from IPCC Fourth Assessment Report (AR4) "Climate Changes 2007"

- Higher global air and ocean temperatures.
- Rising global average sea level.
- Less snow and ice.
World Population: 1950-2050

Source: Statistics Bureau, Ministry of Internal Affairs Communications, JAPAN
Birth of the Internet

ARPA NETWORK (‘69)
UCLA
UC Santa Barbara
University of Utah
Stanford Research Institute (SRI)

adapted from “Casting the Net”
50 years ago...

Nobody dreamed of the Internet society.

<table>
<thead>
<tr>
<th>Year</th>
<th>1958</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN Member States</td>
<td>81</td>
<td>192</td>
</tr>
<tr>
<td>Oil Prices (per barrel)</td>
<td>2US$</td>
<td>120US$</td>
</tr>
<tr>
<td>Telephone Subscribers</td>
<td>100M</td>
<td>1,300M</td>
</tr>
<tr>
<td>Mobile Phone Subscribers</td>
<td>0</td>
<td>2,500M (1980s~)</td>
</tr>
<tr>
<td>Hosts registered to DNS</td>
<td>0</td>
<td>542M (1969~)</td>
</tr>
</tbody>
</table>

Will the Internet in the next 50 years meet our demands?
Next 50 years: Big Challenge

How can we overcome global challenges to accomplish sustainable development?

- Environmental changes
- Population Explosion
- Other problems and crisis facing the future

ICT can contribute to overcoming global challenges as a key technology for sustainable development.
Information Explosion

Source: International Data Corporation, "The Diverse and Exploding Digital Universe", 2008
Increased power consumption
-Huge Router-

Core Router in 2020 will require
Peta bit Switching Ability

Peta bit Class Router
Power Consumption
10,000KW

Current Technologies
X100 units
1,000,000KW

= one nuclear
generation
power plant generation
Endangering Cultural Diversity

Relationship between Gross Income Per Capita and Internet Utilization Rate

Source: WHITE PAPER Information and Communications in Japan, 2007

Ratio of Web Contents by Language

Source: Global Internet Statistics, 2004
Requirements for the Ideal New Generation Network

<table>
<thead>
<tr>
<th>Social Infrastructural Point</th>
<th>Technological Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Support sustainable</td>
<td>✓ Compatible to the future</td>
</tr>
<tr>
<td>development of society</td>
<td>service and application</td>
</tr>
<tr>
<td>✓ Realize safety and security</td>
<td>✓ Compatible during disasters</td>
</tr>
<tr>
<td>of society</td>
<td>and emergencies</td>
</tr>
<tr>
<td>✓ Support the lives of the</td>
<td>✓ Capable to become the</td>
</tr>
<tr>
<td>handicapped</td>
<td>intellectual foundation</td>
</tr>
<tr>
<td>✓ Support future knowledge</td>
<td>✓ Meet the Green ICT’s</td>
</tr>
<tr>
<td>society</td>
<td>requirements</td>
</tr>
</tbody>
</table>
Approaches toward Realization of New Generation Network

- Vision and technological potential
  - Architecture, virtual techniques
dynamic element technology,
Ubiquitous / Sensor Net
Wireless Security ...

- Construction of test bed network

- Promotion of verification
testing of R&D results ...

Strategic and comprehensive
R&D

Field trials of R&D results

Consideration of social
and economical aspects

International coexistence
capabilities and partnership

- Safety and peace of mind
relating to issues such as
security and privacy

- Environmental assessment

- Network openness, sustainable
development potential ...

- What about the information
society of the future?

- Cooperation with Europe,
America and Asian countries
American innovation strategies ...

- Competition and cooperation
New Direction

NWGN? Future Internet?