Reducing Food Loss and Waste & Promoting Recycling

～ "MOTTAINAI" for Foods Once Again. ～

AUGUST, 2017

農林水産省
Food Industrial Policy Office
Biomass Policy Division
Food Industry Affairs Bureau
Food loss generated in Japan (6.21 Mt) is about twice the food assistance amount by WFP in the whole world.

Weight of food loss per person per day in Japan is about a bowl of rice.

Food loss generation in Japan (FY2014) (6.21 Mt)

- Businesses Edible portion (3.39 Mt)
- Households Edible portion (2.82 Mt)

Food assistance amount by WFP in the whole world (2014) about 3.20 Mt.

Weight of food loss per person per day about 134g (about a bowl of rice)

Resource: WFP, Population Estimates by Ministry of Internal Affairs and Communications (FY 2014)
The amount of food business waste. (FY 2014)

The total amount of food waste from the food-related industry was 19.53 million tons. Manufacturers accounted for 83% of this.
The edible portion was 3.39 million tons. Manufacturers accounted for 42%, restaurants accounted for 35% of this.

Food waste generation

- Retailors 1.27Mt (7%)
- Wholesalers 0.27Mt (1%)
- Restaurants 1.94Mt (10%)
- Manufacturers 16.06Mt (82%)

Total amount (FY2014) 19.53Mt

Edible portion (food loss)

- Retailors 0.6Mt (18%)
- Wholesalers 0.16Mt (5%)
- Restaurants 1.2Mt (35%)
- Manufacturers 1.44Mt (42%)

Total amount (FY2014) 3.39Mt
Overview of Food Recycling Law (2000 established/2007 amended)

**Responsibility of ministers concerned** (Minister of the Environment, Minister of Agriculture, Forestry and Fisheries, etc.)

- Formulation of basic policy
  - Numerical targets
  - Measures to promote recycling

- Development of criteria for food-related businesses
  - Criteria for reducing the generation of waste
  - Criteria for reducing waste volume
  - Criteria for recycling, etc.

**Priorities of initiatives**

i) Restraining waste generation

ii) Recycling (highest priority: animal feed)

iii) Thermal recovery

iv) Reduction in weight

**Recycling rate targets**

- Food Manufacturers (95%)
- Food wholesalers (70%)
- Food retailers (55%)
- Restaurant industry (50%)
Promotion of 3R

- **Set** targets on food waste reduction for each industry group.
  E.g. Meat product manufacturing industry: 113kg/1 million Yen of sales.

- **Mandatory regular reporting** of the amount of food waste.
  From food-related businesses which produce large quantities of food waste (100 tons of food waste or more in the previous year) to the competent minister

- Promote recycling by the private sector.
  - Foster recycling business operators through the “Registered Recycling Business Operator System”
  - Formulate good practices (Food recycling loop) through the “Recycling Business Plan Approval System”

Role of national government

- To all food-related business operators
  - Guidance and advice

- To operators of recycling who generate food waste over 100t
  - Advice, announcements, orders, penalties
Priority of the food recycling

- It should be mostly prioritized to recycle "from goods to goods" in order to continue the resource cycle, while considering reducing environmental load.
- **Feed production** is the priority method to utilize rich nutrition of food resources most effectively. **Fertilizing** (including the case where digestive fluid generated in methanation is utilized as fertilizer) comes next.
- Then, for those which are difficult to produce feed or fertilizer, it is necessary to promote other method (such as energy utilization by methanation, etc.).

### Current State

- Feed production
- Fertilizing
- Others (e.g., gas)
- Incineration Processing (Heat Recovery)

### Priority & Direction

1. Utilize rich nutrition effectively
2. Utilize the nutrients such as nitrogen, phosphorus, potash, etc. effectively
3. Promoting energy utilization, etc.
Trend of recycling rate in food industry

- **Food manufacturer**
  - 2008: 93%
  - 2009: 93%
  - 2010: 94%
  - 2011: 95%
  - 2012: 95%
  - 2013: 95%
  - 2014: 95%
  - 2015: 95%

- **Entire Food Industry**
  - 2008: 79%
  - 2009: 81%
  - 2010: 82%
  - 2011: 84%
  - 2012: 85%
  - 2013: 85%
  - 2014: 85%
  - 2015: 85%

- **Food wholesaler**
  - 2008: 59%
  - 2009: 58%
  - 2010: 53%
  - 2011: 57%
  - 2012: 58%
  - 2013: 58%
  - 2014: 57%
  - 2015: 60%

- **Food retailer**
  - 2008: 37%
  - 2009: 36%
  - 2010: 37%
  - 2011: 41%
  - 2012: 45%
  - 2013: 45%
  - 2014: 46%
  - 2015: 47%

- **Restaurant**
  - 2008: 13%
  - 2009: 16%
  - 2010: 17%
  - 2011: 23%
  - 2012: 24%
  - 2013: 25%
  - 2014: 24%
  - 2015: 23%

**Goals for 2019**

- Food manufacturer: 95%
- Entire Food Industry: 70%
- Food wholesaler: 55%
- Food retailer: 50%
- Restaurant: 23%
### Recycle Implementation Rate of Food Wastes, etc. (FY 2015)

<table>
<thead>
<tr>
<th>Business Type</th>
<th>Recycling rate target (%)</th>
<th>Recycling rate (%)</th>
<th>Control of waste generation</th>
<th>Recycling (use application)</th>
<th>Heat recovery</th>
<th>Reduction in weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>95</td>
<td>95</td>
<td>12</td>
<td>71</td>
<td>77</td>
<td>16</td>
</tr>
<tr>
<td>Wholesaler</td>
<td>70</td>
<td>60</td>
<td>10</td>
<td>46</td>
<td>33</td>
<td>51</td>
</tr>
<tr>
<td>Retailer</td>
<td>55</td>
<td>47</td>
<td>15</td>
<td>32</td>
<td>41</td>
<td>34</td>
</tr>
<tr>
<td>Restaurant</td>
<td>50</td>
<td>23</td>
<td>7</td>
<td>13</td>
<td>22</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td>85</td>
<td>11</td>
<td>63</td>
<td>74</td>
<td>17</td>
<td>8</td>
</tr>
</tbody>
</table>

- Since recycling of food waste is more difficult for the downstream of food industry, the recycling rate of food Manufacturer is high, but the rate becomes smaller in the order of food wholesaler, food retailer, and restaurant.
1. Special measures for recycling business operators

- **Special measures of Waste Management Act**
  1. No need for permission to unload general wastes for registered carrier
  2. Abolish the price cap on general waste disposal fee

- **Special measures of Fertilizer Regulation Act & Feed Safety Act**
  - No need to notify to the minister of Agriculture, Forestry, and Fisheries

2. Number of registered companies: 174 (as of the end of April 2017)
Promoting a food recycling loop

- Food-related business operators, recycling business operators and farmers cooperate each other.
- The government promote to form a recycle loop in which recycling business operators produce fertilizer & feed from waste generated in food industries, and food industries use agricultural crops produced by farmers who use those fertilizer and feed.

Completion of a Recycle Loop

Special measure that a permission for a collection transport industry (general waste) on Waste Management Act becomes unnecessary
### Targets for the control of food waste generation (April 2014 - March 2019)

<table>
<thead>
<tr>
<th>Business type</th>
<th>Target</th>
<th>Business type</th>
<th>Target</th>
<th>Business type</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat product manufacturers</td>
<td>113kg/1 million yen of sales</td>
<td>Prepared food manufacturers</td>
<td>403kg/1 million yen of sales</td>
<td>Miscellaneous restaurants</td>
<td>108kg/1 million yen of sales</td>
</tr>
<tr>
<td>Milk/dairy product manufacturers</td>
<td>108kg/1 million yen of sales</td>
<td>Sushi/lunchbox/sandwich manufacturers</td>
<td>224kg/1 million yen of sales</td>
<td>Takeout/delivery food service</td>
<td>184kg/1 million yen of sales</td>
</tr>
<tr>
<td>Canned/bottled seafood manufacturers</td>
<td>480kg/1 million yen of sales</td>
<td>Food/drink wholesalers (mainly drinks)</td>
<td>14.8kg/1 million yen of sales</td>
<td>Wedding halls</td>
<td>0.826kg/1 person (user)</td>
</tr>
<tr>
<td>Vegetable pickles manufacturers</td>
<td>668kg/1 million yen of sales</td>
<td>Various food retailers</td>
<td>65.6kg/1 million yen of sales</td>
<td>Hotels</td>
<td>0.777kg/1 person (user)</td>
</tr>
<tr>
<td>Miso manufacturers</td>
<td>191kg/1 million yen of sales</td>
<td>Snack/bread retailers</td>
<td>106kg/1 million yen of sales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soy sauce manufacturers</td>
<td>895kg/1 million yen of sales</td>
<td>Convenience stores</td>
<td>44.1kg/1 million yen of sales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sauce manufacturers</td>
<td>59.8kg/1 ton of product</td>
<td>Dining/restaurants (mainly offering noodles)</td>
<td>175kg/1 million yen of sales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bread manufacturers</td>
<td>194kg/1 million yen of sales</td>
<td>Dining/restaurants (other than those mainly offering noodles)</td>
<td>152kg/1 million yen of sales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noodle manufacturers</td>
<td>270kg/1 million yen of sales</td>
<td>Bars, etc.</td>
<td>152kg/1 million yen of sales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tofu/fried tofu manufacturers</td>
<td>2,560kg/1 million yen of sales</td>
<td>Cafés</td>
<td>108kg/1 million yen of sales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Precooked frozen packed food manufacturers</td>
<td>363kg/1 million yen of sales</td>
<td>Fast food stores</td>
<td>108kg/1 million yen of sales</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### New targets (July 2015)

<table>
<thead>
<tr>
<th>Business type</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miscellaneous livestock product manufacturers</td>
<td>501kg/1 ton of sales</td>
</tr>
<tr>
<td>Vinegar manufacturers</td>
<td>252kg/1 million yen of sales</td>
</tr>
<tr>
<td>Confectionary manufacturers</td>
<td>249kg/1 million yen of sales</td>
</tr>
<tr>
<td>Coffee drinks and juice manufacturers</td>
<td>429kg/1 ton of product</td>
</tr>
<tr>
<td>School lunch and hospital food, etc.</td>
<td>332kg/1 million yen of sales</td>
</tr>
</tbody>
</table>
The delivery deadline of food industry in Japan

The so-called “one-third rule” is one of the factors that cause food loss.

Conceptual diagram of deadline set by so-called “one-third rule”
(in the case of expiration date 6 months)

International comparison

<table>
<thead>
<tr>
<th>Country</th>
<th>Delivery deadline (Expiration date base)</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>Leaving 1/2</td>
</tr>
<tr>
<td>France</td>
<td>1/3</td>
</tr>
<tr>
<td>Italy</td>
<td>1/3</td>
</tr>
<tr>
<td>Belgium</td>
<td>1/3</td>
</tr>
<tr>
<td>Japan</td>
<td>Leaving 2/3 on average</td>
</tr>
</tbody>
</table>

Disposal / Returned from wholesaler and retailer to manufacturer: 82.1 billion yen/year

Disposal / Returned from retailer to wholesaler: 43.2 billion yen/year
Food loss and waste caused by excessive stock or returns needs to be solved throughout the entire food chain. For this reason, "Commercial practices examination working team for reducing food loss and waste" was established in order to have discussions among food manufacturer/ wholesaler/ retailer, and support their actions.

<table>
<thead>
<tr>
<th>Year</th>
<th>Activities</th>
</tr>
</thead>
</table>
| FY 2012 | • Survey regarding returns & disposal of processed food  
• Food Loss and Waste Reduction Symposium |
| FY 2013 | • Pilot Project for reviewing and re-examining delivery deadlines (Beverage & Confectionery whose best-before period is 180 days or more)  
• Survey of actual condition for the best-before period extension & the date display  
• Food Loss and Waste Reduction Symposium |
| FY 2014 | • Conducted delivery deadline mitigation (5 companies)  
• Survey of actual condition on the best-before period extension & the date display  
• Survey on disposal & excessive production of daily foods  
• Conducted "Mottainai Campaign"  
• Food Loss and Waste Reduction Symposium |
| FY 2015 | • Expanded delivery deadline mitigation (conducted newly to 5 companies, total 10 companies)  
• Conducted the risk analysis of delivery deadline mitigation  
• Shared examples of initiatives to reduce food loss and waste in daily foods  
• Conducted survey of actual condition for the best-before period extension & the date display  
• Summarized "Activity Summary" |
Efforts of food industry and national government (2) Reviewing delivery deadline

○ From August 2013, the delivery deadline for certain items of beverage & confectionery in certain areas is mitigated from the existing one (1/3 to 1/2 or more of the best-before period) experimentally for half a year.
○ Measured the effects of returns and food loss and waste reduction accompanying to mitigation.

(in the case that the best-before period is 6 months)

Current

- Production date: Manufacturer → Wholesaler
- Delivery deadline: Manufacturer → Wholesaler
- Sales deadline: Wholesaler → Grocery store
- Best-before date: Grocery store → Selling at a store
- Returns (disposal): Selling at a store → Returns (disposal)

Pilot Project

- Production date: Manufacturer → Wholesaler
- Delivery deadline: Manufacturer → Wholesaler
- Best-before date: Wholesaler → Sell deadline set by retailers
- Consumer
- Monitoring returned non-shipped and disposal
- Monitoring delivery expired stocks delivery the returns, disposal/transfer
- Monitoring sales, expired stock
- Monitoring purchase behavior

---
• Efforts of the food industry (Review of Expiration date)

**Extending the expiration date**
- January 2009 – October 2013
  Extending 958 items
- November 2013 – October 2014
  Extending 199 items
- November 2014 – October 2015
  Extending 163 items
- Future plans
  Extending 587 items

**Changing display from expiration date to expiration month**
- January 2009 – October 2013
  Switching 50 items
- November 2013 – October 2014
  Switching 159 items
- November 2014 – October 2015
  Switching 115 items
- Future plans
  Switching 107 items

Before
- Cup noodles
  Expiration date: 5 months → 6 months
  Best Before 01/24/2019

After
- Best Before January 2019
 Initiatives of local governments

- The number of local governments has been increasing which tackle with food loss and waste in cooperation with restaurants and retailers.
- Actions to re-evaluate "Mottainai", such as building a network among local governments, have been spreading.

Call for leftovers reductions and promotions of take-out of leftovers at a banquet (Matsumoto, Nagano)

Joint Campaign “Let's eat all deliciously without leaving foods in a year-end party/ New Year's party!”

5 articles for a banquet
- Article 1 First, order an appropriate amount
- Article 2 Call to everyone from a banquet organizer, "Let's eat all deliciously!"
- Article 3 Enjoy eating without leaving a seat during the first 30 minutes ,and the last 10 minutes are for “Time to eat all!”
- Article 4 Let's share the dishes you cannot eat with companions!
- Article 5 Let's take out the dishes that you could not still eat after asking restaurant staff!
Leftovers at restaurants

- The amount of food loss at restaurant is 1.2 Mt, which is equivalent to about 1/5 of whole food loss in Japan.
- The local governments promote no leftovers and taking out the dishes.
- 4 ministries made some points which should be kept in mind when trying to reduce leftovers, including view of food hygiene.

Main Contents

1. Promote no leftovers
   - For consumers:
     - Order appropriate quantity
     - Choose small servings
   - For restaurant owners:
     - Adopt small servings
     - Cater at appropriate timing and occasion
     - Adjust the amount of foods with banquet organizer
     - Give incentive for no leftovers

2. Take out the dishes on self-responsibility
   - For consumers:
     - Take out the dishes which can be heated at home
     - Do not take out when you need long time to go home
     - Eat immediately after returning home
   - For restaurant owners:
     - Notify to take care about food hygiene
     - Provide enough heated food
     - Use clean chopsticks and containers to pack food
     - In case of high temperature, provide ice packs or stop taking out
Food bank activity in Japan

- We can effectively utilize food as much as possible by donating food to welfare facilities.
- Such as mislabeled food, dented cans and products nearing expiration, is donated.
- In Japan, there are about 80 food bank organizations.
- They have a relatively short history. (The 1st one started in 2002)

Flow of providing foods

Provider

Food-related businesses

Foodstuff (Printing mistakes, deformation of the outer box, etc.)

NPO corporation, etc.

Welfare facilities, etc.

Recipient

Start time

Volume

-2005  2006-2010  2011-

less than 10t  10t-100t  100t-
The government made a guideline about how to handle food in food bank activity, in order to ensure food quality and traceability, so that food banks get high reliability from food-related businesses and can treat more food.

Main Contents

- Rule on providing and donating
  Provision must be based on the requests from recipient
- Rule-making with stakeholder
  Make agreement about the way to deliver or receipt food
- Quality and hygiene management
  Food supply businesses ⇒ Confirm food safety
  Food bank ⇒ Ensure the locations of food storage & disposal of goods, and sanitary control
- Record and share information
  Store information about food among appropriate period
  Share information promptly when any doubts arise in food safety
Both the public and private sectors are promoting the NO-FOODLOSS PROJECT toward raising public consciousness and encouraging action by supporting activities in each stage of the food chain.

- Japan publicizes its activities to the world as the "Mottainai" origin country.

### 【Manufacturers / Distributors / Retailers】
- Pilot project for reviewing commercial custom
- Support of food bank activity
- Campaign of “Mottainai”

### 【Restaurants】
- Call for “no leftovers”
- Change serving size
- Promoting doggy bags

### 【Households • Consumers】
- Strategic communication by stores, mass media, SNS, etc.
  (E.g. Promote understanding of expiration date labeling, eco cooking)

**Promote useful and effective use of resources across the whole food chain.**

"Loss-non" the PR character
Since various factors are complicatedly involved in the generation of food loss and waste directly and indirectly, reducing food loss and waste is not the task that only people in specific positions are responsible for.

It is important to steadily drive forward from what we can do - what we can tackle in each position, or corporate with other positions together.

What we can do to reduce food loss and waste

- Manufacture
  - Increasing demand forecast accuracy
  - Reducing manufacturing errors
  - Extension of best-before period & the date display
  - Disclosure of time limit setting information

- Wholesale
  - Increasing demand forecast accuracy
  - Selling out
  - Reducing contamination and damage at the time of delivery

- Retail
  - Increasing demand forecast accuracy
  - Selling out
  - Sales with small volume
  - Selling Separately

- Restaurant
  - Increasing demand forecast accuracy
  - Reducing cooking losses
  - Eat all movement
  - Small serving service
  - Takeout (self-responsibility)

- Household
  - Inventory management in a refrigerators & household
  - Planned shopping
  - Eat all
  - Use up
  - Understand the deadline display

- Reducing returned goods & excessive inventory in the entire food chain
- Donating surplus foods to a Food Bank

Understanding actual condition of food loss and waste & Sharing reduction awareness, "Mottainai" spirit