The Eco-Model City Project and Future Directions

October 5, 2009

Regional Revitalization Bureau, Cabinet Secretariat, Government of Japan
Eco-Model Cities for the Low-Carbon Society

Purpose of the Policy
- In order to transform Japan into the low-carbon society, it is necessary to change the fundamental structure of society.
- In order to provide a specific and easily understood model of the low-carbon society on a city basis, Japanese government selects Eco-Model Cities that challenge pioneering initiatives in pursuit of ambitious goals such as dramatically reducing greenhouse gases and provide support for their implementation.
- Revitalization of local economies are also expected in the process of the low-carbon society development with the latent power of local communities.

The sequence of events
- The selection process was opened to applications from April 11 to May 21, 2008, and 82 applications (from 89 bodies) were received representing a diverse range of cities and regions.
  - Thirteen cities were selected as Eco-Model City.
    - Major cities: Kitakyushu, Kyoto, Sakai, Yokohama
    - Regional core cities: Iida, Obihiro, Toyama, Toyota
    - Small cities, towns, and villages: Shimokawa, Minamata, Miyakojima, Yusuhara
    - Special Tokyo Ward: Chiyoda
- Each Eco-Model Citys' detailed action plans for achieving their goals were announced (April 2009).

Eco-Model City outline
Key characteristics include:
- Redevelopment to a compact city (walkable communities)
- Development of transportation infrastructure (electric cars and public transportation such as LRT)
- Transformation in residential styles (houses built to last 200 years, energy-saving houses, fuel cells)
- Widespread of renewable energy (solar power, wind power, biomass, etc.)
- Utilization of unused energy (sewage, garbage, plant waste heat, etc.)
- Conservation and utilization of forested land (carbon offsets, local production for local consumption)

Integrated implementation in cities (Integrated approach)
- The project provides model cases of low-carbon cities in a way that takes advantage of the characteristics of different cities and regions.
- Local public bodies will play a central role as they involve industry, academia, and residents to create vitalized communities by transformation of lifestyles and business styles.
### Targets of 13 Eco-Model Cities

<table>
<thead>
<tr>
<th>Cities</th>
<th>Population</th>
<th>Area</th>
<th>Reduction (Mid-term)</th>
<th>Reduction (Long-term=2050)</th>
<th>Base year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kitakyusyu</td>
<td>0.99 million</td>
<td>488 km²</td>
<td>30% (2030)</td>
<td>50% to 60%</td>
<td>2005</td>
</tr>
<tr>
<td>Kyoto</td>
<td>1.47 million</td>
<td>828 km²</td>
<td>40% (2030)</td>
<td>60%</td>
<td>1990</td>
</tr>
<tr>
<td>Sakai</td>
<td>840 thousand</td>
<td>150 km²</td>
<td>15% (2030)</td>
<td>60%</td>
<td>2005</td>
</tr>
<tr>
<td>Yokohama</td>
<td>3.65 million</td>
<td>437 km²</td>
<td>Over 30%/head (2025)</td>
<td>Over 60%/head</td>
<td>2004</td>
</tr>
<tr>
<td>Iida</td>
<td>110 thousand</td>
<td>659 km²</td>
<td>Household sector 40% to 50% (2030)</td>
<td>70%</td>
<td>2005</td>
</tr>
<tr>
<td>Obihiro</td>
<td>170 thousand</td>
<td>619 km²</td>
<td>30% (2030)</td>
<td>50%</td>
<td>2000</td>
</tr>
<tr>
<td>Toyama</td>
<td>420 thousand</td>
<td>1,242 km²</td>
<td>30% (2030)</td>
<td>50%</td>
<td>2005</td>
</tr>
<tr>
<td>Toyota</td>
<td>420 thousand</td>
<td>918 km²</td>
<td>30% (2030) Challenge:50% (2030)</td>
<td>50% Challenge:70%</td>
<td>1990</td>
</tr>
<tr>
<td>Shimokawa</td>
<td>3,900</td>
<td>644 km²</td>
<td>32% (2030)</td>
<td>66%</td>
<td>1990</td>
</tr>
<tr>
<td>Minamata</td>
<td>29 thousand</td>
<td>163 km²</td>
<td>33% (2020)</td>
<td>50%</td>
<td>2005</td>
</tr>
<tr>
<td>Miyakojima</td>
<td>55 thousand</td>
<td>205 km²</td>
<td>30~40% (2030)</td>
<td>70% to 80%</td>
<td>2003</td>
</tr>
<tr>
<td>Yusuhara</td>
<td>5,000</td>
<td>237 km²</td>
<td>50% (2030) *energy conversion sector excluded 3.5 times GHG sink (2030)</td>
<td>70% *energy conversion sector excluded 4.3 times GHG sink (2030)</td>
<td>1990</td>
</tr>
<tr>
<td>Chiyoda</td>
<td>45 thousands</td>
<td>12 km²</td>
<td>25% (2020)</td>
<td>50%</td>
<td>1990</td>
</tr>
</tbody>
</table>
Examples of Eco-Model Cities Initiatives

**SHIMOKAWA Town (3,900)**
- Low-carbon model society in symbiosis with the northern forest
  - Utilization of fast-growing willow trees as fuel
  - Introducing area-wide heat producing facilities
- Pedestrian-centered urban planning; low-carbon activities based on community power
  - Shijo St. transit mall – control vehicle inflow to narrow local streets
  - Construction of low-carbon buildings that regain the elegance of old Kyoto
  - Eco-neighborhood associations, eco-schools, and eco-businesses
- Low-carbon industrial complex, low-carbon life style
  - Introduction of mega-solar (28MW) and large-scale fuel cells (10MW) and an integrated energy management system
  - Residential solar power systems (100 thousand households)
  - Community Cycle System utilizing local industries

**KYOTO City (1.47mil.)**
- Environmental frontier city in Asia
  - "Low-Carbon 200 Year Town" utilizing advanced technologies
  - Provision of non-utilized factory heat to surrounding areas
- Sustainable small-scale model municipality promoting both environment & economy
  - 22 types of separation of garbage, high quality of recycling
  - Turning bamboo to bio-fuel
- Developing a business model for woody biomass regional utilization
  - Recycling-based forest management through production of woody pellets, etc.
  - Installation of 40 wind power turbines by 2050

**MINAMATA City (30thou.)**
- Self-Sufficient Energy Through Sugarcane
  - Using bio-ethanol instead of gasoline, power generation using bagasse (by-product of sugarcane production)
  - CO2 free car society

**SAKAI City (840thou.)**
- Energy efficient building and city
  - Energy-saving measures for small- to medium-sized buildings
  - Advancing project to establish communal air-conditioning facilities, use of heat from spring water

**KITAKYUSUYU City (0.99mil.)**
- Achieving city-wide zero-carbon lifestyle by utilizing the residents’ efforts to share knowledge, expanding choices and promoting action
  - Expand renewable energy use 10 times by 2025
  - Grant economic incentives for high-performance homes

**OBIHIRO City (170thou.)**
- A rural environment model city
  - Oil substitute fuels from cow manure compost, etc.
  - Non-tilled cropping

**TOYAMA City (420thou.)**
- The CO2 reduction plan provided by the Toyama compact city strategy
  - Building LRT network
  - Offering incentives to residents to relocate along public transportation

**YOKOHAMA City (3.65 mill.)**
- Introduction of renewable energy and low-carbon urban development
  - Promotion of residential district heating system
  - Utilization of renewable energy by town zones

**TOYOTA City (420thou.)**
- Town development with cutting-edge technology, eco-car life
  - Pioneer installation of advanced environmental technologies in “low-carbon model district”
  - Plug-in hybrid car sharing system and creation of solar powered recharging infrastructure

**IIDA City (110thou.)**
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The Council was created by interested municipalities and other entities in order to bring Eco-Model City initiatives to other communities.

*Established December 14, 2008. As of October 5, 2009, 168 bodies were participating in its activities. (Members: Eco-Model Cities; interested cities, wards, towns, and villages; prefectures; ministries and agencies; and other government agencies)

The Council is having Eco-Model Cities take the lead in disseminating the initiatives to other communities through the following programs:

- Support to develop action plans
- Sharing information on such topics as policies and the latest scholarly research
- Planning and promoting regional initiatives and combined initiatives for developing low-carbon cities
- Disseminating information to public both inside and outside Japan

October 5, 2009 (in Yokohama)
**The International Conference on Promoting Low-Carbon Cities 2009**

- **Working hard together** through exchange and partnerships among participating municipalities
- **Increasing** the sophistication of cities’ initiatives
- **Making best practices and applying them in various regions**

Creating regional vitality

Improving quality of life, creating new businesses, realizing economic benefits, facilitating regional cooperation, etc. in the process of a low-carbon society development
The following working groups were established to apply the initiatives being undertaken by Eco-Model Cities nationwide and to encourage hard work and cooperation among municipalities.

### Working Group for Promoting Urban and Regional Low-Carbon Policy

Provides a framework for cities, wards, towns, and villages in researching topics of importance in such programs as the redevelopment of existing urban areas, the development of urban infrastructure and facilities; the creation of cooperative mechanisms among residents and other groups; and the establishment of methods for their evaluation.

**Coordinator:** City of Kitakyushu

**Study themes**

- Studying methods for evaluating urban environmental performance
- Development of low-carbon model districts and communities

### Green Economy Working Group

Provides a framework for the development and dissemination of models for regional revitalization by involving various regional actors and establishing new business models in order to simultaneously reducing CO₂ emission and revitalize local communities.

**Coordinator:** City of Yokohama

**Study themes**

- Developing policies for creating a green economy (Increasing of renewable energy use, dissemination of eco-houses, etc.)
- Building regional partnership models for a low-carbon society

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**Validation and evaluation of greenhouse gas reduction policies**

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<tr>
<th>Building and individual project scale</th>
<th>Urban area, district, city, comprehensive policy scale</th>
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</thead>
<tbody>
<tr>
<td>Water surface</td>
<td>Roadway</td>
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</table>

**Partnerships**

- Cities
- Rural agricultural, and fishing communities
- Thinning
- Utilization of biomass resources

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**Thinning Utilization of biomass resources**

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