PET Bottle Collection and Recycling in Japan

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Japan achieves world’s highest PET bottle collection rate

With the concept of “sustainable development”, PET bottle collection & recycling is becoming a global environmental protection issue. Japan establishes an almost perfect collection system, achieving world’s highest PET bottle collection rate. However, recycling in Japan is not viewed as “smooth sailing”.

PET bottle collection rate in Japan in 1997-2010
Legal regulation for PET bottle collection in Japan

**Basic Law**
- Basic Law for Establishing a material-cycle Society
- Law for Promotion of Effective Utilization of Resources

**Specific Law**
- Packaging Recycling Law
- Home Appliance Recycling Law
- Food Recycling Law
- Construction Recycling Law
- Vehicle Recycling Law
- Law on Promoting Green Procurement
- R-PET is viewed as a key environmental protection material.

Residents, enterprises and governments are required to have priority to purchase.
State administrative organizations are required to announce public purchasing plan and implementation result.

Responsibilities of manufacturers
- Basic principles of environmental protection legislation in recent years:
  - Manufacturers instead of local governments and general taxpayers pay collection and recycling fees after their products are consumed, aiming to reduce waste generation and to promote recycling.
  - to reduce raw material consumption (lightweight PET bottle)
  - environmental-friendly design (design product suitable for recycling)
  - Material signs (in favor of sorted collection)
  - pay for collection and recycling (defining PET bottle producers and beverage companies as main party of responsibility, namely specified business party)

Producer responsibility is the only explicit concept in sustainable developing economics.

**Self-discipline norms of PET bottle industry in Japan**

< Bottle>
1. Standardized materials
2. Colored bottle is abolished
3. Handle only used in big bottles

< Label, print >
1. Unified standard
2. Easy-to-delabel tear lines

< Cap >
Plastic material only

**Lightweighting of PET bottle in Japan**
Japan succeeded to lightweight 13 types of PET bottles by 3% in 2010, accounting for 70% of total PET bottles.
Three PET bottle collection modes in Japan

1. 

Professional recycling companies collect and sort post-consumer PET bottles in the areas designated by beverage companies. Besides sales income, the recyclers also receive subsidy from the beverage companies to keep business stable.

2. 

Guided by government, Japanese residents dispose post-consumer PET bottles regularly after they decap, delable, wash and drain the bottles.

The best-quality baled PET bottles from these sanitation centres may hardly be found at any other areas in the world.

3. JCPRA – Designated Incorporated Organization

Japan Containers and Packaging Recycling Associations (JCPRA) was established in 1996 in an aim to implement the Containers and Packaging Recycling Law. JCPRA is responsible for collecting fees from bottle & beverage makers. Amid weakness in PET bottle market, recycling companies can receive subsidy, on the other hand, the recyclers can bid for obtaining paid PET bottles when market is bullish, to subsidy local government’s collection expanse. The advantage of this mode is that PET collection and recycling system would not be totally affected by market sentiment.
Achievement of “Designated Organization Mode”

1. Ensure the implementing of “producer responsibility”
2. Ensure the operation of PET bottle collection system in market economic environment.
3. Create a large number of world-leading PET recyclers

PET bottle recycling in Japan

Market size of recycled PET product is not large in Japan. In 2010, actually collected volume is about 628kt, and recycled product is less than 200kt, hereinto, sheet is about 84kt, largely used for egg packing; fiber is about 59kt, mainly used for working suit, detergent bottle is about 20kt, and other products are about 9kt, including stationary, strapping and garbage can, etc.
Nearly 2/3 recycled PET bottle flakes in Japan are exported to China, and part of which are transferred from Hong Kong. However, export volume directly to China mainland has been increasing, as the cleanliness has constantly improved. It’s the robust flake demand from China that boosts Japan’s collection rate of PET bottles.

Export volume of PET flake in Japan in 2006-2010

Although collection volume has been increasing in Japan, the volume based on “Designated Organization Mode” decreased from 2005. The volume climbed after 2008, but saw no notable gain in recent years, as export to China was on the rise due to price superiority after 2005. In 2008, export slumped due to financial crisis, but it recovered quickly. It is thus clear that export to China has affected the expansion of the “Mode” to some extent. So, Japan’s JCPRA does not encourage export PET flakes to China, and the viewpoint is understandable, but international trade division is a reality of market economy.
Prices for exports to China pull up PET flake market in Japan. From the right chart, we can see that on “Designated Organization Mode”, the fees paid to recyclers by manufacturers decrease year by year, and in 2006 the pattern transferred to paid-bidding of recyclers. In 2010, bidding prices averaged at 22 yen, and local governments received 4.2 billion yen for collection fee. In 2011, the number climbed to 48 yen, and local governments achieved collection fee doubled. As the bidding price is almost equal to the market prices, it is really a big pressure on those recycling companies who quest for quality.

Bidding prices in 2000-2010

Thanks for your attention!
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