

Acknowledgements

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SATREPS

Science and Technology Research Partnership
for Sustainable Development Program

“Promotion of Community Resilience Against Plastic Pollution and Climate Change in the Mekong River Basin”

Evaluation of Action Plan on Plastic Waste Management Phase I in Thailand : Consideration of separate collection

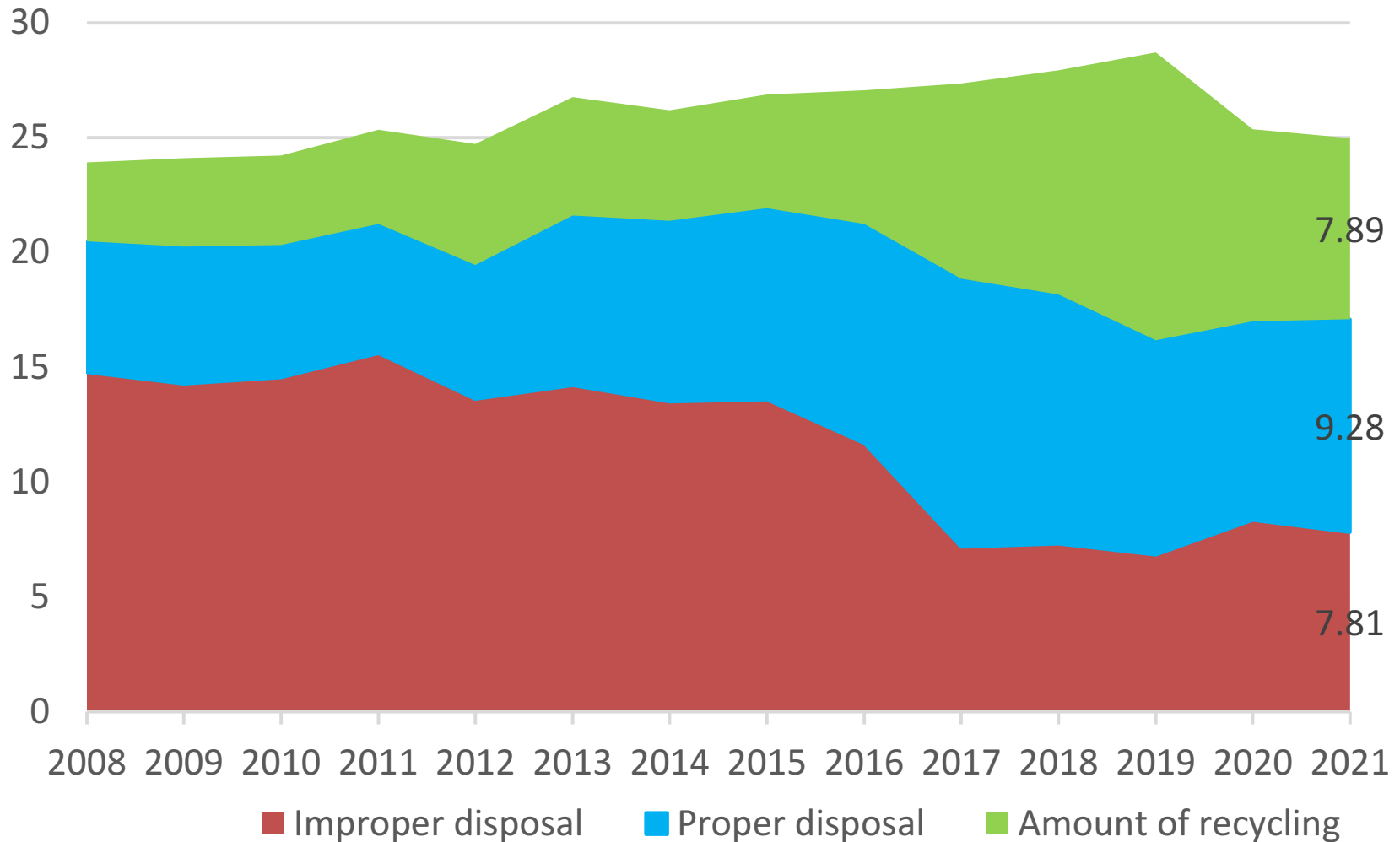
Venue: Bangkok (Hybrid Event: Onsite venue Royal Princess Larn
Luang Hotel)
Date: March 7-9, 2023

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JICA Expert for Aquatic Resources Research Institute (ARRI),
Chulalongkorn University.



In 2021, the rate of improper MSW disposal decreased slightly to 27%

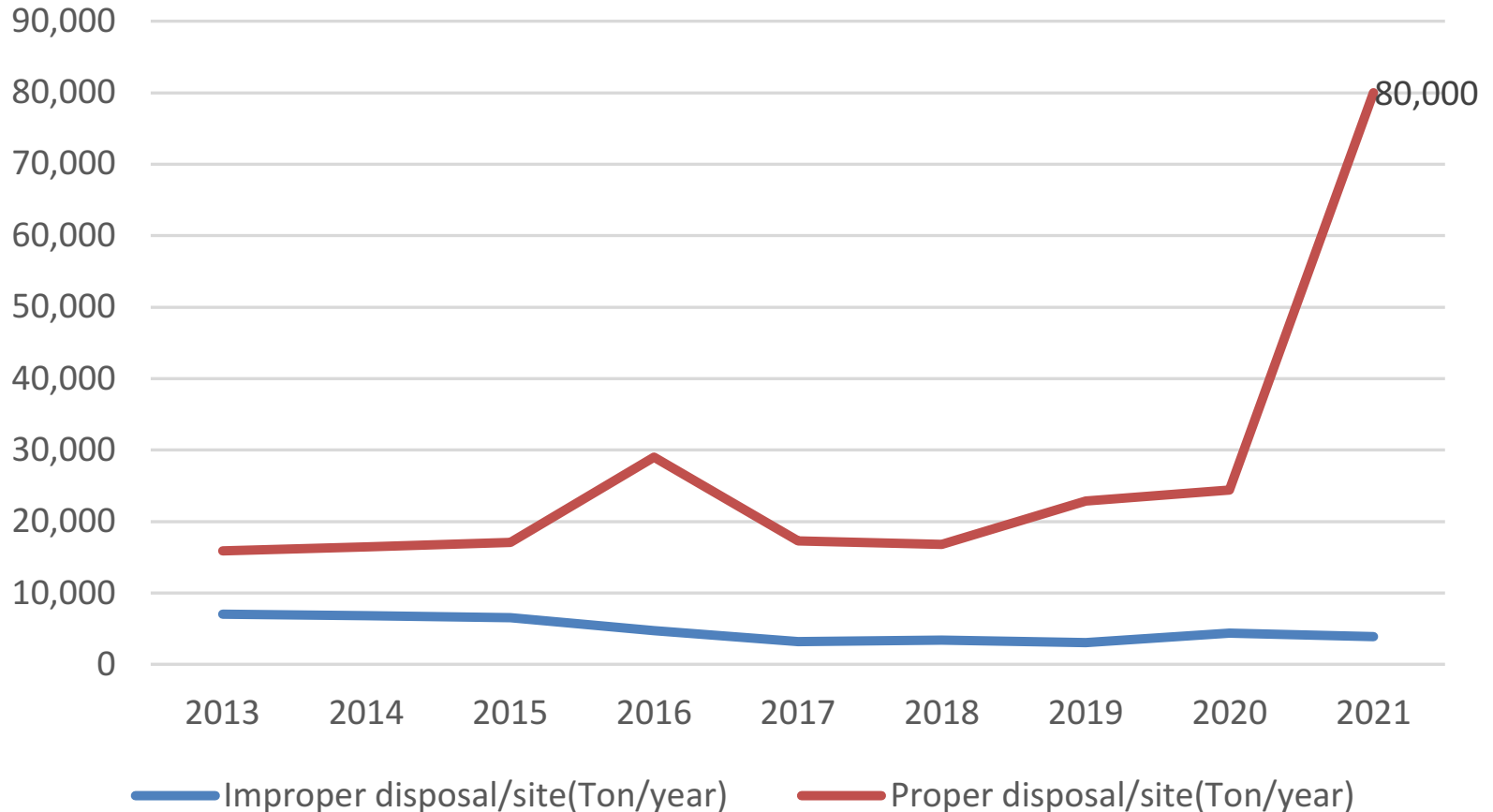
The proportion of Solid Waste Management (million tons)



(source) PCD(every years), "Thailand State of Pollution Report"

Progress in wide-area processing (cluster) and WtE

Amount processed per site(ton/yr)



(source) PCD(every years), "Thailand State of Pollution Report"



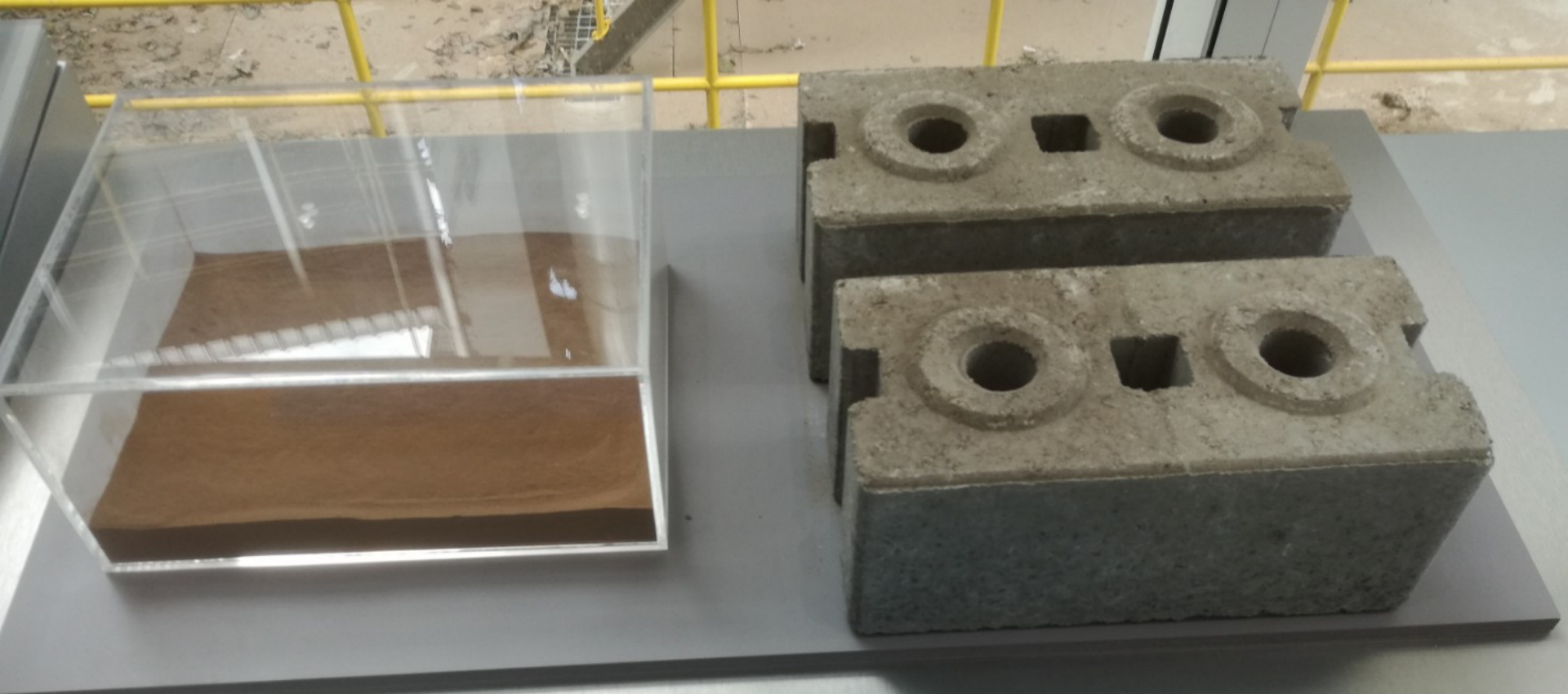
@GPSC

Hitz Stoker Furnace (500 t/d RDF, 9.8 MW power generation)

Rayong Province manages the surrounding municipalities.

Tipping fee = 100B/t

Photo taken by Presenter in September 2022



เถ้าหนัก
Bottom Ash

เป็นของเหลือที่เกิดจากระบวนการเผาไหม้เชื้อเพลิงขยะ สามารถนำไปใช้ประโยชน์
เป็นส่วนผสมในกรรมผลิตวัสดุก่อสร้าง เช่น อิฐบล็อก หรือนำไปฝังกลบ
ทางถูกหลักสุขาภิบาล

It is a by-product (residue) from the combustion. It can be utilized in the production
of construction materials like bricks. Alternatively, the ash is buried to dispose,
in compliance with sanitation practices.

@Siam Power
300 t/d with reclamation excavated RDF, 9.5 MW
Fluidized bed furnace (Wuxi), made in China
Purchased from landfill in Nonthaburi Province at 35 B/t
40% converted to RDF, backfill residue
Photo taken in September 2022

Surge in proportion of non-recyclable plastics during lockdown

Types of Solid waste	A Period of Study			
	Fiscal year 2019	April 2020	May 2020 (1 st) *	May 2020 (2 nd) **
Food Waste	48.18	38.03	40.70	65.00
Wood & Leaves	5.51	2.81	3.49	1.25
Recyclable Paper	2.36	0.00	8.14	1.25
Non-recyclable Paper	9.03	12.68	10.47	12.50
Recyclable Plastics	4.69	7.04	4.65	2.50
Non-recyclable Plastics	15.34	29.58	16.28	12.50
Foam	1.12	1.41	3.49	1.25
Glass	1.99	2.81	1.16	0.00
Metal	0.91	1.41	2.32	0.00
Leather & Rubber	0.68	1.41	1.16	0.00
Fabric and Textile	5.33	1.41	4.65	1.25
Stones & Ceramics	0.17	0.00	0.00	0.00
Bones & Shells	1.02	1.41	0.00	0.00
Nappies	3.67	0.00	3.49	2.50
Others	0.00	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00

Notes: 1. * The first relaxation of Covid-19 measures, May 3rd, 2020,
2. ** The second relaxation of Covid-19 measures, May 17th, 2020

Source: The Solid Waste and Sewage Management office, the Department of Environment, BMA

42% reduction compared with 75% reduction in KPIs

KPIs and Goals	Base year data 2019	Target Value/Performance		
		2020	2021	2022
1. Reducing, stop using targeted plastics by using friendly renewable materials to the environment	100%	50%	75%	100%
Total reduction, quit 4 types of plastic	384,024 tons	37 % decrease (142,621 tons)	42 % decrease (160,176 tons)	-
1.1 Plastic bags with handles, size, thickness < 36 microns	342,522 tons	38 % decrease (131,555 tons)	43 % decrease (148,699 tons)	-
1.2 Styrofoam boxes for food packaging	15,176 tons	10 % decrease (1,518 tons)	20 % decrease (3,035 tons)	-
1.3 Thickness of plastic caps	22,679 tons	36 % decrease (8,227 tons)	32 % decrease (7,230 tons)	-
1.4 plastic straws	3,647 tons	36 % decrease (1,321 tons)	33 % decrease (1,212 tons)	-

(source) PCD(2023), “Action Plan on plastic Waste Management Phase 2 (2023-2027)”

Demonstration project by private companies



มือวิเศษ x วน
WON PROJECT
โดย PPP Plastics

“ถังวนถุง”
จุดรับถุงพลาสติกสะอาด
Plastic Drop Point

5 มิถุนายน 2563
นำร่องทั่ว กรุงเทพฯ และ ปริมณฑล
300 จุด

**ถุงวนใหม่ได้
ด้วยมือคุณ**

รับถุงพลาสติก 12 ชนิด

- ถุงครัว
- ถุงซอปปิง
- ถุงใส่ถุง แพลทวอร์ม
- ฟิล์มบาง แพลท UHT
- ซองโปรตีนมีพลาสติก
- พลาสติก ฟิล์มพลาสติก
- ถุงบรรจุของยา
- ฟิล์มบางสบู่
- ถุงนมผง
- ถุงผ้ากระดาษ
- ถุงน้ำแข็ง
- ถุงพลาสติก

แห้ง ✓ สะอาด ✓ ยัดได้ ✓

(source) <https://www.facebook.com/PPPPlastics>

Survey of sorting behavior using Google Forms



Questionnaire target attributes

[Survey period]

August 26-29, 2022

[Survey method]

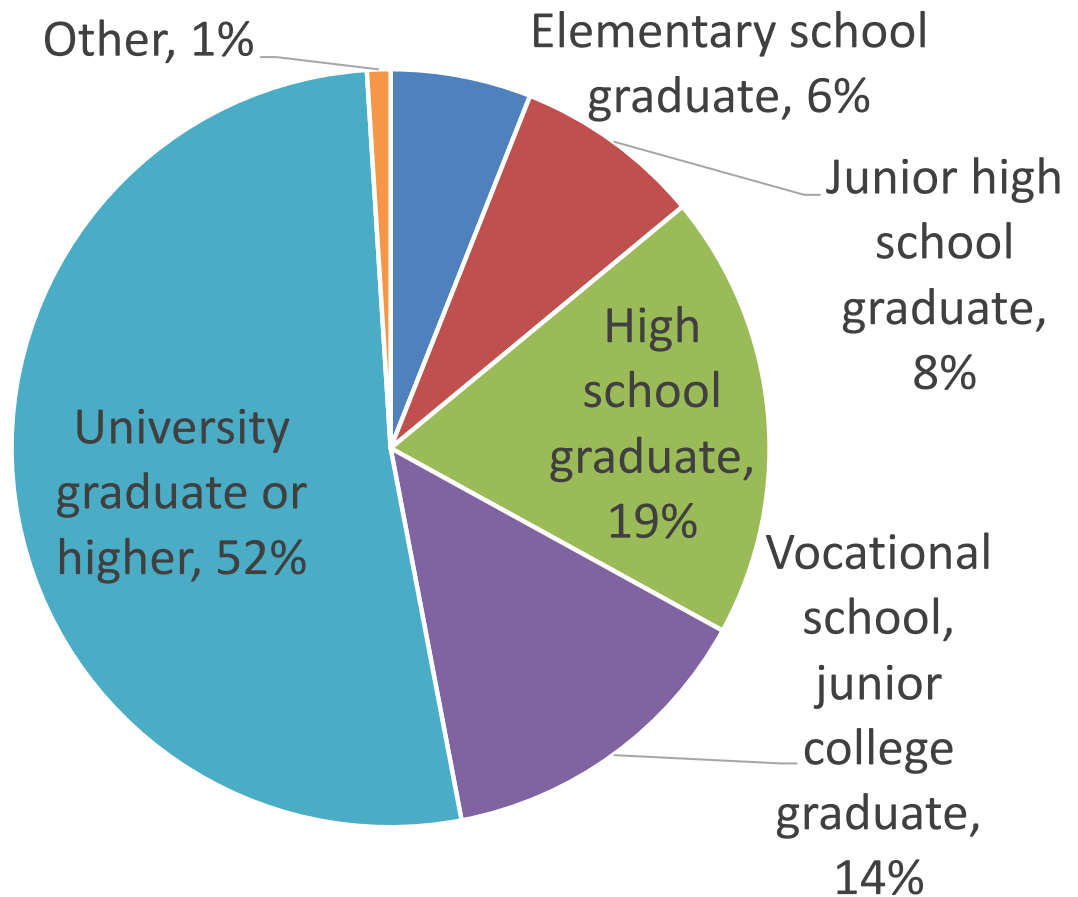
Random sampling

[Survey locations]

Near Asok, Victory monument, Lumpini station

[Number of people surveyed]

298 individuals



[Results] What is the difference between those who do storefront sorted collection and those who do not?

When analyzing using the “two-sample t-test”

Q4,5,11	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9		
	0.21577	0.3928	0.65525	6.67681E-10	6.16555E-11	0.09307	0.04352	0.01248	0.0378		
T検定	0.45089	0.96715	0.78125			0.0354	0.59069	0.22422	0.27586		
			Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
			0.04108	0.00644	0.74664	0.40843	0.91328	0.01376	0.87514	0.13639	0.37142
			0.37286		0.35122	0.13903	0.67953	0.26222	0.35949	0.05154	0.06233

People who know about PPP’s storefront sorted collection activities (Q4), who cooperate with storefront collection (Q5), and who think that sorting waste will solve the problem (Q11) are

individuals who recognize that government is taking waste issues seriously

Waste separation pilot begins

Move to ease recycling process in Bangkok

PUBLISHED : 4 SEP 2022 AT 04:00

NEWSPAPER SECTION: [NEWS](#)

WRITER: [POST REPORTERS](#)



City Hall will today kick off a pilot project to separate organic waste in three districts of the capital.



Needs cooperation from Consumer



Plastic bottles

Items to be collected: Plastic bottles of beverages, liquors, soy sauces, etc.



This mark is the indication.

How to dispose



(1) Remove caps and labels. Removed caps and labels are to be treated as recyclable plastics



(2) Rinse a bottle with water and crush it.



Plastic bottles only

(3) Dispose of them after putting them in a plastic bottle collection net or a transparent or semi-transparent bag.



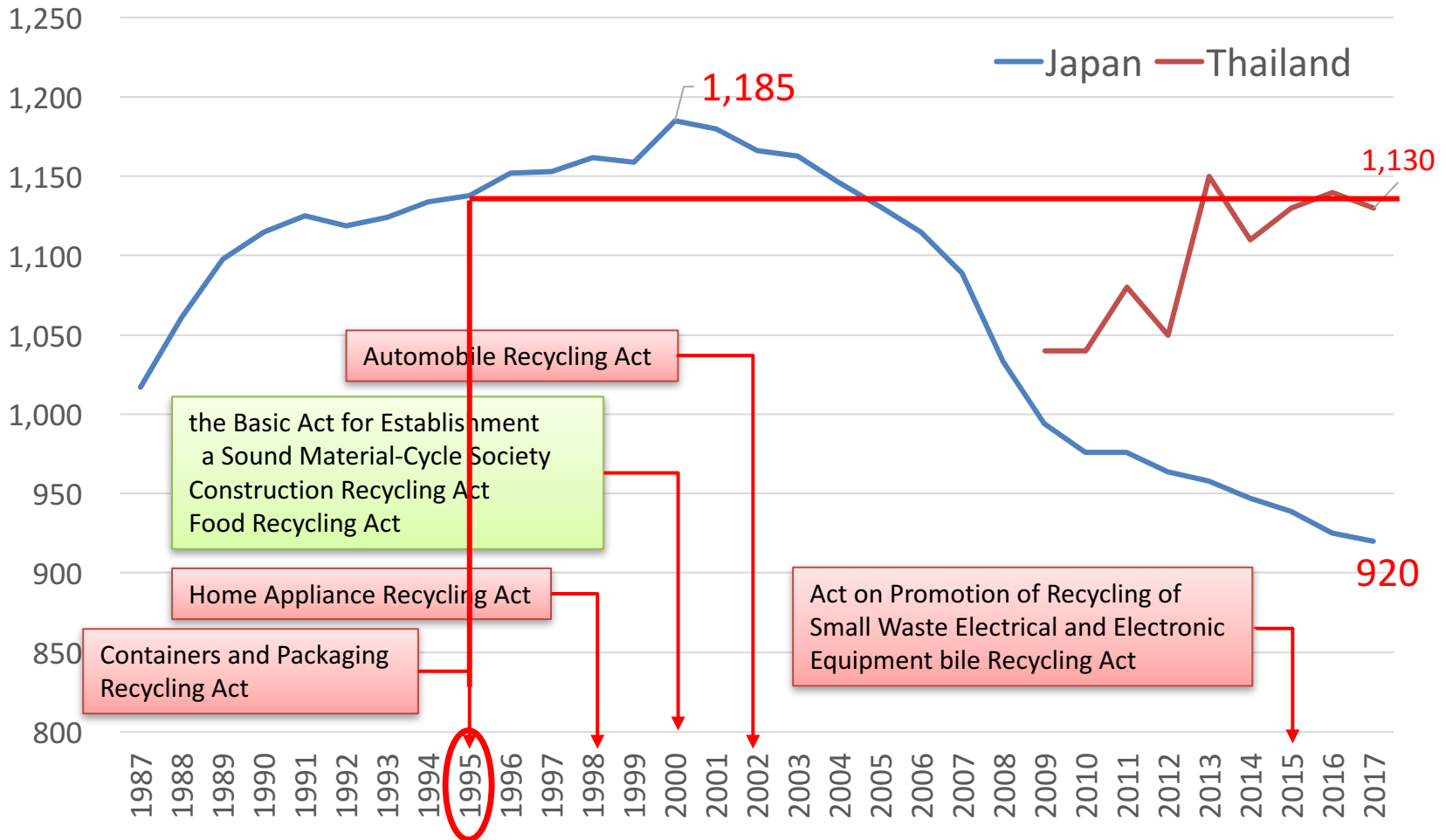
(source)

<http://record.hits.jp/2017/04/26/%E3%83%9A%E3%83%83%E3%83%88%E3%83%9C%E3%83%88%E3%83%AB%E3%81%A6%E6%8D%A8%E3%81%A6%E6%96%B9%EF%BC%88%E8%8B%B1%E8%AA%9E%EF%BC%89/>

and photo by Sasaki

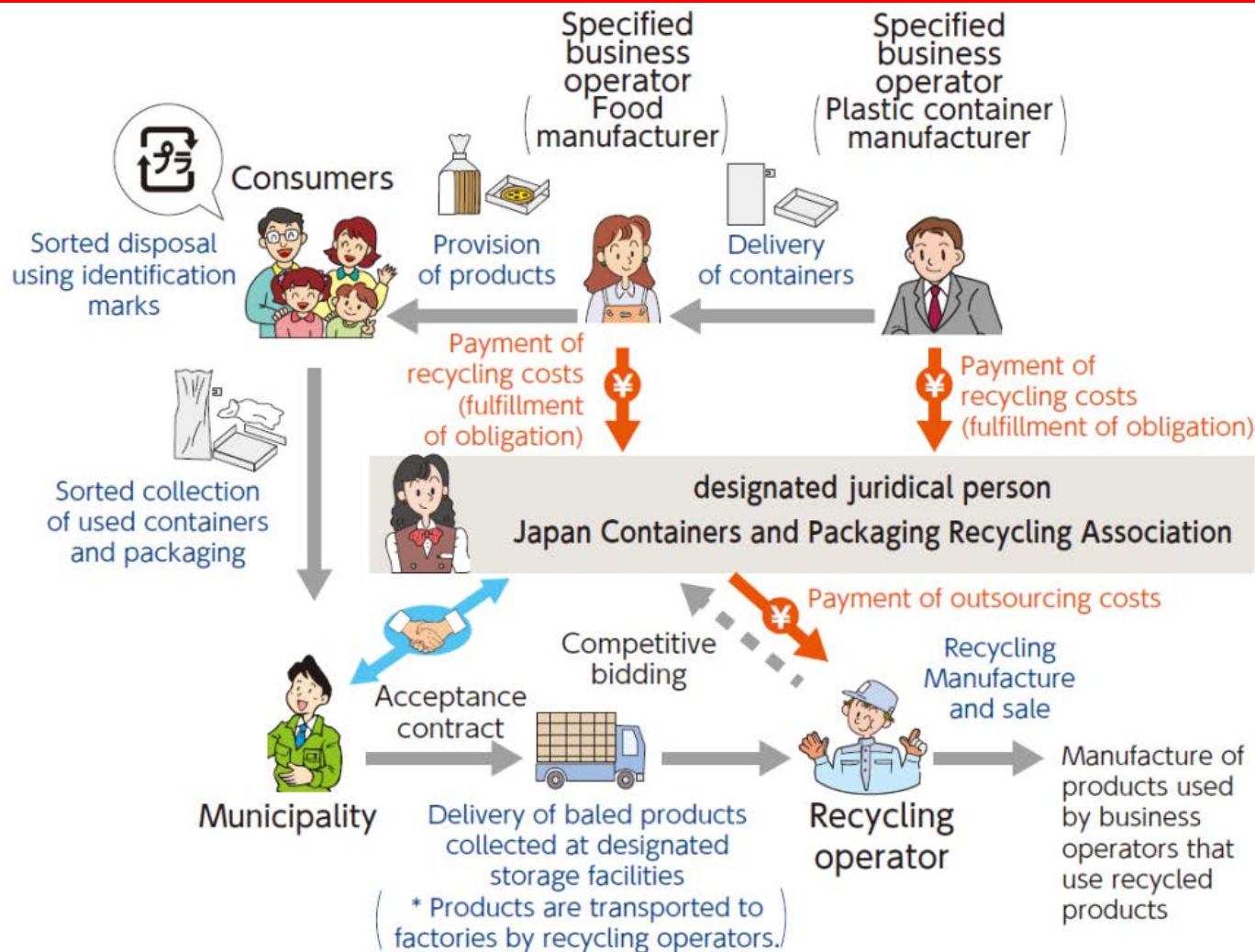
Opportunity to consider recycling law

MSW generated per person (g/cap*day)



(source) PCD(2019), "Booklet on Thailand State of Pollution 2018", and MOEJ(2019) "Survey results of general waste treatment"

The Division of roles is important



Source: Compiled from a figure on the website of the Japan Containers and Packaging Recycling Association

EPR = Extended Producer Responsibility,
EPR does not mean to left everything to Producers!

<https://www.oecd.org/development/extended-producer-responsibility-9789264256385-en.htm>

Contamination of foreign substances is reduced depending on changes in the shape and installation location of sorting boxes



Collection by manufacturers started in 1990
No lid, foreign substances mixed in
Recognized as trash box



2000s
Recognition of Containers and Packaging Recycling Act
Lid, foreign substances reduced



Present day
Change in shape and height of inlet
No lid and easy to put in, but few foreign substances
Provided by FP Corporation

2010s
Establishment of Containers and Packaging Recycling Act
Increase in sorting types

Sorting enables EPS to be recycled as material



Emphasis on principle of waste hierarchy

- Landfill without sorting, excavation and RDF manufacturing, and WtE-based power generation will reduce options for material recycling
- 100% recycling is not possible, so residue is converted to RDF for recovery

Waste hierarchy



Policy-related additional remarks

- Waste plastic reduction itself is an international trend and is significant. However, rather than rapid efforts, it is thought that
- the first priority should be **to implement sorted collection**, in that case, administrative publicity is very important,
- the second priority should be **to implement a recycling law**.
- Finally, the clustering of municipalities for waste management has progressed, but In accordance with principle of waste hierarchy, Thailand should **consider options that allow material recycling rather than WtE**.



Thank you for your attention!

ขอบคุณครับ

ご清聴ありがとうございました