1. Biomass
“Biomass” is defined as renewable, organism-derived organic resources, excluding fossil resources.

Biomass resources are produced by organisms through photosynthesis using solar energy. This means that it will remain renewable resources in a sustainable manner throughout our life cycle, as long as both life and solar energy continue to exist.

Biomass is “carbon neutral” in itself, so it does not increase the amount of CO2 in the atmosphere during the life cycle.

**What is Biomass?**

- Unused Biomass
  - Rice Straw
  - Wheat straw
  - Forestry residue

- Energy Crops
  - Saccharinity material (sugar cane, sugar beet)
  - Starchy material (rice, corn)
  - Fat material (rapeseed, soybean)

- Waste Biomass
  - Livestock waste
  - Food waste
  - Sewage sludge
  - Black liquor
  - Lumber residue

**Origin of the word “Biomass”**

BIOMASS = BIO (biological resources) + MASS (a large amount of a substance)
Storage and Usage Ratio of Biomass in Japan

- **Animal manure**: Approximately 88 million t
  - Used as compost etc. Approximately 90%
  - Unused Approximately 10%

- **Sewage sludge**: Approximately 79 million t
  - Used as building materials, compost etc. Approximately 75%
  - Unused Approximately 23%

- **Black liquor**: Approximately 14 million t (*1)
  - Used as energy Approximately 100%

- **Waste paper**: Approximately 27 million t
  - Used as raw materials, energy etc. Approximately 80%
  - Unused Approximately 20%

- **Food waste**: 19 million t
  - Unused Approximately 73%

- **Lumber residue**: Approximately 3.4 million t (*1)
  - Used as fertilizers and animal feed etc. Approximately 27%
  - Used as materials for paper, energy etc. Approximately 95%
  - Unused approximately 5%

- **Wood waste**: Approximately 4.1 million t
  - Used as materials for paper, bedding for animals etc. Approximately 90%
  - Unused Approximately 10%

- **Non-edible parts of farm crops**: Approximately 14 million t
  - Used as compost, feed, bedding for animals etc. Approximately 30%
  - Unused Approximately 55%
  - Unused Approximately 55%

- **Forestry residue**: Approximately 8 million t (*1)
  - Used as materials for paper etc. Approximately 1%
  - Unused Approximately 99%

(*1) Dry Weight

Reference: 「The Basic Promotion Plan of Biomass Utilization」
There are two ways to utilize biomass:

① use as products such as compost, feed, charcoal deodorizer, plastic, biofuel etc.
② use as energy such as generating electricity, heat etc.
Utilization of biomass as “material” is expected in ways such as...

① Substitution of petroleum-derived plastic with bio-plastic made of thinned wood, nonfood rice, rice husks for production of trays, and garbage bags etc.,
② Contribution to recycle-use of food resources and as a means to cover price escalation of animal feed through production of Eco-feed (liquid animal feed) utilizing food residue.
③ Substitution of petroleum-derived materials such as nano-carbon with woody biomass-derived material

### Examples of biomass utilization with advanced technology (material use)

<table>
<thead>
<tr>
<th>Biomass plastic</th>
<th>Animal feed (Eco-feed)</th>
<th>Nano-carbon</th>
</tr>
</thead>
</table>
| ○Agri future Joetsu Co., Ltd.  
  ~Joetsu-City, Niigata Pref.~ | ○Bright Pig Chiba Co., Ltd.  
  ~Asahi-City, Chiba Pref.~ | ○Toshiba Corporation  
  ~Sponsored by Forestry Agency~  
  ~Hita-City, Oita Pref.~ |
| • Production of new resin under industry-university-government cooperation: complex of plastic resin (polylactate, polyolefin) and thinned wood, nonfood rice by kneading  
  • Utilize as raw material for garbage bags, trays, and spines for paper fans | • Production of pig feed utilizing residue from food processing plant and expired food from supermarkets  
  • Production capacity: 300t/day (120t of solid raw material and 180t of liquid raw material) | • Technical experiment project on nano-carbon production through gasification of woody biomass into hydrocarbon gas using a catalyst  
  • Expected use in production of highly functional plastic resin by mixing nano-carbon with resin. |
| ![Garbage bag](image1)  
  (non-food rice) | ![Tray](image2)  
  (thinned wood)  
  ![Tray](image3)  
  (non-food rice) | ![Nano-carbon](image4)  
  (Source: Toshiba)  
  ![Pig](image5)  
  (Source: Toshiba) |

- Collect food waste and fluidify for feeding  
  - [food processing plant, Super market]  
  - [pork farmers]
2. Japanese Biomass Policy
Biomass Nippon Strategy

- Japanese government approved the Biomass Nippon Strategy at a Cabinet meeting in December 2002 in order to promote utilization of biomass in a comprehensive and planned way. (7 relevant ministries)
- Furthermore, Biomass Nippon Strategy was revised in March 2006 with the aim of “acceleration of biomass towns” and “promotion of utilization of biofuels”.

Biomass Nippon Strategy

- Prevent global warming
- Biomass is carbon-neutral. It can be used as an alternative to fossil fuel, and contributes to the prevention of global warming.

- Formulate recyclable society
- Reduces waste and encourages transition to a recyclable society

- Nurture industries strategically
- Create new industries and jobs by utilizing biomass for new energy and materials. Such industries are expected to be leading strategic leading industries of Japan.

- Vitalize agricultural communities
- Biomass resources are abundant in Japan. Promotion of biomass utilization will bring new opportunities to agricultural communities.

March 2006

New Biomass Nippon Strategy

Revised points

Promotion of biofuels
Further promotion of the use of domestic biofuels
Promotion of the utilization of unused biomass such as rice straw and forestry residue are the key to achievement.

Accelerate Biomass Towns
Goal: 300 towns by 2010

Review of Biomass Nippon Strategy

Summary of Biomass Nippon Strategy

Biomass Nippon Strategy (cabinet approval in 2002, revised in 2006) provide future scenarios and plans with concrete targets aimed at the early realization of “Biomass Nippon”, a sustainable society, through the optimization of biomass for energy and products.

Implementation Status of Biomass Nippon Strategy

Based on the strategy, total governmental projects cost approximately 140 billion JPY for six years from 2003. Some positive results have been achieved. For example, the number of municipalities which designed a “Biomass Town Concept” is 318 (as of April, 2011). However, there are still many problems remaining.
Remaining problems with Biomass Nippon Strategy

Biomass Town Concept

Despite the formulation of a biomass town concept, activities have not been implemented and targets have not been achieved in some area.

Government grasps only the number of areas with a town concept. Inspection of detail activity in each concept and verification of the effects is not enough.

Effective Use of Biomass

Ratio of utilization for unused biomass is 17% although the target is 25%.

Techniques for effective biomass utilization through a combination of several techniques have not been fully established.

In order to address these problems, “Basic Principles for Biomass Utilization” have been drawn up through collaboration with related ministries.
The fundamental law on promoting the use of biomass (promulgated in 2009/09/11)

Objective

We establish this law for the purpose of driving forward policy biomass utilization comprehensively and strategically by establishing fundamental principles, defining the responsibilities of the concerned organizations and setting fundamental policy matters.

Fundamental principles

- Promote policies collectively and effectively
- Promote policies for the prevention of global warming
- Promote policies for the organization of a recycle-oriented community
- Contribute to industrial development and the improvement of international competitiveness in biomass fields
- Contribute to the vitalization of agriculture, forestry, fishery communities
- Maximum use according to the characteristic of each kind of biomass
- Diversify sources of energy
- Promote voluntary action by the community
- Develop social awareness for biomass use
- Secure a stable supply of food
- Give attention to environmental protection

Development responsibility and cooperation

- Reveal responsibility and intensifying cooperation between the national, local public bodies and business

Establish policy of the fundamental project for promoting usage of the biomass

Fundamental project for promoting usage of the biomass of...

The nation ➔ Prefectures and municipalities

Measures

The government must work toward the establishment of measures relating to the laws, economics, tax systems and financing of the enforcement of policies related to the promotion of biomass use.

Policies of the nation

The nation will take steps to establish measures necessary to...
- Promote the creation of necessary bases
- Create business supplying biomass
- Promote and spread technological developments
- Foster and maintain human resources
- Promote use of biomass products
- Promote voluntary action by private enterprise
- Promote action by local public bodies
- Promote cooperation between nations
- Collect information about biomass
- Promote understanding among the people

Policy of local public body

The local public bodies will enforce the policies in line with national policies, considering local conditions (nature, finance, social environment) comprehensively and strategically.

The conference for promoting usage of the biomass

1. The nation should organize the conference to promote the collective and effective advancement of biomass use and coordinate relationships between the concerned administrative entities.
2. Concerned administrative entities should organize expert conferences to promote biomass use and seek expert opinion for the coordination of relationships in 1 above.
* The conferences should be organized by secretariats of the Ministry of Agriculture, Forestry and Fisheries.

Promoting comprehensive policies will deliver revitalization of agriculture, forestry, fishing and rural communities and recycle-oriented community...
Outline: Basic Plan for the Promotion of Biomass Utilization (promulgated in 2010/12/17)

【Basic ideas】
○ Defines basic principles for policy measures aimed at the promotion of biomass utilization, national targets, and ideas on technical development based on the fundamental law for the promotion of biomass use.
○ Serves as a practical strategy for the realization of biomass use activities, for which the “Biomass Nippon Strategy” proved less than satisfactory.

Promotion of Biomass use

Vitalization of rural communities

Strengthen international competitiveness and develop industries

Mitigation of global warming and establishment of a recycle-oriented society

【Outline of the Plan】
1 Basic principle for policy measures
◇ Promote maximum utilization of biomass resources under an integrated framework of agriculture and forestry industries (biomass provider), producer of biomass products, local public organizations, and related governmental bodies

2 National target (as of 2020)

Vitalization of rural communities
★ Formulation of biomass utilization promotion plan (new biomass town) in 600 municipalities

Creation of industries
★ Creation of new industries that utilize Biomass at the scale of 500 billion JPY

Mitigation of global warming
★ Biomass utilization equivalent to 26 million tons of carbon

◇ Ensure effective application of the plan to promote biomass use through provision of technical information that facilitates solutions and an examination of the effectiveness of measures
◇ Promote Biomass use through the positive utilization of forestry residue

3 Government policy measures to be taken holistically and effectively
◇ Infrastructure development required for biomass utilization, creation of biomass business that provides biomass products, such as the 6th industrialization of rural communities, research and development, and human-resource development towards policy targets shown in 2 above.

4 Items related to technological research and development
◇ Promote a holistic technical framework, from the collection and transportation to processing and utilization of biomass, together with development of biomass utilization technology.
◇ Promote, in long-term view, the creation of biomass resources such as those with future prospects or alga biomass that exhibits high production efficiency.
## Target and Direction by Biomass Type

<table>
<thead>
<tr>
<th>Type of biomass (※1)</th>
<th>Approx. Ratio of utilization (Current status→Target(2020))</th>
<th>Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1   Livestock excrement (88 million t)</td>
<td>90% → 90%</td>
<td>• In addition to traditional manure use, high-degree application such as utilization of residue for fertilizer with energy use such as methane fermentation will be implemented.</td>
</tr>
<tr>
<td>2   Sewage sludge (79 mission t)</td>
<td>77% → 85%</td>
<td>• In addition to traditional use for building material, energy use such as biogasification will be implemented.</td>
</tr>
<tr>
<td>3   Black liquor (14 million t)</td>
<td>100% → 100%</td>
<td>• Energy use by direct combustion will be continuously implemented.</td>
</tr>
<tr>
<td>4   Waste paper (27 million t)</td>
<td>80% → 85%</td>
<td>• In addition to use as recycled paper, upgrading of energy retrieval will be implemented when recycling is difficult.</td>
</tr>
<tr>
<td>5   Food waste (19 million t)</td>
<td>27% → 40%</td>
<td>• In addition to feed stuff and fertilizer use, energy use such as methane fermentation will be implemented.</td>
</tr>
<tr>
<td>6   Lumber mill residue (3.4 million t)</td>
<td>95% → 95%</td>
<td>• Use for papermaking material and energy are continuously implemented.</td>
</tr>
<tr>
<td>7   Waste timber from construction (4.1 million t)</td>
<td>90% → 95%</td>
<td>• Use for papermaking material, board material, litter and energy are continuously implemented.</td>
</tr>
<tr>
<td>8   Non-edible portions of crops (14 million t)</td>
<td>30%→45% (excluding plowing-in) 85%→90% (including plowing-in)</td>
<td>• Conversion from plowing to fertilizer, feed stuff and energy use will be implemented with attention to improvement of soil productivity by plowing.</td>
</tr>
<tr>
<td>9   Wood residue (8 million t)</td>
<td>Almost unused → over 30% (※3)</td>
<td>• Cascade utilization such as use as material and energy will be implemented.</td>
</tr>
<tr>
<td>10  Recourse crops</td>
<td>Almost zero → 0.4 million C ton</td>
<td>• Establish extensive resource crop production technology in abandoned areas, and next generation bioenergy technology will be implemented.</td>
</tr>
</tbody>
</table>

※1 ( ) is approx. amount /yr  ※2 Black liquor, lumber residues and wood waste are dry weight.
※3 This figure is estimation at this moment.
3. Biomass Energy
The amount of production is estimated at 22,000 kl (as of March 2011).

3 large scale demonstration projects that Maff has launched since FY2009.

Current Status of Bioethanol Production in Japan

Bioethanol 22,000KL
(Product estimation as of March 2011)

1. Hokkaido, Tokachi district
   (Tokachi Foundation etc) 【MAFF,METI,MOE】
   • Raw material: Wheat (non standard), Sugar beet
   • Demonstration of fuel ethanol production and E3, E10.
   <H16〜22>

2. Hokkaido, Shimizu town
   (Hokkaido Bio Ethanol Co., Ltd.) 【MAFF】
   • Raw material: surplus sugar beet, wheat (non standard)
   Demonstration of fuel ethanol production
   <H19〜23>

3. Hokkaido, Tomakomai city
   (Oenon Holdings Co., Ltd.) 【MAFF】
   • Raw material: non edible rice
   • Demonstration of fuel ethanol production
   <H19〜23>

4. Niigata, Niigata city
   (JA) 【MAFF】
   • Raw material: non edible rice
   • Demonstration of fuel ethanol production
   <H19〜23>

5. Shizuoka, Shizuoka city
   (Shizuoka yuka kougyou) 【METI】
   • Raw material: soybean fiber, wasted potato
   Demonstration of fuel ethanol production
   <H19〜22>

6. Osaka, Sakai city
   (Taisei, Marubeni, Osaka pref etc) 【MOE】
   • Raw material: building waste
   • Demonstration of fuel ethanol production and E3
   <H16〜18>
   Start of commercial production
   <H22>

7. Okayama, Maniwa city
   (Mitsui engineering & shipbuilding, Okayama pref etc) 【METI】
   • Raw material: wood waste
   • Demonstration of fuel ethanol production and E3
   <H16〜20>

8. Fukuoka, Kita Kyushu city
   (Nippon steel engineering) 【METI, MOE】
   • Raw material: wasted food
   • Demonstration of fuel ethanol production
   <H16〜21>
   Start of commercial production
   <H22>

9. Okinawa, Miyakojima city
   (Ryuuseki) 【MOE, METI】
   • Raw material: molasses
   • Demonstration of fuel ethanol production and E3
   <H17〜23>

10. Okinawa, Le village
    (Asahi Beer, JA Le, Le village etc) 【MAFF, METI, MOE, CAO】
    • Raw material: new kind of sugarcane
    • Demonstration of fuel ethanol production and E3
    <H16〜21>
    Demonstration ends. There is no current production.

※ Each production from each company is not opened.
Major raw material for biodiesel is waste cooking oil. Total amount of biodiesel production is estimated at approx. 13,000kl in Japan as of March 2010. NPOs and local governments engage in the production of biodiesel using small plants.

Cases of biodiesel production

1. Miyagi, Shiogama City
   Raw material: Waste cooking oil
   Facility Capacity: 250kl
   B100 is used as fuel for 200 garbage trucks etc.

2. Fukushima, Iwaki City
   Raw material: Waste cooking oil
   Facility Capacity: 500kl
   B100 is used as fuel for 16 trucks etc.

3. Kyoto, Kyoto City
   Raw material: Waste cooking oil
   Facility Capacity: 1,500kl
   B100 is used as fuel for 160 garbage trucks. B100 is used as fuel for 93 buses.

4. Toyama, Toyama City
   Raw material: Waste cooking oil
   Facility Capacity: 250kl
   B100 is used as fuel for 120 garbage trucks etc.

B100 or B20 indicates the percentage of BDF in light fuel oil
   B100: 100% BDF
   B20: 20% BDF

Rapeseed project
   Rapeseed is planted for use in the production of cooking oil in the region. After use, the waste cooking oil is used to produce Biodiesel.

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Current Status of Wood Pellet Production

- In Hokkaido and Iwate prefecture, wood pellets are actively produced. Use of wood pellets in pellet stoves has increased because of strong environmental consciousness and convenience.
- Wood pellets are an alternative to heating oil and diesel, so use contributes not only to countering escalating gasoline prices but also to the reduction of greenhouse gas emissions.

Distribution of Wood Pellet Factories

Tokachi Pellet Cooperative - Hokkaido prefecture Ashoro Town -

Producing wood pellets from forestry and lumber residue for use as fuel for boilers to heat the fire department office and multi-purpose facility on the premises.

Comparison of prices between wood pellets and petroleum products

<table>
<thead>
<tr>
<th></th>
<th>Wood pellet</th>
<th>Converted price to petroleum</th>
<th>Current petroleum price</th>
</tr>
</thead>
<tbody>
<tr>
<td>For boiler</td>
<td>Retail price</td>
<td>70.1 yen/ℓ</td>
<td>70.0 yen/ℓ</td>
</tr>
<tr>
<td></td>
<td>30 yen/kg</td>
<td>70.1 yen/ℓ</td>
<td>70.0 yen/ℓ</td>
</tr>
<tr>
<td>For stove</td>
<td>Retail price</td>
<td>87.8 yen/ℓ</td>
<td>82.4 yen/ℓ</td>
</tr>
<tr>
<td></td>
<td>40 yen/kg</td>
<td>87.8 yen/ℓ</td>
<td>82.4 yen/ℓ</td>
</tr>
</tbody>
</table>

Total production (t) 
\[ \text{<ratio } 2006=100\] 2006 2007 2008 2009
Bunker A (Aug.2010) 24,901 29,920 36,444 50,693
Heating oil (Oct. 2010) 655 637 578 676

Source: The Institute of Energy Economics, Japan, Forestry Agency
Current status of biogas production

- Using biogas and selling surplus electric power, the facility reduces operating costs.
- Facilities tend to remain at the same level, production is mainly for in-house use.

1. Gasification (by biological reaction) (methane gas etc.)
   - Material: Animal waste, Food residue etc.
   - Characteristics: Fermentation residue can be used for fertilizer. Processing in hermetically-sealed facilities addresses environmental problems resulting from livestock production, such as effluvium.

2. Gasification (by chemical reaction) (hydrogen, carbon monoxide etc.)
   - Material: Woody biomass such as forestry residue
   - Characteristics: Gasification residue can be used as soil conditioner.

Shihoro Town biogas plant (south area)
~Hokkaido Shihoro-cho~

- Generating electric power using methane gas made from the fermentation of dairy cow faces (6,570t/year)
- Generated power is mainly used in the facilities and a part of the power is sold.
- Fermentation residue is returned to its own fields. Some digestive fluid is sold to farmers in the area.

Chichibu biomass genki electric power plant
~Saitama prefecture Chichibu city~

- Wood chips from local factories are gasified by heat decomposition.
- Electric power and waste energy are provided to facilities within the “genki community”. In addition, surplus electric power is sold to an electric company. The factory has been approved as RPS Act compliant.

Number of biogas facilities (derived from animal waste)

Source: MAFF research
Project for Technology Development for Soft Cellulose Utilization

- This project was implemented in 2008FY the goal of effective collection and transportation of soft cellulose materials, such as paddy straw, and ethanol production.

**Hokkaido Soft Cellulose Utilization Project**
- Organization: Taisei Corporation, Sapporo Breweries Ltd.
- Plant Location: Eniwa City, Hokkaido
- Facility Capacity: 3.7 l/day
- Raw material: rice straw, wheat straw (from Nahoro Town and Naganuma Town, Hokkaido)

**Akita Pref. Soft Cellulose Utilization Model Area**
- Plant Location: Katagami City, Akita Prefecture
- Facility Capacity: 200 l/day
- Raw material: rice straw, rice husks (Ogata Town, Akita Prefecture)

**Hyogo Pref. Soft Cellulose Utilization Project**
- Organization: Mitsubishi Heavy Industry Ltd., Hyogo Environment Advancement Association
- Plant Location: Akashi City, Hyogo Prefecture
- Facility Capacity: 16 l/day
- Raw material: rice straw, wheat straw (from Kasai City, Hyogo Pref. etc.)

**Kashiwanoha Soft Cellulose Utilization Project**
- Organization: Biomaterial in Tokyo Ltd.
- Plant Location: Kashiwa City, Chiba
- Facility Capacity: 100 l/day
- Raw material: rice straw, stalks (from Kashiwa City, Chiba)
Electricity is generated from woody biomass through the direct combustion of wood residue. The high cost associated in the process of tree trimming, collection and transportation is the barrier.

**Examples of Electric Generation using Woody Biomass**

- **Organization**: Hita wood power Co., Ltd.
  - **Location**: Hita city, Oita
  - **Power**: 12,000kW

- **Organization**: Kawasaki Biomass Electrics Co., Ltd.
  - **Location**: Kawasaki-city, Kanagawa
  - **Power**: 33,000kW

- **Organization**: Shirakawa wood power Co., Ltd.
  - **Location**: Shirakawa city, Fukushima
  - **Power**: 11,500kW

- **Organization**: Azuma Bio-power Co., Ltd.
  - **Location**: Azuma-gun, Aizu
  - **Power**: 13,600kW
  - **※to be launched soon**

- **Organization**: Green Electric Generation Aizu Co., Ltd.
  - **Location**: Aizu wakamatsu, Fukushima
  - **Power**: 5,000kW
  - **※under development**

**Examples: Steps of electric generation**

1. Secure material
2. Woody biomass
   - 60 thousand t/yr
3. Transportation
4. Electric generation plant
   - Capacity 5000kwh
5. Selling
   - Approx. 40million kw/yr
Building energy systems which coexist with our rich natural environment and beautiful landscape.

Making arrangements through which local residents and communities can be actively involved with energy systems.

Cooperation among relevant groups such as cooperative associations, private companies and local governments, and the institutionalization of consortium.

### Subject

- **Distribution of Electricity**
- **Heat Supply**

#### Energy Self-sustained System in Rural Areas (Smart Village)

- **Solar Energy Generation**
- **Upland Residential Areas**
- **Small Hydroelectric Generation**
- **Management System**
- **Forest Thinnings**
- **Animal Waste**
- **Wood Biomass**
- **Biomass Energy Generation Plant (Combined Heat and Power)**
- **Large Scale Plywood Factory**
- **Wind-Generated Electricity**
- **Fishery Processing and Distribution Facilities**
4. Biomass Town
What is a Biomass Town?

A Biomass Town is a community which utilizes biomass comprehensively with strong ties between the community and local stakeholders. The national government promotes Biomass Town concept to achieve a Biomass Nippon Strategy’s goal: 300 biomass towns by 2010.

Current Situation of each region

- Selection of biomass depends on the region; for example, domestic animal waste, leftover food, sewage sludge, thinned wood, seafood processing residue.
- Biomass use also depends on the region. Products: composts, plastic. Energy: gas, electricity, Bioethanol, BDF.
- Policy goals vary by region; for example, prevention of global warming, local production of energy for local consumption, revitalization of local businesses and etc.

Issues to consider

- framework for corporation among concerned parties
- a variety of ways to use biomass corresponding to local needs.
- efficient ways to collect, transport, convert biomass resources and use biomass energy, etc.

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Enlargement of Biomass Town

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Past Achievement

- 2004: 13 towns
- 2005: 44 towns
- 2006: 90 towns
- 2007: 136 towns
- 2008: 197 towns
- 2009: 268 towns
- 2010: 286 towns
- 2011: 318 towns

GOAL: 300 biomass towns by FY2010
Some Approaches in each Region

**Kosaka town, Akita**
“Rape Blossom Project” based on 3R experience.

**Motegi town, Tochigi**
Local brand products from compost made using organic resources. Local production for local consumption.

**Maniwa city, Okayama**
Industrial tourism featuring woody biomass utilization facilities.

**Ie village, Okinawa**
Production and utilization of bioethanol.

**Hita city, Oita**
Multifunctional activities. Gasification, utilization of wood chips, feedstuff, and composting.

**Shimokawa town, Hokkaido**
Woody biomass refinery using wood chips, pellets and early willow.

**Kasai city, Hyogo**
Utilization of BDF trains/municipal cars.

**Sado city, Niigata**
Utilization of woody biomass and waste oil aiming for a vital and environmentally friendly island.

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Based on the “Biomass Nippon Strategy”:
○ Promote building of Biomass Towns to comprehensively utilize regional biomass
○ Survey biomass usage in Asia, share information and formulate manuals

By disseminating Japan’s “Biomass Town” project, we can develop sustainable biomass systems compatible with food production throughout East Asia

Details

Continuation until 2012 was approved at the 10th AMAF plus Three on 24 October 2010.

Basic Survey
- Designate sites for field surveys

FY2008

HRD
- Select sites
- Research in Japan

FY2009

Concept
- Formulate Town Concept Building network
- Training (On-site and in Japan) for Town development/ Inform local citizens

FY2010

FY2011

FY2012

Provision of technical information
- Send technical experts
- Promotion for other areas within the countries
- On-site survey
- On-site training
- Inform local citizens
- Formulate Town Concepts

Achievement of recycling society
- Realize sustainable agricultural development
- Contribute to the mitigation of global warming
- New uses for biomass Project creation
  (Technology development, joint research, CDM etc.)
Thank you for your kind attention

July 2011
JAPAN

MAFF
Ministry of Agriculture, Forestry and Fisheries