Biomass-Nippon Strategy

Ministry of Agriculture, Forestry & Fisheries, Japan
1. Backgrounds

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1. Backgrounds

1) Prevention of Global Warming
2) Creation of a “Recycling-Oriented” Society
3) Fostering of New Strategic Industries
4) Activation of Agriculture, Forestry, and Fishery, Rural Communities
2-1. Definition of biomass

**Biomass** = *Renewable, organism-derived organic resource, excluding fossil resources*

- **Waste Biomass**
  - Paper waste
  - Livestock waste
  - Food waste
  - Construction wood
  - Black liquor
  - Sewage sludge

- **Unused Biomass**
  - Rice straw
  - Rice husk
  - Thinned wood
  - Damaged wood

- **Energy crops**
  - Maize
  - Oil seeds
  - Sugarcane
2-2. Current status of biomass utilization

<table>
<thead>
<tr>
<th>Waste Type</th>
<th>Unused Biomass</th>
<th>Current Status of Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Livestock waste</td>
<td></td>
<td>91% used as fertiliser</td>
</tr>
<tr>
<td>Food waste</td>
<td></td>
<td>22% less than 10% used as fertiliser</td>
</tr>
<tr>
<td>Paper waste</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Black liquor</td>
<td></td>
<td>About 100% used as energy source</td>
</tr>
<tr>
<td>Sewage sludge</td>
<td></td>
<td>76% 40% used as landfill, 60% used as construction materials or fertilizer</td>
</tr>
<tr>
<td>Residues at lumber mills</td>
<td></td>
<td>6 90% used as energy or fertiliser</td>
</tr>
<tr>
<td>Construction-derived wood residues</td>
<td></td>
<td>5 40% used as paper, cardboard, etc.</td>
</tr>
<tr>
<td>Forestry residues</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Rice straw, etc.</td>
<td></td>
<td>13 30% used as compost, feed, etc.</td>
</tr>
</tbody>
</table>
2-3. Goals

Evolution scenario for biomass utilisation

Current situation 2010 2020

Goals - 2010

Nation-wide perspective
- Waste biomass utilise more than 80% in terms of carbon equivalent
- Unused biomass utilise more than 25% in terms of carbon equivalent
- Start the commercial use of energy crops

Technology perspective
- Energy conversion efficiency
  (20% in terms of electricity, 80% in terms of heat)

Regional perspective
- Launch 500 Biomass towns
2-4. Action plans

1) General aspects
   • Establish a Biomass Information Headquarters on site
   • Support ambitious municipalities on biomass utilization
     and demonstrate them for other municipalities as model projects

2) Production, Collection, and Transportation
   • Create an efficient collection/transportation system for biomass

3) Conversion of Biomass
   • Develop conversion technologies
   • Make products highly value added and diversification

4) Use of Biomass
   • Improve the environment for promotion of the use of bioplastics and biofuels,
     and the biomass power generation
2-5. Biomass Town

Goal to launching 500 towns by 2010

Interchange of energy or resources among the town

Conversion facility
- Electric power and heat generation
- Ethanol, BDF
- Composting
- Plastic material etc.

Necessary conditions
More than 40% of unused biomass or 90% of waste biomass in terms of carbon equivalent

Farm
- Crop residues
- Livestock waste
- Manure, electricity

Food factory
- Food waste

Restaurant
- Sewage sludge

Forest
- Electricity, Heat, Bioplastics

Houses
- Forestry residues

☑️ 可行性報告書作成のための基礎研究
☑️ 归仁村のバイオマスエネルギー利用システムの構築
☑️ 千葉県のバイオマスエネルギー利用システムの構築
☑️ 福岡県のバイオマスエネルギー利用システムの構築
Biomass Town ~JOETSU City

Electric power and heat generation
50t/day

Biomass
Wood waste 15,500 t/yr
Sewage waste 4,650 t/yr
Cooking oil 24,800 L/yr
Forestry residues 2,000 t/yr
Wood waste 3,000 t/yr

BDF plant 80L/day
23,560L/yr

Plastics materials
1,540t/yr

Wood pellet 10t/day
2,400t/yr

Heat supply:
2,222,700 MJ/yr

Heat supply:
26,604,200 MJ/yr

Sludge drying facility
25t/day

Heat supply:
33,003,000 MJ/yr

Amount of CO₂ emission cuts 4,600t/yr

Cement plants
cement raw material; 775t/yr

Fuel for garbage trucks

Bioplastics
Horticultural facilities
3. FY 2005 Biomass related budget

(Ministry of agriculture, Forestry & Fisheries)

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<table>
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<tbody>
<tr>
<td>Research and Development</td>
<td>17</td>
</tr>
<tr>
<td>Community based measures</td>
<td></td>
</tr>
<tr>
<td>- Planning, Technical assistance/extension</td>
<td>15</td>
</tr>
<tr>
<td>- Biomass conversion facilities</td>
<td>199</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>231</strong></td>
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</tbody>
</table>
4. Summary and Conclusion

1) Cabinet decision - Inter-ministerial initiative

2) 4 main reasons to establish the strategy including a creation of “Recycling-Oriented” Society.

3) Goals, and action plans for each ministry are identified.

4) Future challenge:
   •  Changes in local rules and regulations for biomass utilization and management
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