

Food Recycling Law in Japan and Its Implementation, Progress and Challenges

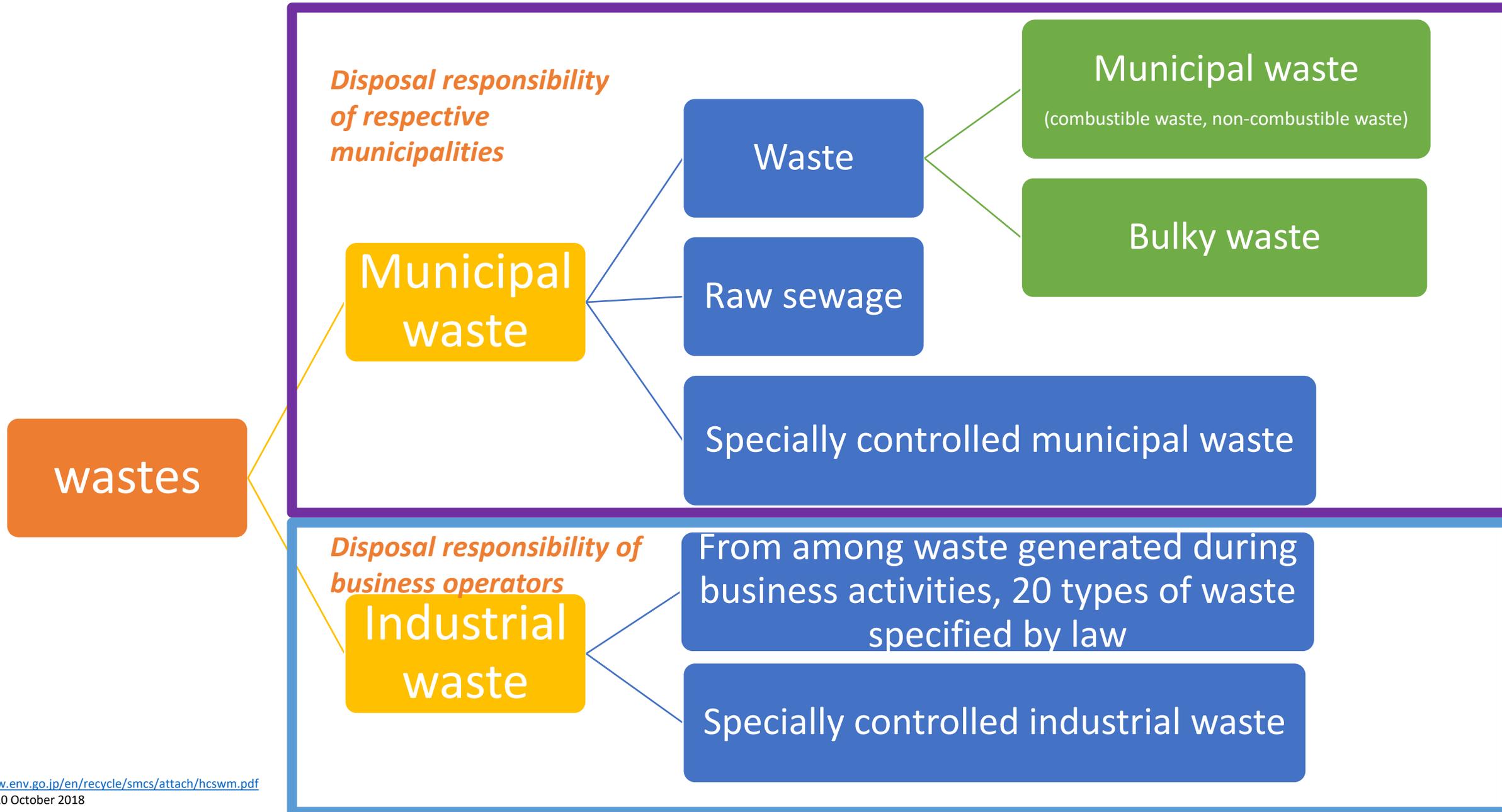
Jagath Premakumara Dickella Gamaralalage,
IGES Centre Collaborating with UNEP on Environmental Technologies (CCET)

The CCAC Waste Initiative: Improving Air Quality and Mitigating Climate Change
Through Better Waste Management

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Waste categorization and responsibilities in Japan



Legal system for establishing a Sound Material Cycle Society

Basic Environment Act (1993)

Basic Environmental Plan enacted 1994 and revised in 2012

Basic Act for Establishing a Sound Material-Cycle Society (Basic Framework Act)

The Fundamental Plan for Establishing a Sound material-Cycle Society established 2003 and revised in 2013

Appropriate treatment of waste

Establishment of general system

Promotion of 3Rs (reduce, reuse, recycle)

Waste Management and Public Cleansing Act (enacted 1970)
(Waste generation control, appropriate waste treatment, regulation on the establishment of waste management facilities, regulation on waste management operators, establishment of waste management standards)

Act on the Promotion of Effective Utilisation of Resources (enacted 1991)
(Recycling of reusable resources, development of easy-to-recycle structures and materials, labelling for sorted waste collection, promotion of the effective use of by-products)

Regulations according to the characteristics of individual products

Containers and Packaging Recycling Act (1995)

Home Appliance Recycling Act (1998)

Food Recycling Act (2000)

Construction Materials Recycling Act (2000)

Recycling of end-of-life vehicles (2002)

Small Home Appliances Recycling Act (2012)

Act on Promoting Green Purchasing (2000)

Source: <https://www.env.go.jp/en/recycle/smcs/attach/hcswm.pdf>
. Accessed 10 October 2018

Overview of the food recycling law

(established 2000/ amended 2007)

Key concepts of the Food Recycling Law

- Promote an effective recycling of food waste generated from food-related businesses (to ingredients for fertilizers, feedings, etc.)
- Reduce generation of food waste, etc. from food-related businesses (Prioritizing reduction of food waste generation) and volume reduction (dehydration, etc.)

Responsibilities of the competent ministries

(Ministry of the Environment, Ministry of Agriculture, Forestry and Fishery)

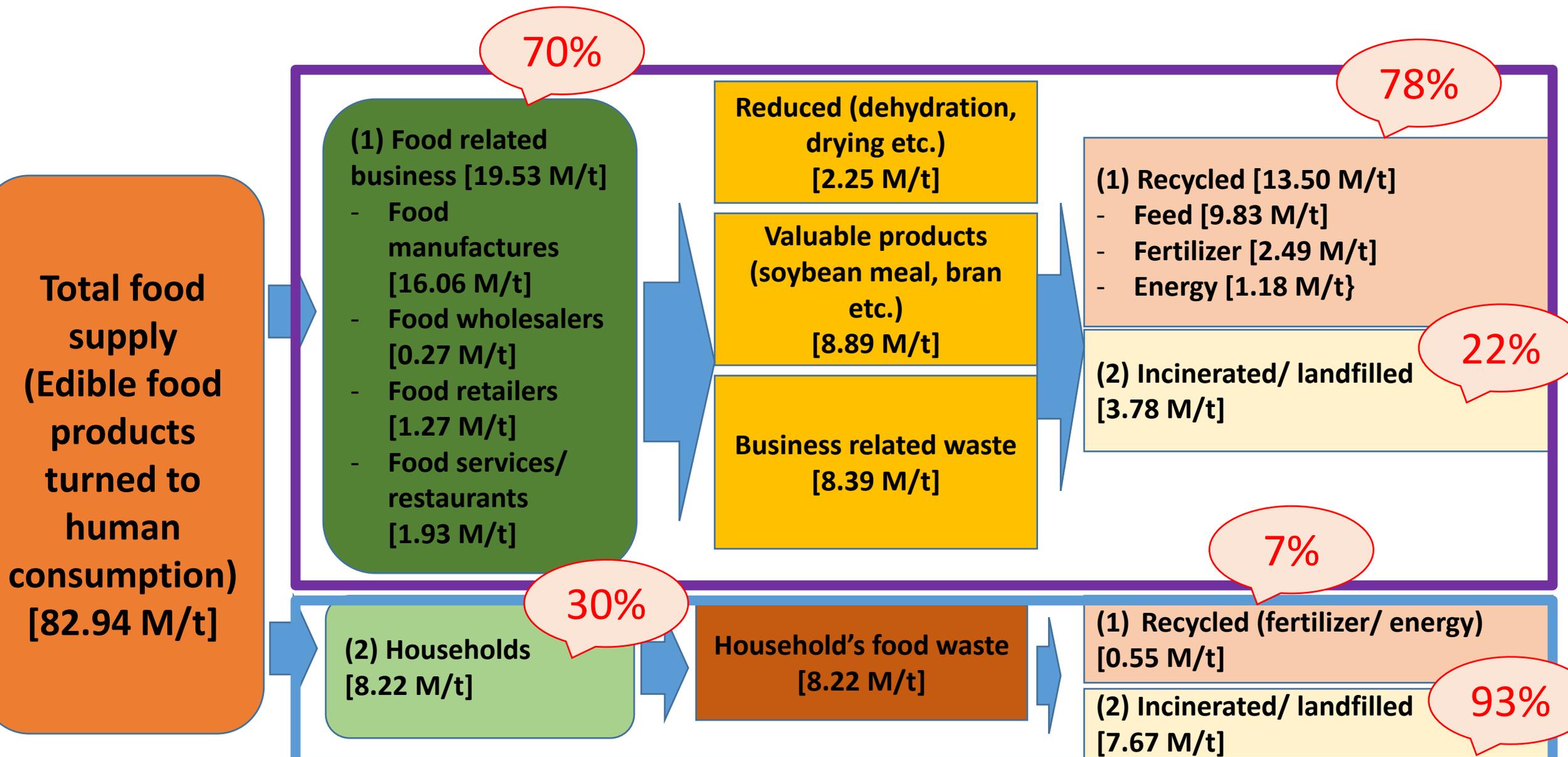
- Formulation of basic policy (Numerical waste reduction and recycling targets for each food-related business, Measures to promote recycling, etc.)
- Development of criteria for food related businesses (Criteria for reducing, recycling and thermal recovery)
- Provide guidance and orders (if actions are insufficient) to (1) food related business (food production, distribution, sales, restaurant and others), and (2) large-volume generators (more than 100 tonnes/year)

Recycling rate targets (by 2019)

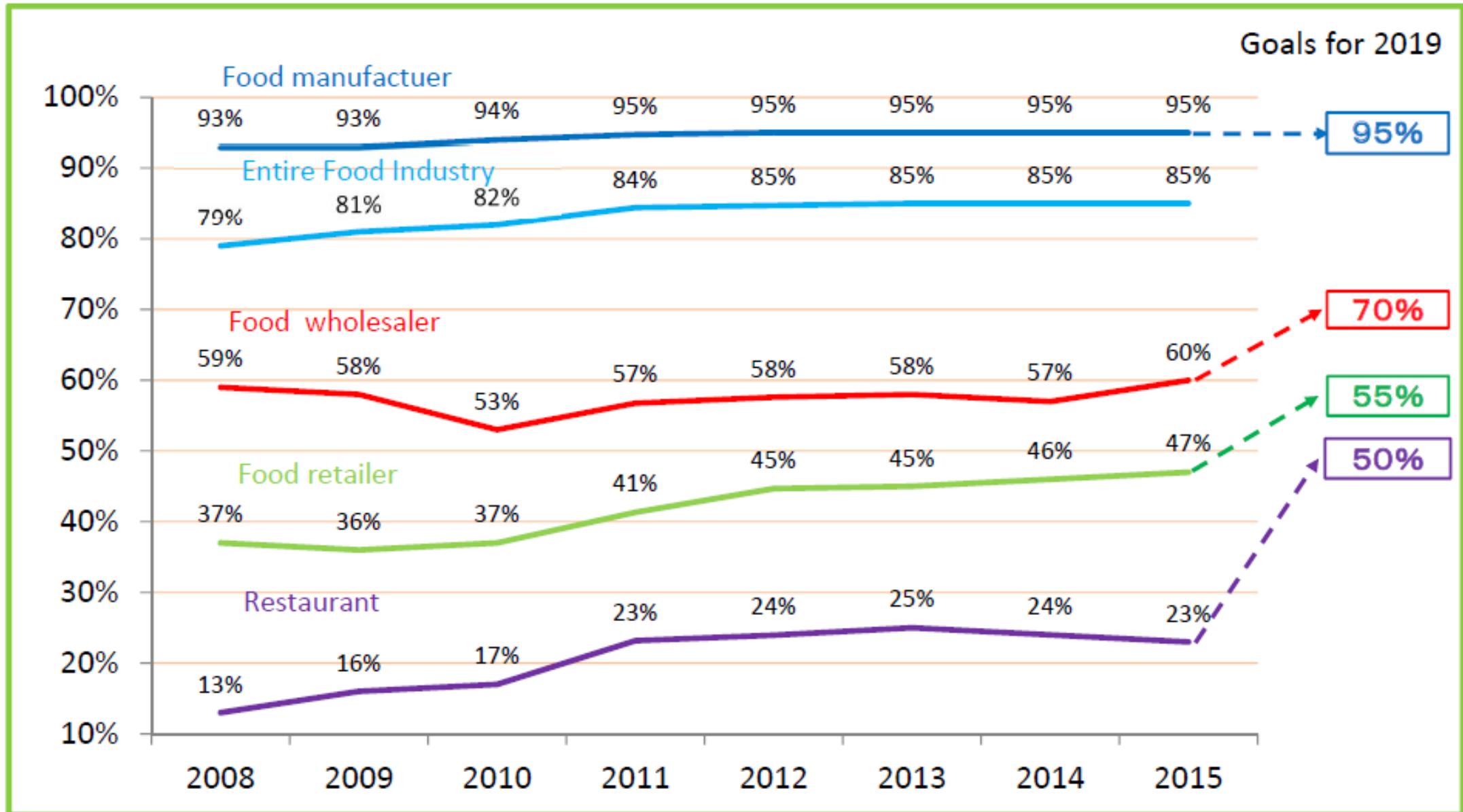
- Food manufactures (95%)
- Food retailers (55%)

- Food wholesalers (70%)
- Restaurants (50%)

Food waste generation and treatment in Japan (2014)

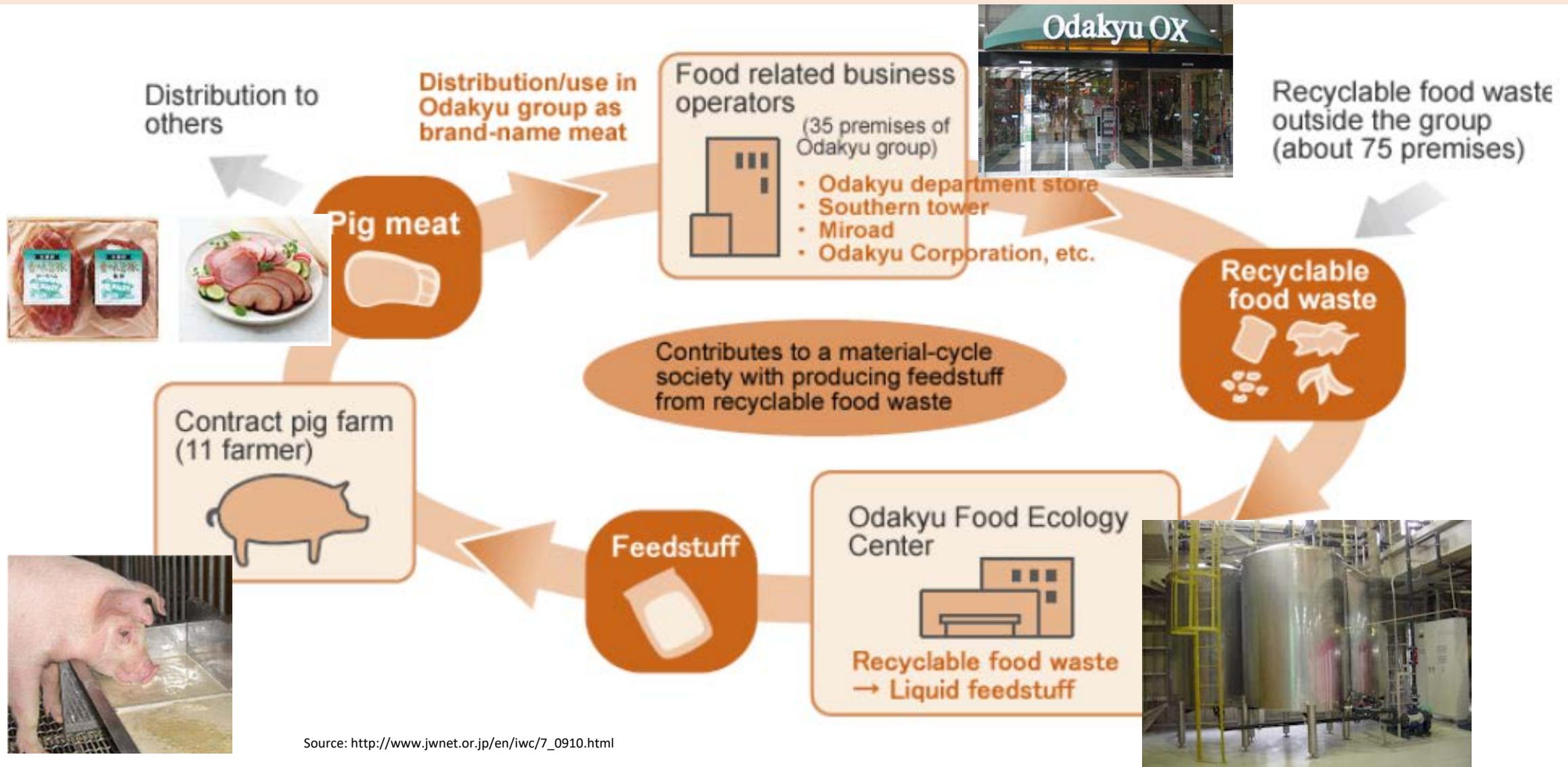


Trends of recycling rate in food industry



Example 1: Food Recycling Loop by ODAKYU Co., Ltd.

> Odakyu group has many food-related business. Based on the Food Recycling Law, the company started operation of feedstuff factory in Kanagawa prefecture in 2005. Feedstuff production process comprises six treatments: “measurement of carrying-in food waste”, “separation of unsuited items”, “shredding”, “mixing”, “disinfection”, and “fermentation”. Currently food waste is about 25 tons per day. The Ministry of Agriculture, Forestry and Fisheries is promoting to expand the use of feedstuff which uses food waste, as it is called as “Eco-feedstuff”.



Example 2: Food Recycling Loop by UNY Co., Ltd.

> In 2007, UNY became the first in the nation to have its Recycling Business Plan certified by the Minister of Agriculture, Forestry and Fisheries, Minister of the Environment, and Minister of Economy, Trade and Industry. Since then, through partnerships with local recyclers and producers, UNY has continuously managed “food recycling loops” while building new ones, and now operates 13 loops. UNY now runs two loops together with FamilyMart. Going forward, the entire Group will carry out “food recycling loops” as it works to enhance managerial consolidation towards bringing about a recycling-based society.



Example 3: Creating a Recycling-based Society in Oki Town (Zero Waste City)

A small agricultural town in Fukuoka Prefecture has a population of 14,500 people. Identified solid waste management as an environmental issue in 1995, due to insufficient capacity in treatment plants, high operational cost, and negative environmental impacts. While most Japanese cities follows Incinerator, Oki Town decided to make a radical change with the installation of a biogas plant equipped with a methane fermentation system in 2006. Aims to transit from a conventional incineration based waste management system to recycling-oriented resource management of organic waste. As a result, **recycling rate increased from 14.9% in 2005 to 63.1% in 2015**. The amount of **incinerated waste by households decreased by 56%**. Amount of **landfilled waste decreased by 98%**. Meanwhile, waste management expenditures (costs for incineration, recycling, waste water treatment, collection and transportation), **GHG emissions decreased**, and quality of life for local people improved, which plays a pivotal role in **regional revitalisation**.



Kitchen Waste Separation
Separation of kitchen waste at home and at schools



Human Waste and Septic Tank Sludge

Local Agricultural Product Supply
Supplying of agricultural products produced using liquid manure to homes and schools



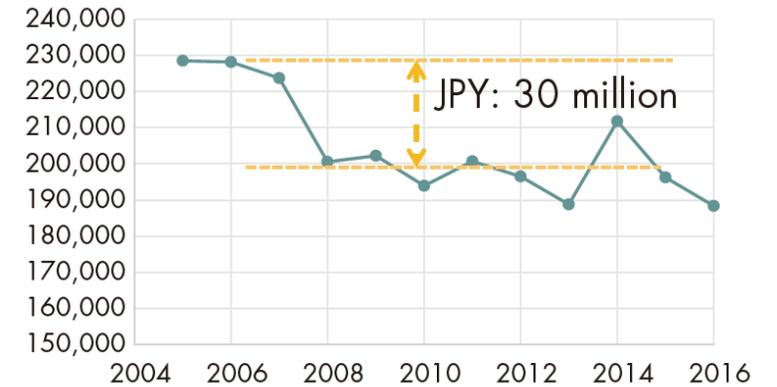
Fermentation Recycling
Fermentation at biomass plant to recover bio-gas and liquid manure



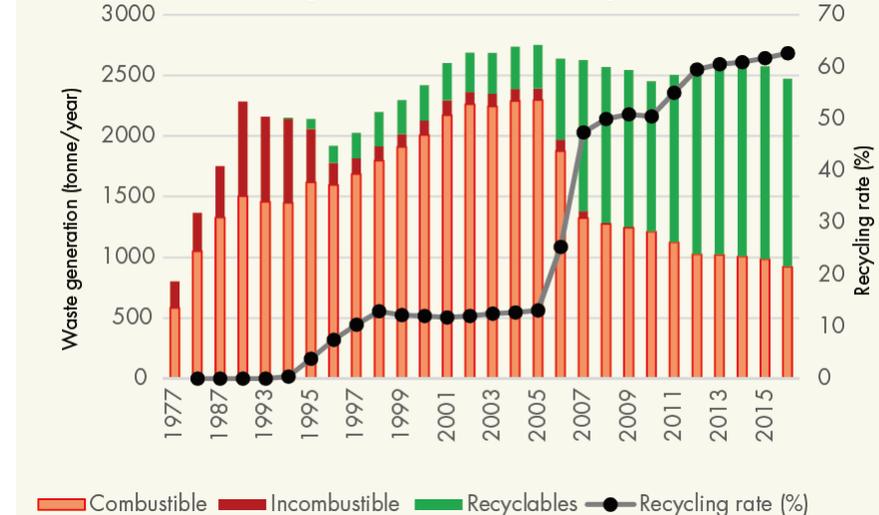
Liquid Manure Usage
Bio-gas liquid manure returned to farms as an organic fertilizer



Change of waste management expenditures in Oki Town (1,000 JPY)



Trend of household waste generation and recycling rates in Oki Town



Summary

- Japan's Food Waste Recycling Law made some progress in encouraging recycling and waste minimization among food industries since 2001.
- However, further efforts are needed to systematically reduce and recycle food wastes generated at the consumer/ household level. This is belonged to municipal waste.
- In order to address these challenges:
 - strengthening food waste laws/regulations to better emphasize waste prevention;
 - widening the scope of food was laws/regulations to cover consumer/household level;
 - developing integrated municipal solid waste management strategies which support prevention, separation at source of food waste and effective treatment methods,
 - raising public awareness and education programmes in schools on food waste issues;
 - promoting multi-stakeholder partnership to encourage concrete commitments to prevent and mitigate food waste.
- Food waste treatment can be prioritised as; Feed production (utilize rich nutrition of food resource most effectively), Fertilizing (including the case that digestive fluid generated in methanation is utilized as fertilizer), those which are difficult to produce feed or fertilizer is used for other methods (such as energy utilization by methanation, and waste 2 energy etc.).



**Thank you for your kind listening.
For any information:
premakumara@iges.or.jp**