



5. 3R (Reduce, Reuse, Recycle) in Japan

Collaboration with other Recycling Associations

Members

The Council for **PET Bottle** Recycling

Japan **Steel Can** Recycling Association

Japan **Aluminum Can** Recycling Association

Glass Bottle Recycling Association

Japan Recycling Council for **Beverage Cartons**

Paper Packaging Recycling Council

Corrugated Packaging Recycling Council

Plastic Packaging Recycling Council



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Target of 3R for PET Bottles

Voluntary Action Plan	The 1 st 2006=>2010	The 2 nd 2011=>2015
Reduce (2004 BM)	PET Bottle Weight Reduction Target : more than 3%	PET Bottle Weight Reduction Target : more than 10%
Reuse	Study of Returnable System	Promote Mechanical BtoB instead of Reuse
Recycle	<ul style="list-style-type: none"> • Collection Rate Target : more than 75% • Promote Outsiders to comply our Design Guideline 	<ul style="list-style-type: none"> • Recycling Rate Target : more than 85% • Promote Outsiders to comply our Design Guideline



5. 3R (Reduce, Reuse, Recycle) in Japan

**Voluntary Design Guideline for Designated PET bottles
= Obligation of PET Bottle Manufacturers & Users**



**Plastic Closures must be made
of PE or PP.
Do not use Aluminum Closures.**



**Bottles must be made of only Clear
PET (no color). When use multi-
layer / coating for barrier, must
evaluate a recycling performance.**

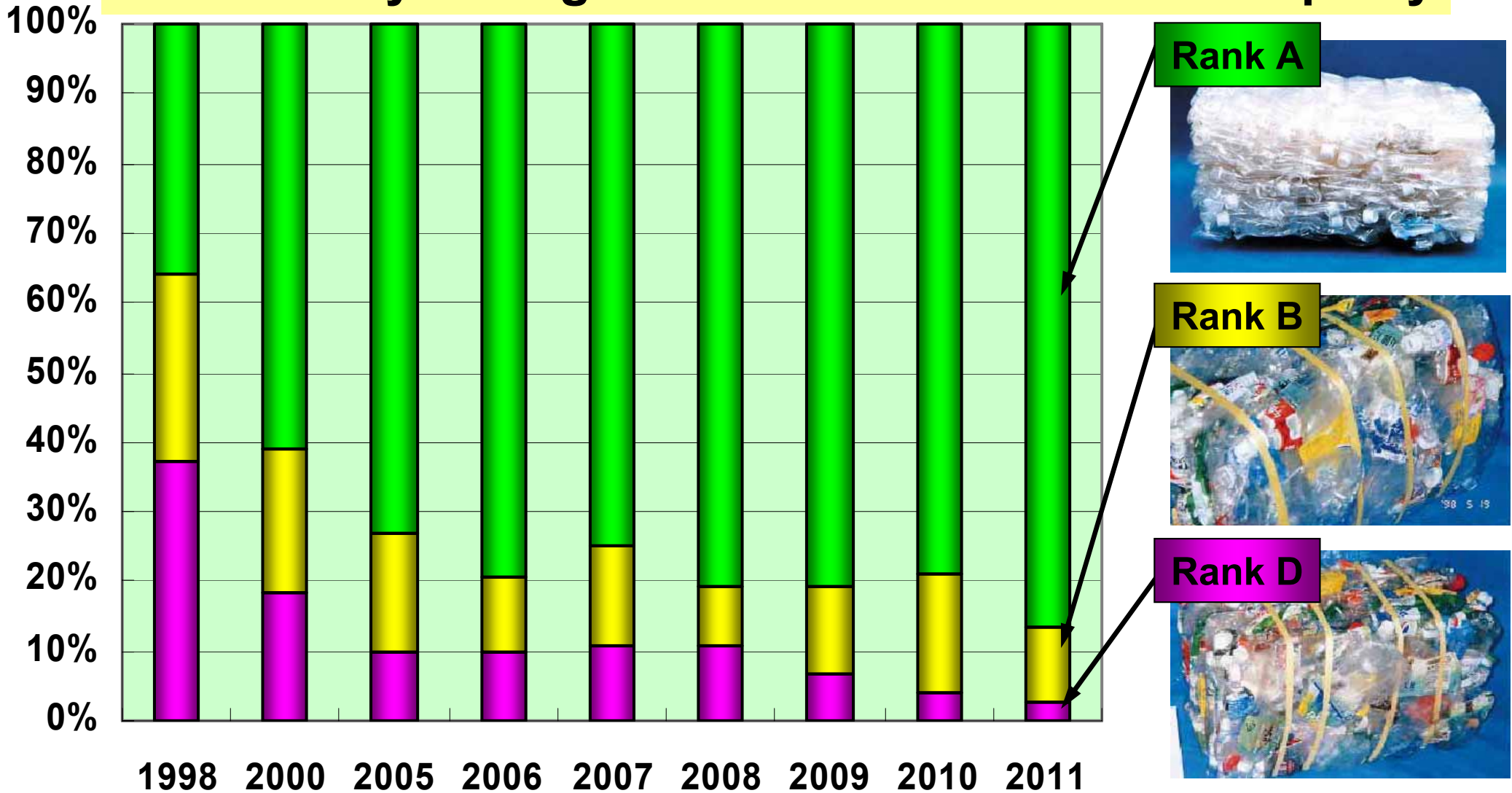


**Labels must be easily removable
by hand.**

5. 3R (Reduce, Reuse, Recycle) in Japan



Bale Quality : Obligation of Consumers & Municipality



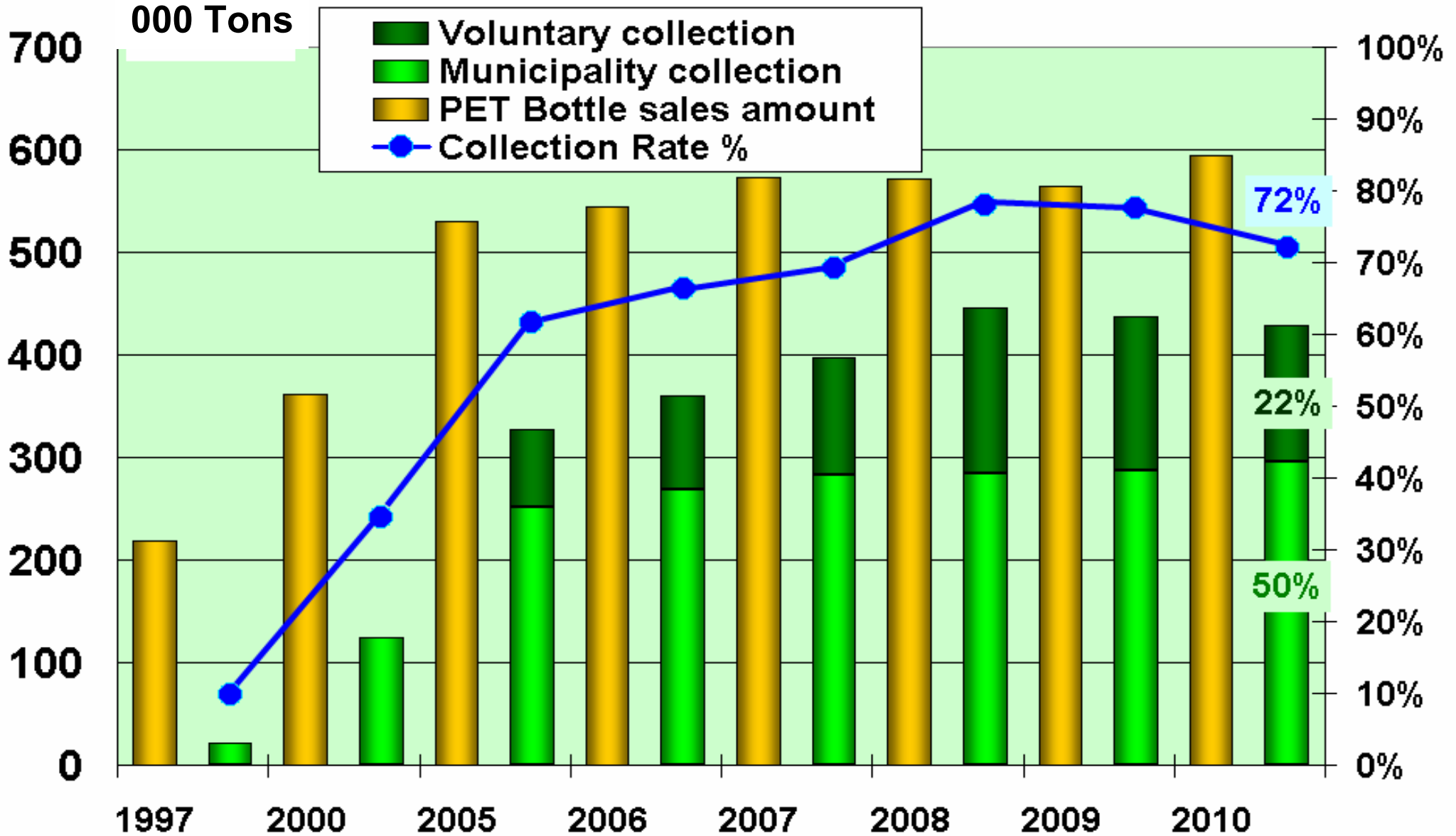


PET
CPBR,J

5. 3R (Reduce, Reuse, Recycle)

in Japan

Collection Status of PET Bottle

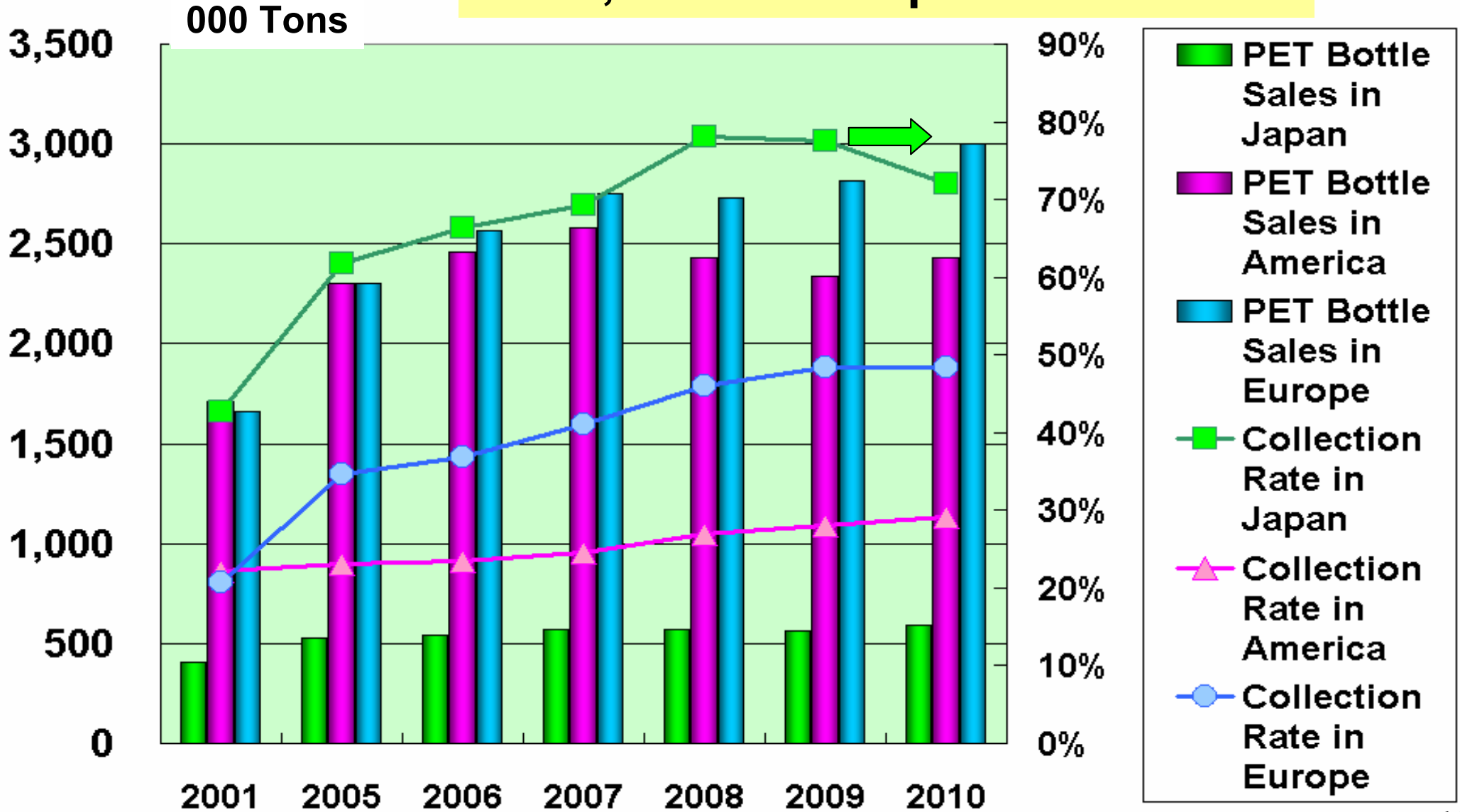




PET
CPBR,J

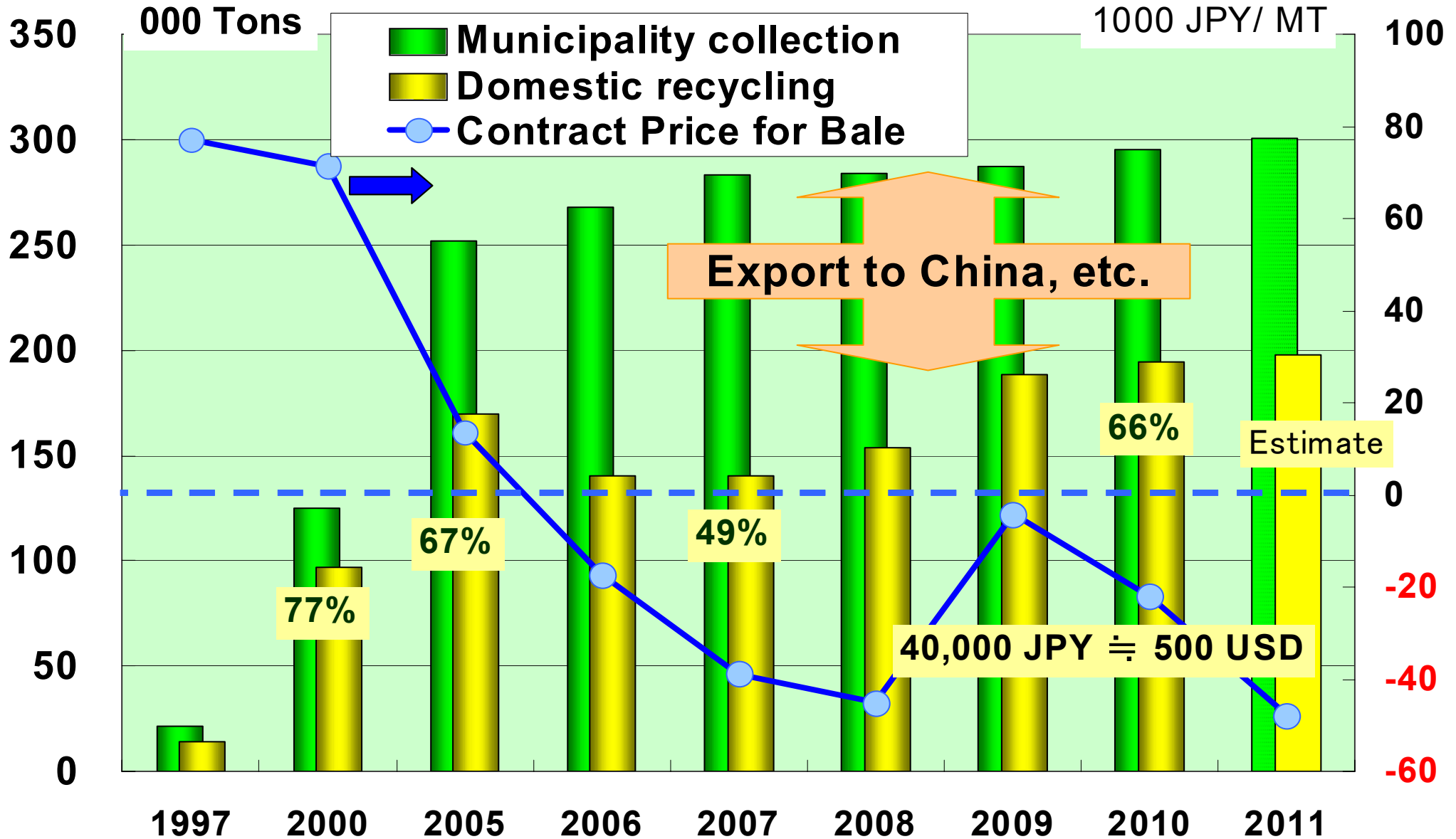
5. 3R (Reduce, Reuse, Recycle)

in Japan Comparison with Collection Rates in EU, USA and Japan



5. 3R (Reduce, Reuse, Recycle) in Japan

Value of Post Consumer PET

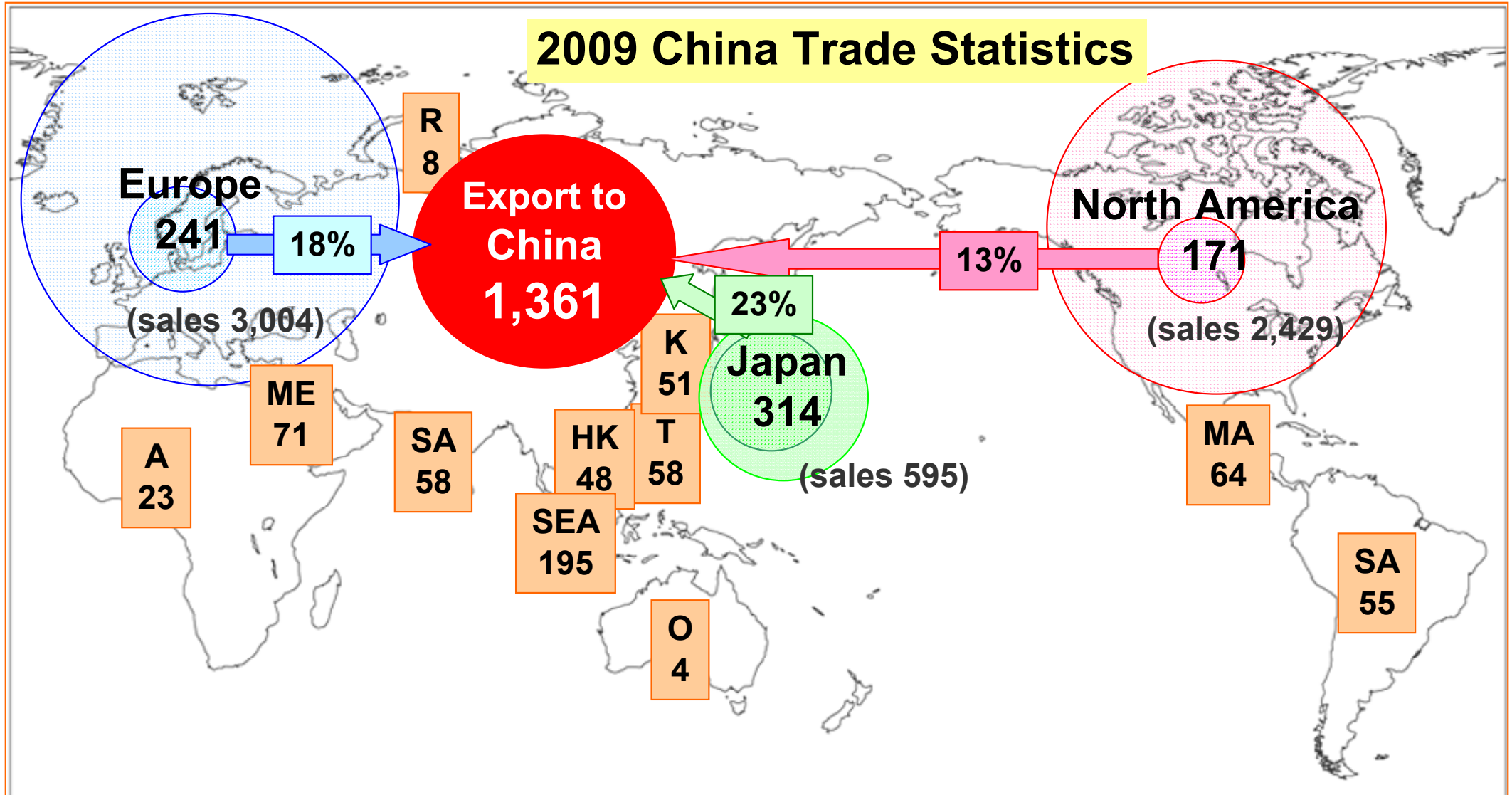




PET
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5. 3R (Reduce, Reuse, Recycle) in Japan Collection and Recycling Channel

Unit: 000 Tons



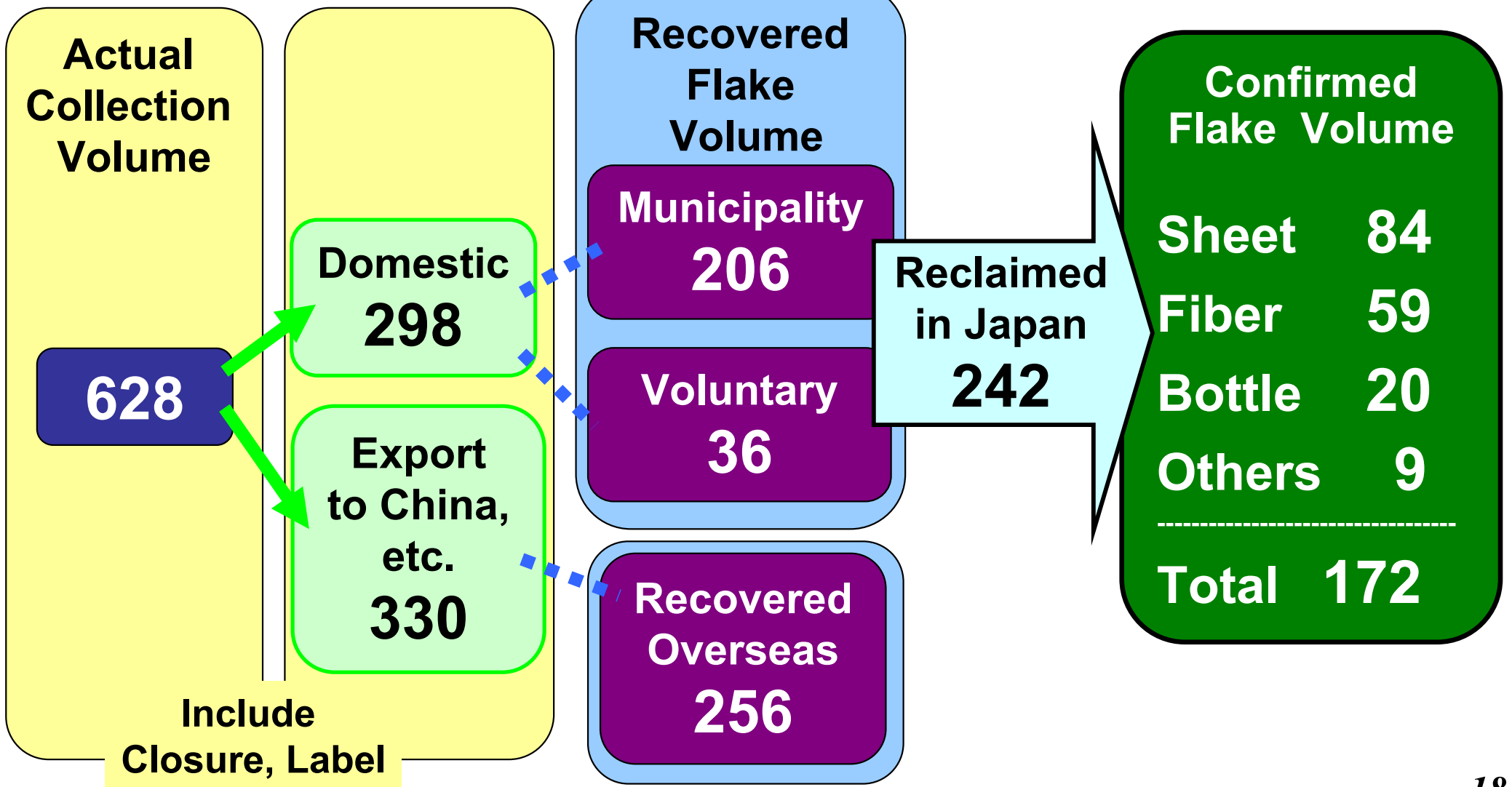


PET
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5. 3R (Reduce, Reuse, Recycle) in Japan

Flow of Collection and Recycling, 2010

Unit: 000 Tons

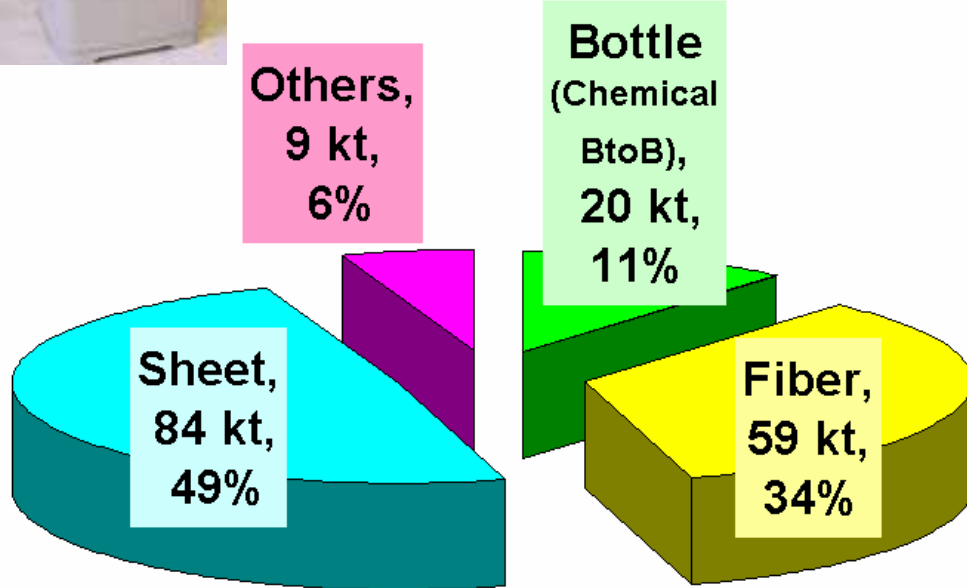




5. 3R (Reduce, Reuse, Recycle) in Japan

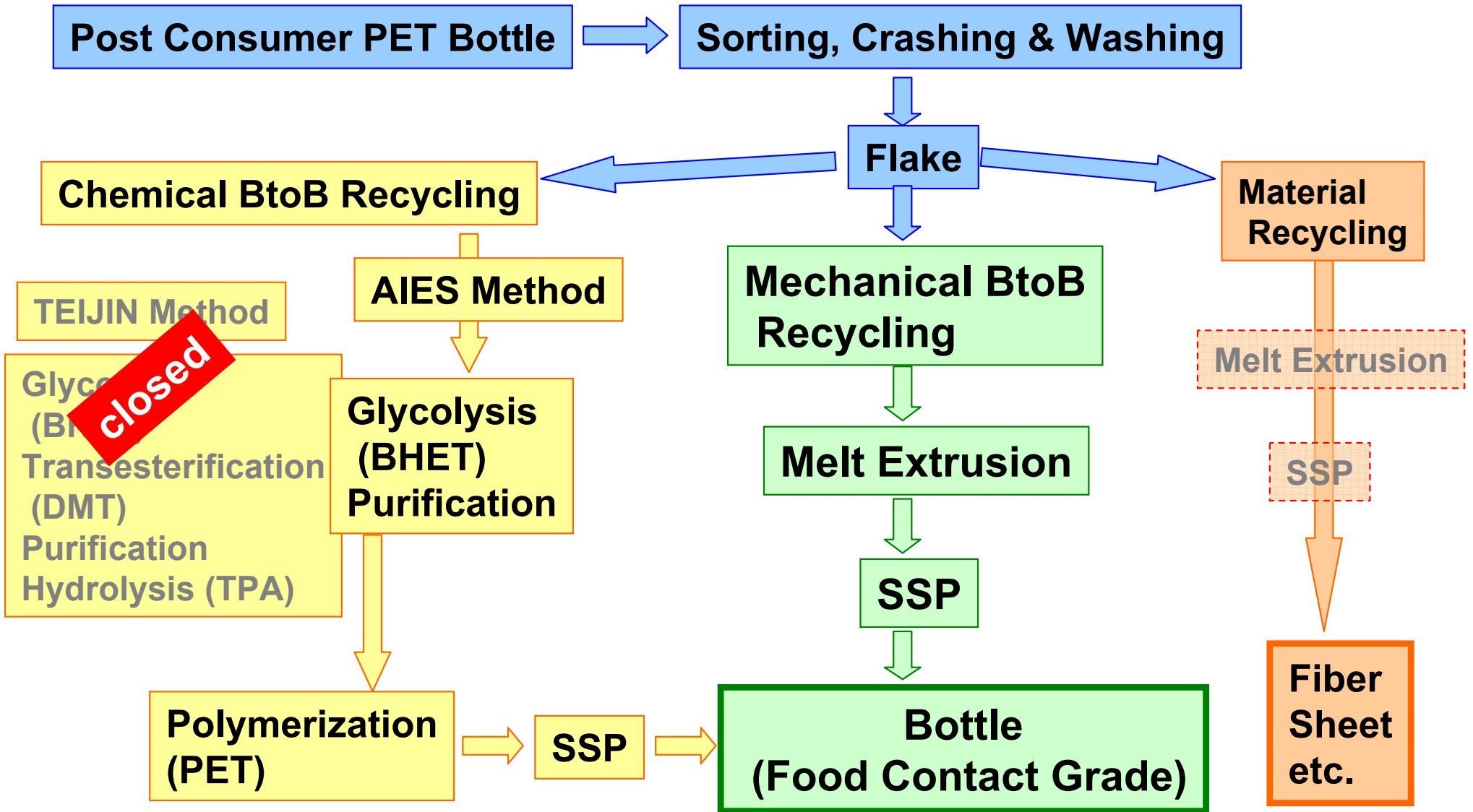
High Quality Recycled PET
generates many Applications

Unit: 000 Tons





5. 3R (Reduce, Reuse, Recycle) in Japan PET BtoB Recycling Processes



5. 3R (Reduce, Reuse, Recycle) in Japan **Mechanical BtoB Recycling**



- **Mechanical BtoB recycling was started in Japan last year**
- **Guideline for use of Recycled Plastics in Food Package is being made by the Ministry of Health, Labour and Welfare**

The Guideline consists of the Following Items ;

- ✓ **Source Control**
- ✓ **Challenge Test**
- ✓ **Evaluation of Recycled Plastics**
- ✓ **Safety Standard**
- ✓ **Process Quality Control**



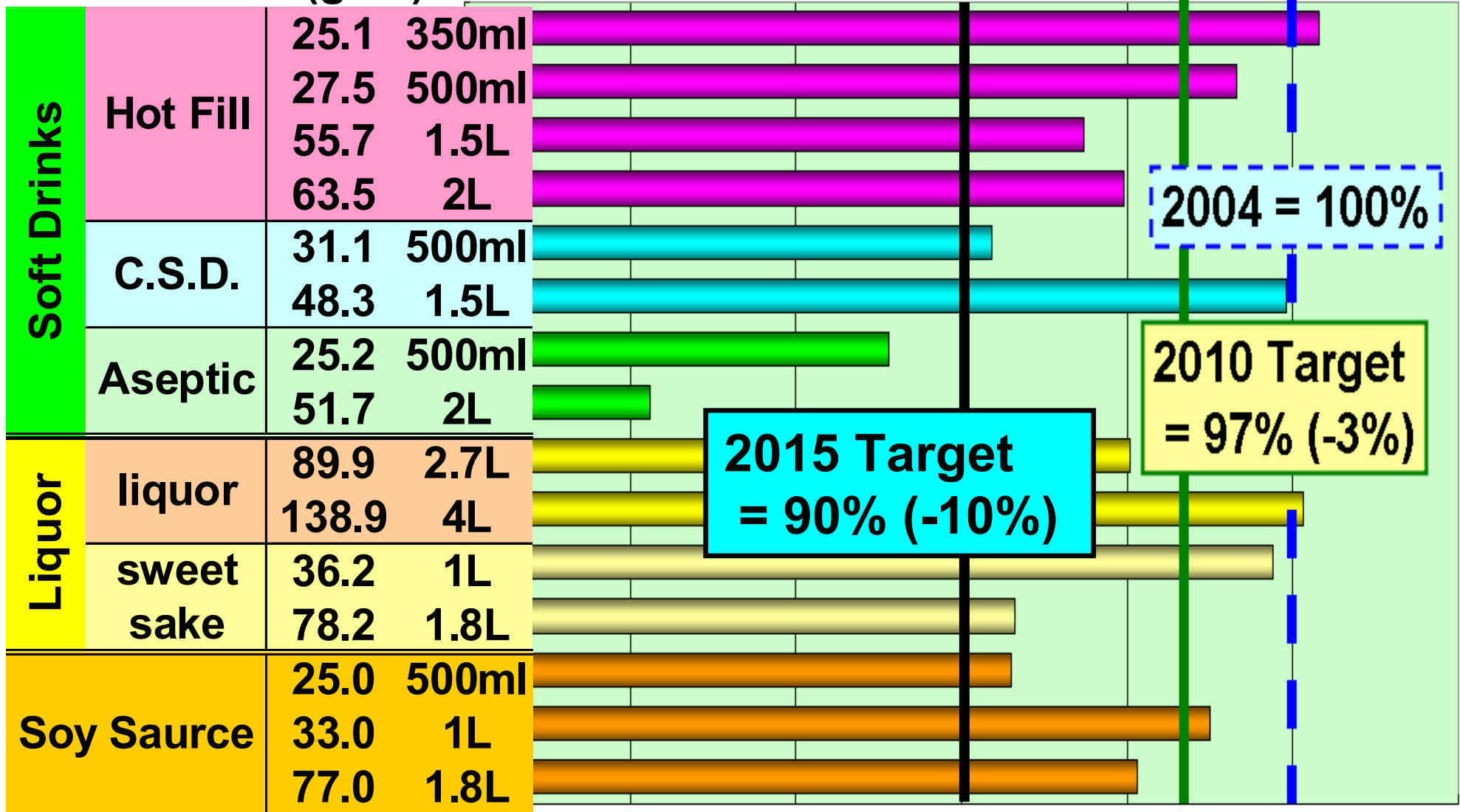
PET
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5. 3R (Reduce, Reuse, Recycle)

in Japan

Weight Reduction 2004 vs. 2010

2004 (g/btl)



75% 80% 85% 90% 95% 100% 105%



5. 3R (Reduce, Reuse, Recycle) in Japan

Examples of Weight Reduction

改善事例 No.14

事例項目 軽量化・ユニバーサルデザイン

会社名 キリンビバレッジ株式会社

商品名

KIRIN Beverage "Pecology Bottle"

2005年

事例説明

World Star Sustainability Award Winner

2005年、2003年に薄肉・軽量化したペコロジーボトルを長角化し、生茶との配合での品質に導入。2007年の変更を考慮し、軽量化を考
*20

2Lボトル1本当たりの重量 ... 63g ⇒ 42g ⇒ 38g

**2L Hot Fill
63 g/btl**

**2L Aseptic
42 g/btl**

**2L Aseptic 38 g/btl
Universal Design**

軽量化内容

ペコロジーボトル

New ペコロジーボトル



Reduced
in 2005

-21g



Reduced
in 2010

-4g



WORLDSTAR
WINNER
2010



5. 3R (Reduce, Reuse, Recycle) in Japan

Examples of Weight Reduction


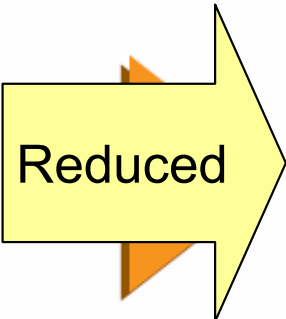



改善事例 No28

事例項目	軽量化・つぶしやすさ	会社名	日本コカ・コーラ株式会社
Coca-Cola (Japan) "Eco-ru Bottle: Shiboru"		2009年	
事例説明	本製品に使われるボトルを国内最軽量となる目付けへと軽量化した。2010年に... 部(5~30%)使用採用	効果	ボトル1本当りの重量 ... 20.5g ⇒12g
500ml Aseptic 20.5 g/btl		520ml Aseptic 12 g/btl Bio-based Resin	
軽量化内容			
			
		<ul style="list-style-type: none"> 2011 DuPont Awards for Packaging Innovation 2011 Warc Asia Strategy Prize 	
		<ul style="list-style-type: none"> キャップ ボトル樹脂使用量約 40%削減 シユベル量6 飲用後はしぼって減容化 	
			



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Examples of Weight Reduction

改善事例 No21		
事例項目	軽量化	
商品名	ペプシ	
事例説明	軽量化とCO ₂ 排出削減で、環境にも配慮している。また現行のPETボトルに比べ	
500ml C.S.D. 31 g/btl	500mlボトル1本当りの重量 … 31g ⇒ 24g 年 500ml C.S.D. [「ペプシネックス」 ボトル比)	
軽量化内容 ハイブリッドボトル: 当社と(株)吉野工業所が共同で開発した3層構造(PET/ナイロン/PET)のPETボトルで、現行のペットボトルに比べ炭酸ガスや酵素のバリア性が約1.3倍 ^(*) と優れており、薄肉化しても炭酸ガスが抜けにくい。 ※現行「ペプシネックス」500ml PETボトル(開栓前)比		
		
		
		

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Feasibility Study



- **Feasibility Study on Reuse of PET Bottle was started in 2008 and the Report was issued by the Ministry of Environment in 2009**

The report concluded that the Returnable System of PET Bottle was Superior to the One Way System in LCA only in the Following Conditions;

- ✓ **Collection Rate of the Bottle : More than 90%**
- ✓ **Distance of Deliver / Return : Within 100 km**