Environmental Education & Research

In Seoul National University

Jung Wk KIM

On behalf of Dr. Jang Moo Lee, President of SNU
Environmental Status of Korea

ESI (Environmental Sustainability Index): by World Economic Forum

95th among 122 countries in 2001
136th ” 142 ” 2002
122nd ” 146 ” 2005

(146th in pollution loading)
(18th in social capacity)

N. Korea : 146th 위, Taiwan : 145th
S. Korea’s Oil Position

3rd in Oil Import

6th in Oil Consumption
CO₂ Emission (’02)

<table>
<thead>
<tr>
<th>Country</th>
<th>MTCO₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>5,652</td>
</tr>
<tr>
<td>China</td>
<td>3,270</td>
</tr>
<tr>
<td>Russia</td>
<td>1,503</td>
</tr>
<tr>
<td>Japan</td>
<td>1,207</td>
</tr>
<tr>
<td>B Britain</td>
<td>529</td>
</tr>
<tr>
<td>S.Korea</td>
<td>473</td>
</tr>
</tbody>
</table>

자료: Key World Energy 2004, 5위: 인도(1,016MTCO₂), 6위: 독일(838), 7위 캐나다(532)
## Energy & CO2 Reduction Potential (2020)
(Unit: MTOE/MTC)

<table>
<thead>
<tr>
<th>Scenarios</th>
<th>Energy Use</th>
<th>Energy Reduction</th>
<th>CO₂ Emission</th>
<th>CO₂ Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business-As-Usual</td>
<td>332.2</td>
<td></td>
<td>204.4</td>
<td></td>
</tr>
<tr>
<td>Strategies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy Efficiency</td>
<td></td>
<td>95.4</td>
<td></td>
<td>58.9</td>
</tr>
<tr>
<td>Land use &amp; Trans.</td>
<td></td>
<td>9.7</td>
<td></td>
<td>7.9</td>
</tr>
<tr>
<td>Sustainable Agr.</td>
<td></td>
<td>2.9</td>
<td></td>
<td>3.9</td>
</tr>
<tr>
<td>Forest Manag.</td>
<td></td>
<td></td>
<td></td>
<td>5.7</td>
</tr>
<tr>
<td>Total Effect</td>
<td>224.2</td>
<td>108.0 (32.5% ↓)</td>
<td>128.0</td>
<td>76.4 (37.4% ↓)</td>
</tr>
</tbody>
</table>
Lake Shihwa, ’93
Lake Shihwa in ’96
Yellow Dust Storm from China
Seoul, April 9, 2006
# Yellow Dust Storm

## Frequency

<table>
<thead>
<tr>
<th>Period</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historically</td>
<td>once in several years</td>
</tr>
<tr>
<td>in ’60 – ’70</td>
<td>&gt;3 days/yr</td>
</tr>
<tr>
<td>in ’80</td>
<td>3.9 days/yr</td>
</tr>
<tr>
<td>in ’90</td>
<td>7.7 days/yr</td>
</tr>
<tr>
<td>in 2000s</td>
<td>17 days/yr</td>
</tr>
</tbody>
</table>

## Maximum Dust Level:

- 2778 microgram/m³ in 2002
- 2770 ” in 2006
- 150 ” : standard
Desert Distribution in Northern China
Over-grazing in Inner Mongolia

2001년 11월 7일 찍음
3,000 km$^2$ is Desertified each year
Shunze (荀子), 2200 yrs. ago (Warring States)

彊國篇
“Upon entering Qin (秦)
Forests were thick, valleys beautiful, and resources plentiful.”

富國篇
“Furrows are full of grains,
Fish swim in swarms,
Birds fly like clouds,
Living creatures fill the universe, so that
There are as much food as we want”
More than half of the Yellow River Basin used to be covered with thick virgin forest until 2000 yrs. ago. Now less than 5% of the land is forest.
Yellow Sea Pollution
Bohai Sea
(渤海)
(satellite image)
Oil well in Bohai Sea (渤海)

The water is not blue
Environmental Education
& Research
In Seoul National University
## I. Environmental Education in SNU

### 1. Colleges & Departments in leading role

<table>
<thead>
<tr>
<th>Colleges</th>
<th>Departments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Col. Social Sciences</td>
<td>Dept. Geography</td>
</tr>
<tr>
<td>Col. Natural Sciences</td>
<td>Dept. Earth &amp; Environmental Sciences</td>
</tr>
<tr>
<td>Col. Engineering</td>
<td>Dept. Civil &amp; Geosystem</td>
</tr>
<tr>
<td>Col. Agr. &amp; Life Sciences</td>
<td>Dept. Forest Sciences</td>
</tr>
<tr>
<td>Grad. Sch. Public Health</td>
<td>Dept. Env. Health</td>
</tr>
<tr>
<td>Grad. Sch. Env. Studies</td>
<td>Dept. Env. Planning</td>
</tr>
</tbody>
</table>

### Interdisciplinary Programs

- Env. Education
- Env. Landscape Arch.
## I. Environmental Education

### 2. Courses

<table>
<thead>
<tr>
<th>Area</th>
<th>Courses</th>
<th>Approx. No. of Courses</th>
</tr>
</thead>
</table>
| **Aerosol Science and Engineering**       | - Envi. Earth Chem.  
- Atmos. Env. 
- Earth Env. Change & Human Role, etc. | 15                     |
| **Air Quality and Pollution Control**     | - Air Quality Management 
- Air Pollution and Dispersion | 10                     |
| **Aquatic Processes and Water Quality**   | - Env. Chemistry  
- Aquativ Toxicology 
- Water Supply & Wastewater | 30                     |
| **Water Resources**                       | - Water Res. Planning & Management 
- Watershed Management  
- Water Crisis | 10                     |
| **Ecology and Ecosystems**                | - Ecosystem & Env. Pollution  
- Biodiversity & Env.  
- Soil Env. | 40                     |
| **Energy**                                | - Seminar in Energy & Environment 
- Energy Policy & Economy  
- Energy Eng. | 10                     |
| **Law and Policy**                        | - Env. Energy & Int'l Politics 
- Env. Economy  
- Res. In Env. Law | 30                     |
| **Others**                                | - En. Issues in Industrialized Society 
- Sustainable Env. Planning  
- Food & Env. | 80                     |
II. Environmental Research

- Inst. Regional Studies
- Res. Inst. Agr. & Life Sciences
- Inst. Health & Env.
- Res. Inst. Energy & Resources
- Env. Planning Inst.
III. Integrated Research

1. Environmental Council

University-wide Network of Faculty Members in SNU to Collaborate on Sustainability Studies

Sustainable Land Use & Energy
- Land Use, Urban Planning
- Energy
- Resources

Environmental Regeneration
- Environmental Restoration
- Ecosystem Conservation
- Eco-Industry

Interdisciplinary Studies Toward Sustainability

Sustainable Life
- Sustainable Lifestyle
- Ecotoxicology
- Environmental Health

Sustainable Society & Education
- Sustainable Society & Culture
- Environmental Education
- SNU’s Role in Sustainability
Activities of Environmental Council

Environmental Colloquium since 1994

Researches
• Environmental Education and Research System within SNU
• Environmental Policy Studies for Unified Korea
• Sustainability Studies for local communities

Education
• Course Development and Co-Teaching
III. Integrated Research

2. CEO Sustainable Management Forum

Environmental Policy Forum for Leading Figures in Korea
For Sustainability Studies

Multi-sectoral Discussions
Case Studies
Field Studies
Policy Development
IV. Proposals

1. Center for Sustainability Studies (CSS)

- Multi-disciplinary
- Multi-sectoral
- Integrated Approach

CSS

- Education
- Research
- Public Participation
- Int’l Cooperation

- Strategy for Climate Change
- Sustainable Energy System
- Sustainable Urban Env.
- Biodiversity
- Sustainable Transportation
- Global & Regional Env.
- Sustainable Landuse

Sustainable Society
IV. Proposals

2. Collaboration

1) Intra-Versity
   - Inter-disciplinary Programs
   - Inter-disciplinary Courses
   - Inter-collegial courses
   - Joint Teaching
   - Joint Research

2) Inter-Versity (International)
   - Inter-Versity Course Development
   - Inter-Versity Tele-Lectures
   - Joint Appointment of Faculty members
   - Joint Teaching with Visiting Professors
   - Joint Research
Seoul National University

established in 1946,
hopes to play a responsible role
in environmental E & R.

Pres. Jang Moo LEE :
used to be a leader
in a Renewable Energy Group
Thank you so much