Overview of Oki Town

- Agricultural town in Fukuoka Prefecture
- Population: 14,300
  Households: 4,700
  Area: 18.43km^2
- Canals account for 14% of land area
  （254ha, 215km length）

From incineration to Resource Management

- Waste Management in Japan (2015, MOEJ)
  - Recycling Rate 20.4%
  - 80.1% (33.42 million t) of waste directly incinerated
  - No. of Incinerators: 1141 units (**2/3** of world's incinerator)

- **"Waste Treatment = Incineration?" some problems…**
  - Withholding 3R (especially, against waste reduction)
  - Imposing large WM service cost for municipalities
  - Turning the WM system dependent upon incineration
  - Posing concerns of overuse of resources and impacts on climate change

➡ **Reliance on incineration = not sustainable**

- **Shift from incineration to resource management**
  - Zero Waste Declaration (March 2008) aiming for waste reduction at source and zero incineration
  - Promoting community-level waste reduction, and development of system for waste reduction, separation and recycling
  - Institutions for promoting Reduction: EPR, deposit scheme

Oki Town Declaration on Waste (Zero Waste Declaration)

The future looks ominous for our children.

Climate change caused by global warming is a worsening problem that threatens the very survival of humanity a century hence. Human activity and society's large-scale consumption of resources are the clear causes of this problem.

We therefore publicly resolve with this "Oki Town Declaration on Waste" to rethink our waste-filled lifestyles so that, as a town, we will not create further burdens on our children's future.

1. We will relearn the wisdom of our ancestors, cultivate a spirit of frugality and, as a town, develop a way of life which is free from waste.
2. We will work to recycle garbage, recognizing that it was originally a valuable resource, and strive to eliminate garbage incineration and landfill disposal by 2016.
3. We will endeavor to remember that, no matter how minuscule, Oki Town is still a member of the global community, and we will join together with like-minded people wherever they may be in the world to help promote sustainable living.

FY2008.3

Segregation Categories: Recyclables – 26; Combustibles and others - 2

Collection at community (once/month) and at Env. Plaza(5days/week			
1	Cans	12	Metal kitchen ware
2	Glass bottles (for one-time use)	13	Other metals
3	Returnable bottles (Beer, Sake)	14	Pins and screws
4	PET Bottles	15	Other incombustibles
5	White plastic trays	16	Cooking oil
6	Fluorescent light	17	Beverage paper packs
7	Batteries and lighters	18	News papers
8	Clayware	19	Cardboards
9	Glass	20	mix paper
10	Elec. Bulbs	21	Cloths
11	Small electronics		

Route Collection (1-2times/week)		Collection only at Env. Plaza	
22	Organic Kitchen waste	26	Shoes, bags, head wares (reused)
23	Waste plastics	27	Green wastes
24	Diapers	28	Bulky waste (dismantled and recycled)
25	Combustibles		

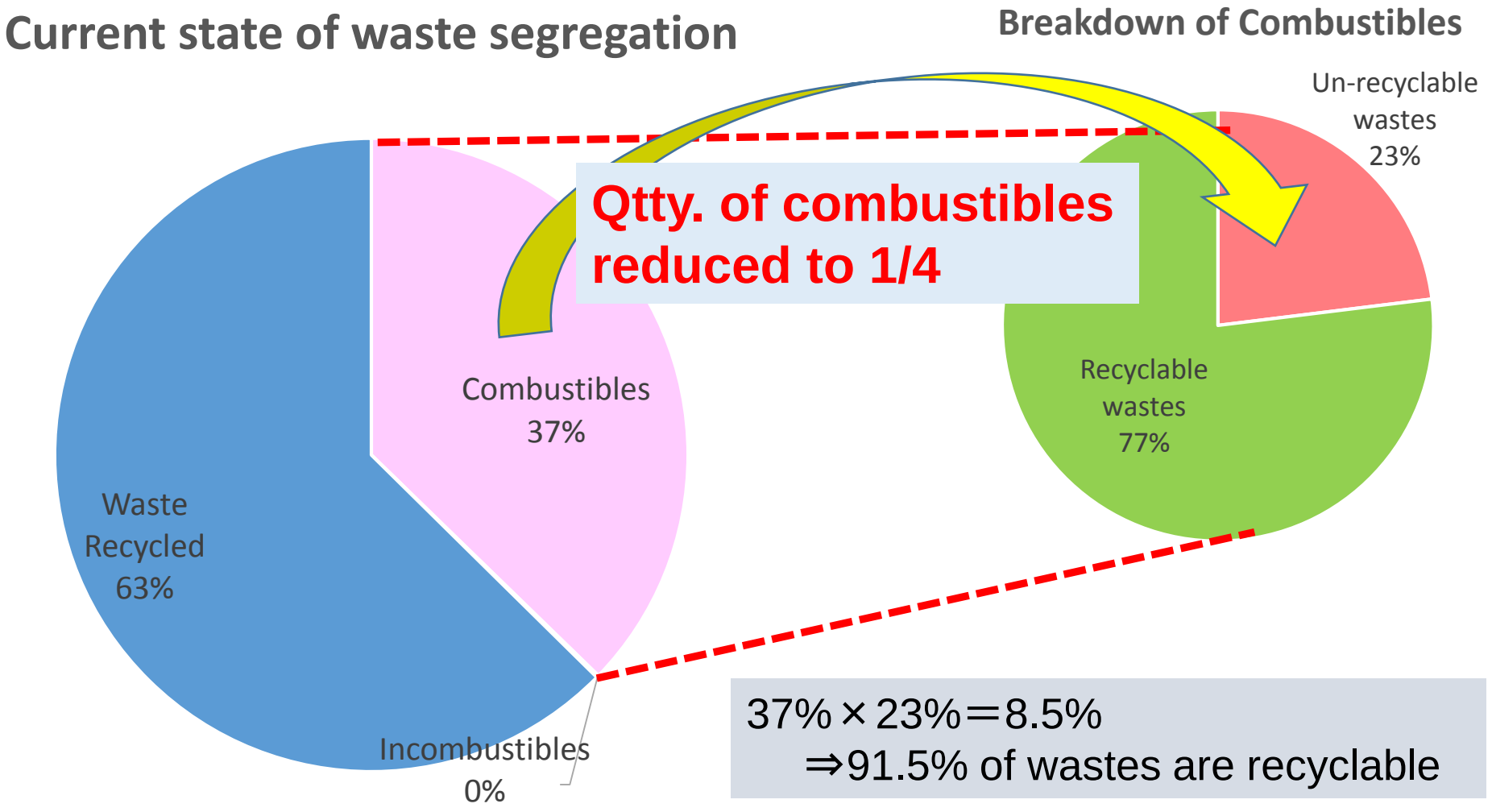
Status of Recycling in Oki Town

Thanks to a concerted effort at trash separation of kitchen waste, etc., Oki Town's recycling rate for FY2015 was 63.1%, which is a 48.2% increase compared with FY2005.

Oki Town Garbage Production Volume and Recycling Rate

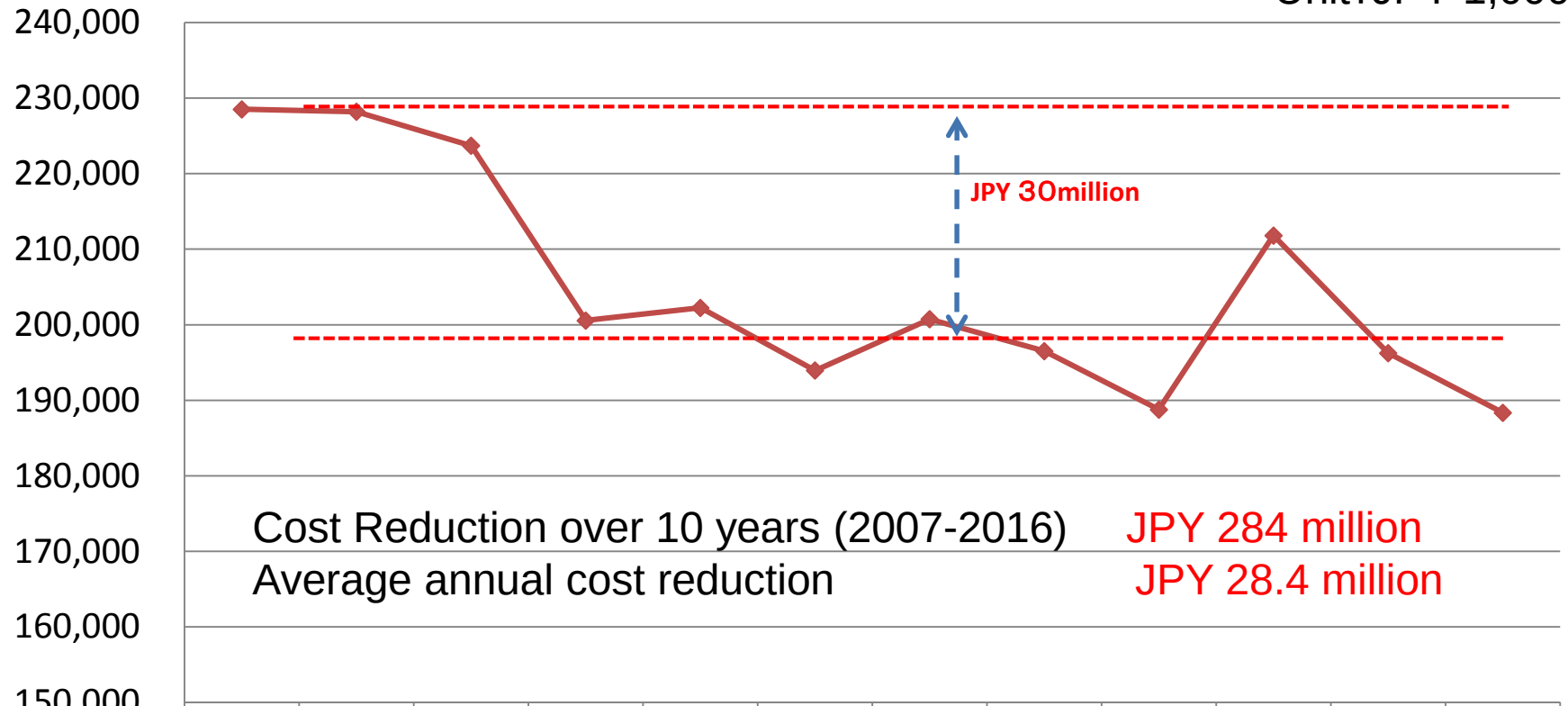
	Production Volume(t)		FY2015／FY2005(%)	FY2015Per parson/day
	FY2005	FY2015		
Combustible Garbage A	3,004. 9	1240.7	41.3%	236
Incombustible Garbage B	95. 9	2.5	2.6%	0.4
Kitchen Waste C	0	1168.7	—	222
Recyclable Garbage D	541. 1	958.8	—	183
Total E(A+B+C+D)	3,641. 9	3374.8	92.6%	641.4
Recycling Rate ((C+D)/E)	**14. 9%**	63.1%	+48.2%	

Potential for reducing incinerated waste (From current state of Oki Town)



Trend and Reduction of Waste Management Expenditures

Unit：JPY 1,000



	H17年度	H18年度	H19年度	H20年度	H21年度	H22年度	H23年度	H24年度	H25年度	H26年度	H27年度	H28年度
塵芥費用	228,517	228,196	223,705	200,558	202,246	193,949	200,731	196,514	188,786	211,809	196,255	188,350

General WM Expenditure
＝Costs for Incineration, Recycling, waste water treatment and collection & transportation.

Kururun – Oki Circulation Center
Biomass Center

Structure of Cooperative Recycling Efforts

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

Human Waste and Septic Tank Sludge

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

Liquid Fertilizer Farm Usage
Bio-gas liquid fertilizer returned to farms as an organic fertilizer

Local Agricultural Product Supply
Supplying of agricultural products produced using bio-gas liquid and solid fertilizers to homes and schools

Cycle

In order to take advantage of kitchen waste, human waste and septic tank sludge as a local recyclable resource, a holistic, community-based recycling-oriented system is essential.

Bio-gas System Flowchart

Bio-gas
490Nm³／day

Two 25kw generators

Power
697kw/day

Gen. Efficiency 32%
(Heat capture efficiency 52%)

Kitchen waste from homes and businesses (3.8t/day)

Crush

Human waste (7t/day)

Remove Contamination

Methane fermenter
Medium temperature,
37°C for 22 days

Liquid fertilizer storage tank
Liquid fertilizer: 6,000t/year

•Fields

Septic tank sludge (30.6t/day)

水分99%

Sludge thickening
Centrifuge

Water treatment

Reuse