green certificate by “Green Technology Certification” Act and “Eco-Energy Efficiency Certification” Regulation

Estimation

- Green production as sales of green products
  - Calculated directly with data on sales at establishment unit
  - Summed up to industry level, and recounted by category and group of green products

<table>
<thead>
<tr>
<th>Industry (ISIC Rev. 4)</th>
<th>Sub-total</th>
<th>Green energy</th>
<th>Pollution control</th>
<th>Energy efficiency</th>
<th>Resource efficiency</th>
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<tbody>
<tr>
<td>Sales totaled in 9 industries (Billion Won)</td>
<td>92,501</td>
<td>19,943</td>
<td>21,557</td>
<td>28,167</td>
<td>22,834</td>
</tr>
<tr>
<td>B. Mining and quarrying &amp; C. Manufacturing</td>
<td>41,397</td>
<td>8,504</td>
<td>7,033</td>
<td>17,501</td>
<td>8,360</td>
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<tr>
<td>D. Electricity, gas, steam, and water supply</td>
<td>11,133</td>
<td>7,101</td>
<td>10</td>
<td>4,022</td>
<td>-</td>
</tr>
<tr>
<td>E. Sewage, waste management and remediation activities</td>
<td>12,259</td>
<td>23</td>
<td>6,874</td>
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<td>5,362</td>
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<td>F. Construction</td>
<td>15,408</td>
<td>2,442</td>
<td>4,946</td>
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<td>7,718</td>
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<tr>
<td>M. Professional, scientific and technical activities</td>
<td>10,987</td>
<td>1,854</td>
<td>2,573</td>
<td>6,085</td>
<td>476</td>
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<tr>
<td>Other Industries (A, N, J)</td>
<td>1,316</td>
<td>18</td>
<td>121</td>
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Shares by category in 9 industries (%)

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6. Use of Indicators and Statistics in Policy

- GGIs, GLIs, SEEA, GG statistics are open to public
- Identify missing data and improve statistics
- Make credible policies and revise them for better outcome
- Evaluate performance of policies with targets
- Compare Indicators in Korea with those in other countries
- Check progress of policies and provide revision directions

Credible Policy

Indicators / Statistics for Green growth

Database

No data (Not collected)

Policy Evaluation

Check Progress

Comparison

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Website on Indicators for Green Growth Policies

- Database on Indicator Sets of Green Growth, Green Lifestyle, Sustainable Development, etc.
  - http://green.kostat.go.kr
- Green Growth Indicators (GGIs); 3 Categories (30)
- Green Life-style Indicators (GLIs);
  - Awareness and Action (41)
  - Performance (13)
- Sustainable Development Indicators; 3 Categories (77)
- Environment Performance Index (22)
Main Screen of Website

Check Green Life-style personally

- Green Purchase, Green Home, Green Transportation, Green Workplace
Check Level of Green Awareness and Action

- Calculate scores of personal habits and compared them with household averages

Thank you for your attention!

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