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Waste Management in Chinese Taipei

Submitted by: Chinese Taipei



**Webinar on Improving Waste Management
and Recycling Policies in the APEC Region
17 June 2021**



Waste Management in Chinese Taipei

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Natural Environment

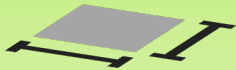
- ✓ Chinese Taipei is an island in the Western Pacific bisected by the Tropic of Cancer. This has created conditions for a rich and diverse ecosystem.



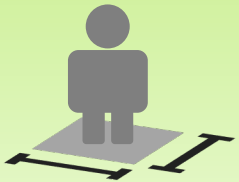
Natural Resource Scarcity



Population: 23 millions



Area: 36,000 km² (90% of Holland)



Population density: 624 person/km²
(Urbanization : 78%)
(Taipei City : 9,956 person/km²)



Energy imported > 98%



Mineral imported > 80%

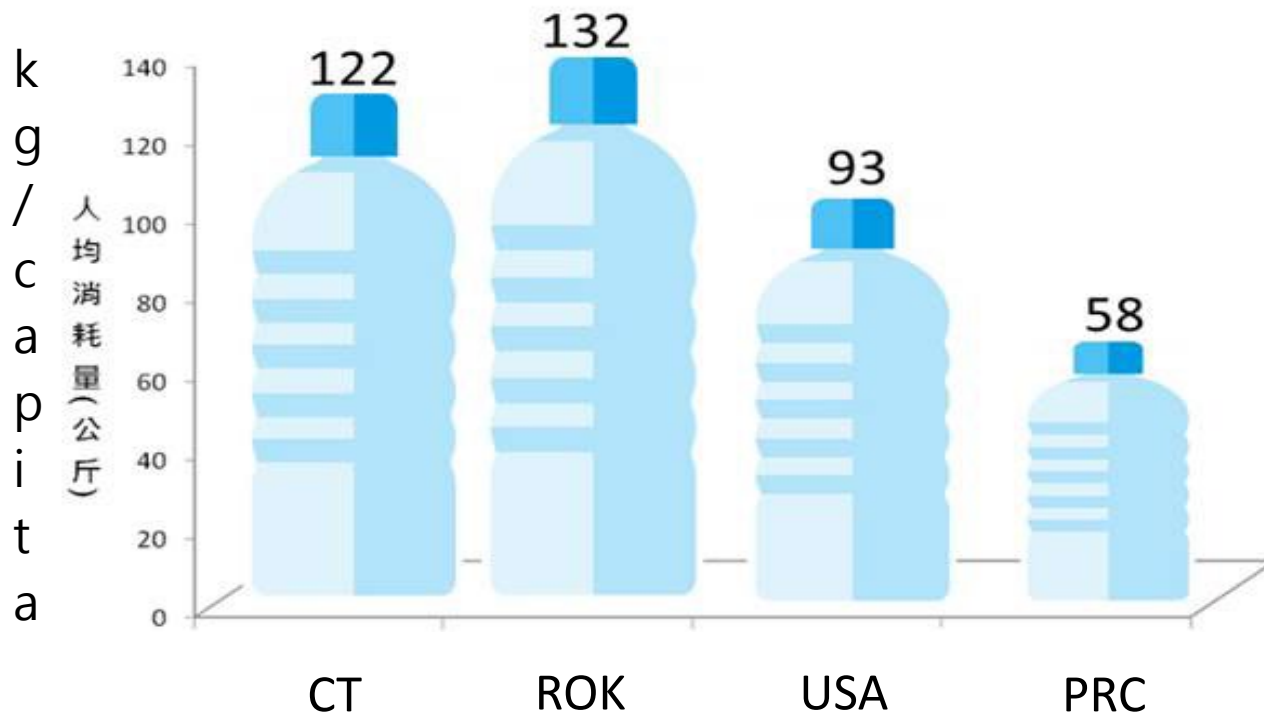


Food imported > 70%



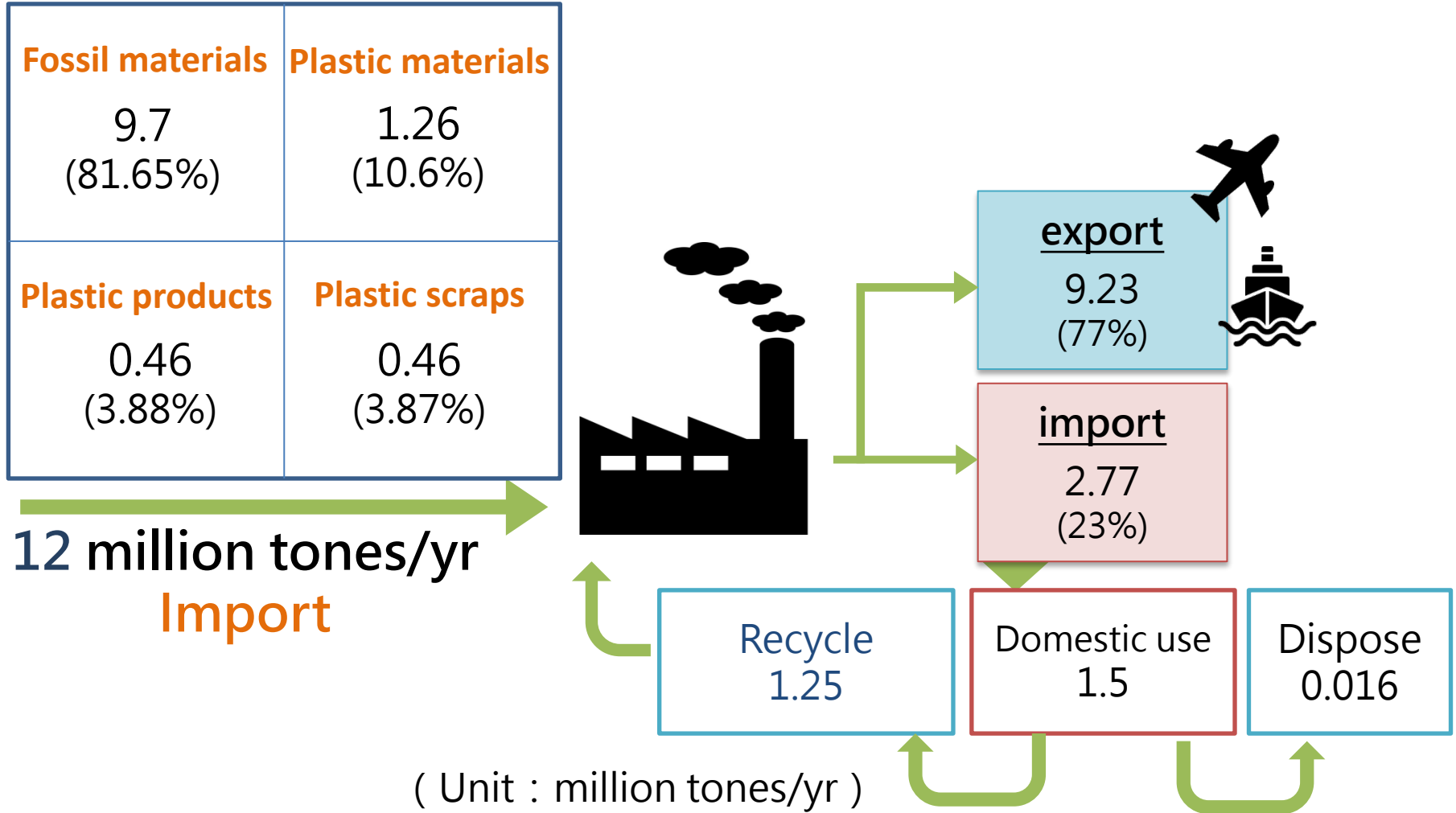
Statistics for plastic use in Chinese Taipei

- ✓ About 12 million tones of plastic resources are imported each year.



(Data Source : MOEA, CT)

Flow of plastic resources



(Data source : MOF, MOEA, EPA)

Top Ocean Waste in Chinese Taipei



Ocean Waste Management

Ocean Waste management platform

Source reduction

- Strengthen regulations and guidelines
- Reinforce EPR
- Enhance education

Prevention and removal

- Remove hotspot wastes
- Prevent leakage into the ocean

Research and investigation

- Monitor and investigate coastal and marine pollution

Collaboration and partnership

- Expand and strengthen multi-party cooperation
- Engage public participation

Waste Reduction

Plastics Reduction Actions

2002-

limit use of **plastic bags**; this policy has been continuously reviewed with more limitations



2011 –

vendors to offer discounts to customers who bring **reusable cups**




2018 –

- prohibiting the selling of products that contain **microbeads**
- the second stage of limiting the use of **plastic bags**



Plastic shopping bags

- ✓ Since 2002, it has been implemented in seven major industries and 20,000 companies. The use of plastic bags has decreased by about 2 billion/year.
- ✓ In 2018, there were 7 new industry control targets, which totaled 14 categories and 100,000 companies. The use of plastic bags decreased by about 4.5 billion/year.

2002 Premises subject to controls		2018 Newly-added premises
1. Public sector		8. Drugstores, cosmetic shops, and pharmacies
2. Private schools		9. Medical equipment sellers
3. Department stores and shopping centers		10. Appliances & photographic equipment, information and communications equipment retailers
4. Hypermarkets		11. Bookstores and stationary retailers
5. Supermarkets		12. Laundries
6. Convenience store chains		13. Beverage shops
7. Fast food chains		14. Bakeries

Disposable tableware

- ✓ Implemented in 2002, it manages 8 categories of shop, approximately 100,000 stores in total.
- ✓ Starting from 2006, public sectors and schools are not allowed to provide various material disposable tableware regulations.
- ✓ The number of plastic disposable tableware used for controlled objects was reduced by about 2 billion.

2002
Premises
subject to
controls

- Public sectors
- Private schools
- Department stores and shopping centers
- Hypermarkets
- Supermarkets
- Convenience store chains
- Fast food chains

•Catering establishments with storefronts

Total:

**8 categories of shops
approximately 100,000 stores**

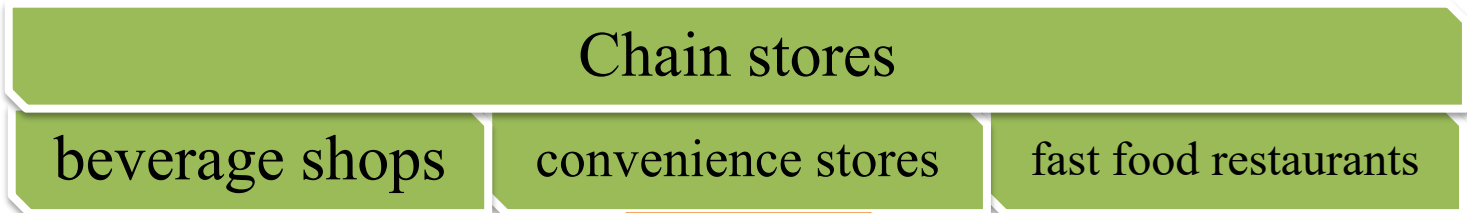
2006
Expansion of
Restriction

- Public sector and schools are not allowed to provide various material disposable tableware (includes disposable chopsticks and paper cutlery) regulations.

Single-use takeaway beverage cups

- ✓ Since 2011, it has been implemented and managed by three categories of shops.
- ✓ Stores are encouraged to provide their own beverage cup discounts or recycling incentives. From May 1, 2011 to December 31, 2018, the source reduction plan has been approved, with 500 brands (19,068 stores).
- ✓ The use of beverage cups is about 1.5 billion per year, and the reduction is about 10% after the announcement was made, which is about 150 million per year.

Premises
subject to
controls



Control
approach

provide a discount to
customers bringing their
own beverage cups.



Marine Pollution Control

- Cosmetics and personal care products containing **microbeads** will be banned in Chinese Taipei :
 1. production and import: January 2018 (US: July 2017)
 2. sales: July 2018 (the same as US and Canada)
- There are 9 economies including Canada, France, Italy, Korea, New Zealand, Sweden, England, US, and Chinese Taipei in the world to ban microbeads.



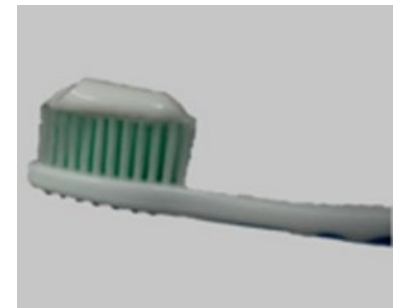
Facial cleanser



Shower gel



Body scrub



Toothpaste

Restricting the Use of Beverage Plastic Straws

- Annual usage amount - about 3 billion straws
→ Too light and too small to be recycled
- Four targets are prohibited from providing single-use plastic straws for in-store use → Since 2019/07/01

Regulated targets



Public institutions



Schools



Department Stores & Shopping Centers



Fast-Food Chains

Not regulated yet

- ◆ PLA straws (Green mark needed)
- ◆ Products with straws

Alternatives



Just Take it to your mouth



PLA



Bamboo



paper



Stainless Steel



Silicone

...

Plastics Reduction Actions



Plastic Shopping Bags

- Encourage reuse or use of alternative materials
- Implement a sharing economy



Disposable Tableware

- Encourage reuse and renting
- Establish criteria of cleaning



One-Time Takeaway Beverage Cups

- Raise incentives of using own cups
- Encourage reuse and renting



Plastic Straws

- Promote reduction unless necessary
- Encourage use of alternative materials that can be reused

Recycling

EPR-Four-in-One Recycling Program

- ◆ To form Community-based Recycling organizations
- ◆ To Promote separation of waste and recyclables



Community Residents

Recycling Industries

- ◆ To purchase waste resources from the public, communities and local governments



- ◆ To be paid by responsible enterprises
- ◆ To subsidize the recycling and disposal system



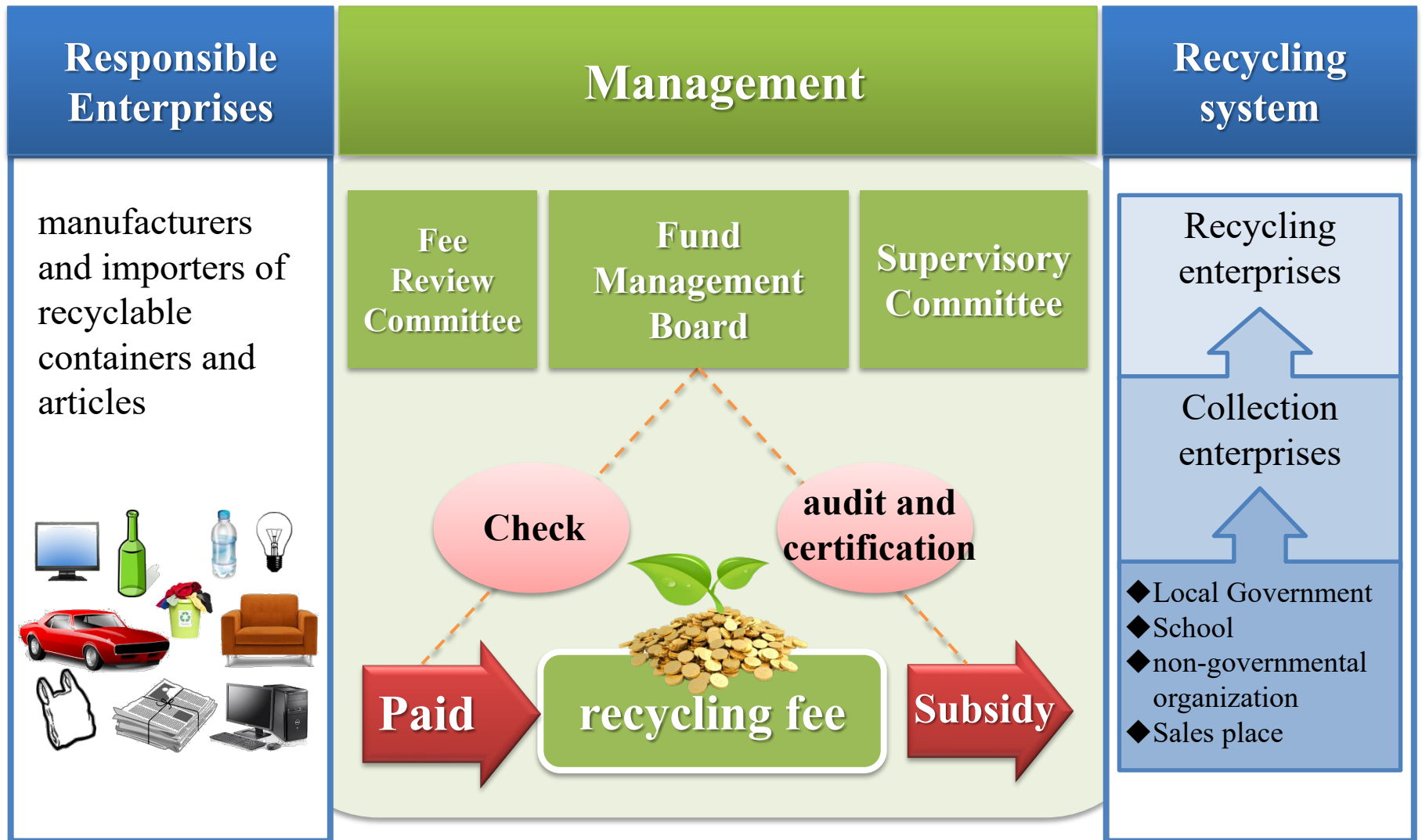
Recycling Funds

Local Government














- ◆ To transport resources and waste separately
- ◆ Part of the revenues to be given back to general public



Operation of Recycling Funds

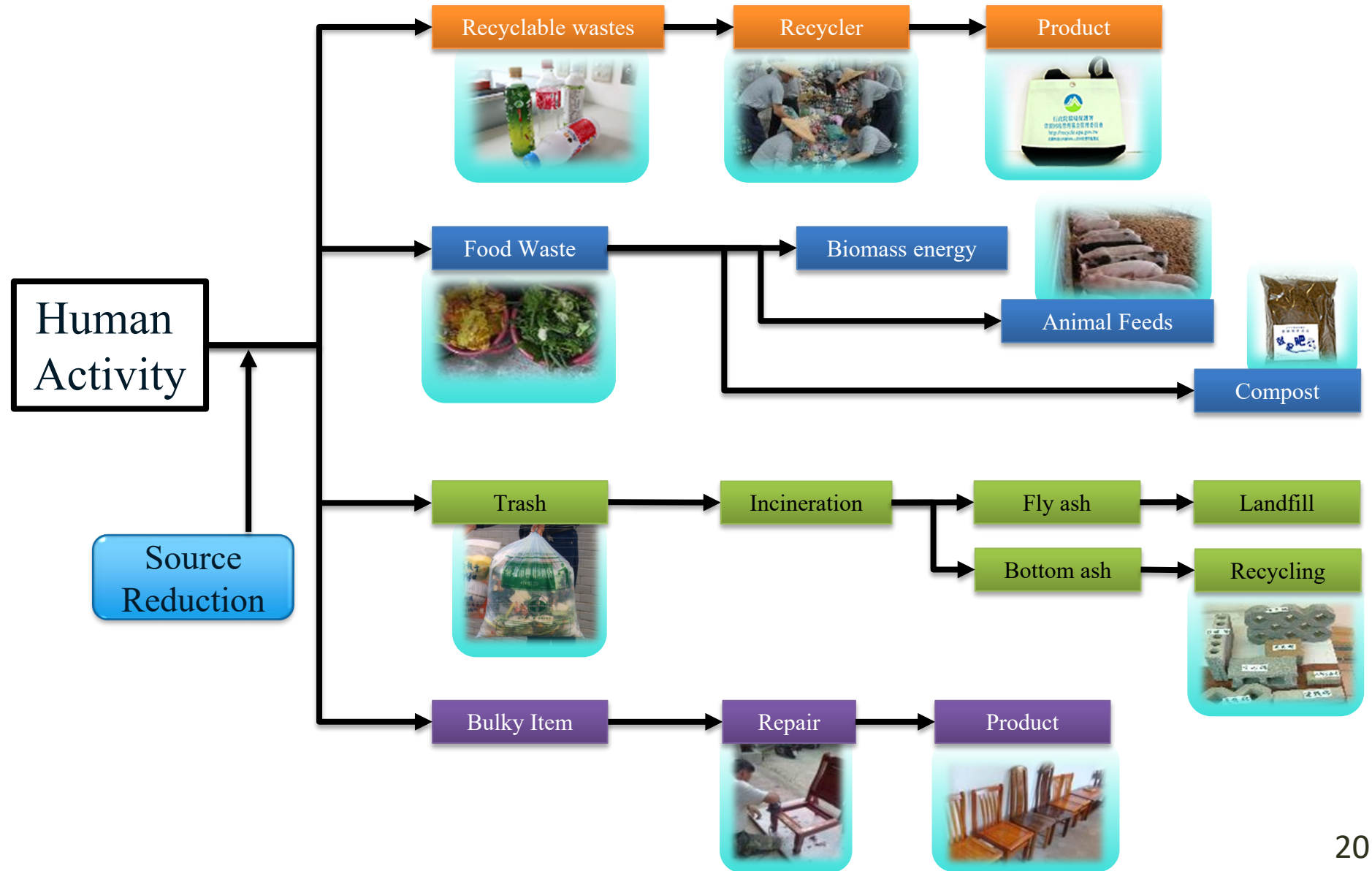


Regulated Recyclable Wastes

<p>1</p>  <p>1.1. Iron Containers: Such as beverage cans, milk cans and home-use insecticides.</p>	<p>6</p>  <p>14. Pesticide Containers: such as containers for weed killer and insecticide.</p>	<p>11</p>  <p>IT Equipments 20. Notebooks; 21. Hard-disks; 22. PC casings; 23. Motherboards; 24. Monitors; 25. Printers; 26. Power supplies; 27. Keyboards</p>
<p>2</p>  <p>2. Aluminum Containers: Such as carbonated drinks, sports drinks etc.</p>	<p>7</p>  <p>15. General Batteries: All types of dry batteries.</p>	
<p>3</p>  <p>3. Glass Containers: Such as bottles for beers, rice wines and carbonated drinks.</p>	<p>8</p>  <p>Motor Vehicles, including 16. Automobiles; 17. Motorcycles.</p>	<p>12</p>  <p>Electronic and Electric Appliances 28. Television sets; 29. Washing machines; 30. Air-conditioners and heaters; 31. Electric refrigerators; 32. Electric fans</p>
<p>4</p>  <p>Paper Containers, including 4. Aluminum foil packages; 5. Paper containers.</p>	<p>9</p>  <p>18. Tires</p>	
<p>5</p>  <p>Plastic Containers 6.PET; 7.PVE; 8.PP; 9.PE; 10.PS foam; 11.PS non-foam; 12.Other plastics; 13.Biomass Plastics.</p>	<p>10</p>  <p>19. Lead Batteries (Lead-Acid Batteries)</p>	<p>13</p>  <p>33. Light Sources: Such as fluorescent tubes, circular fluorescent lamps, compact fluorescent lamps, incandescent lamps and HID lamps.</p>

33 recycling items

Framework of Separation, Recycling and Disposal



Per-Bag Trash Fee

● Per-Bag Trash Fee in several areas

- Pay as you throw
- Per-Bag trash fee is NT\$ 0.36/L(US\$0.013/L) ; however, collect recyclables for free
- Waste volume 67%down, recycling volume 48%up

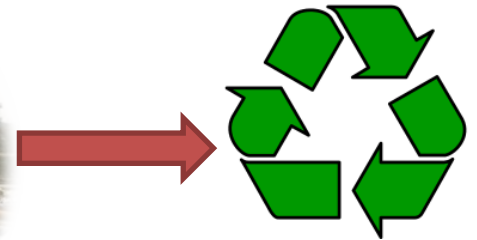
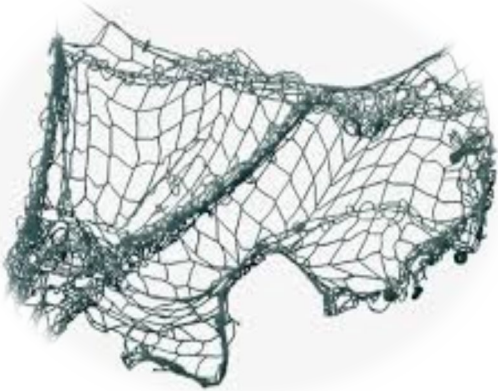


Cluster Interests & Opportunities

Recycling

Fishing Tackle

- Promoting the recycling of fishing nets or industrial Styrofoam blocks



Recycling

Plastic bags/films/sheets

Source : Hyper/supermarkets, online shops, or shopping mall



More likely to be simple and clean

Source : Cleaning Squadron



More likely to be complicated, multiple, or not clean

Material recovery



Energy recovery



O'right Company

- Green design Products



The material of the shampoo bottle is **100%** made from recycled milk bottles



The first recycled **dispenser head** in the world



Far East New Century

- Waste source :

Focusing on PET bottles including transparent PET, mixed green PET and PE.

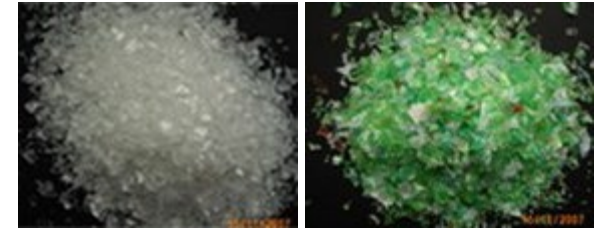
- Feature of products :

Three major products

Bottle to Fiber

Bottle to Bottle

Bottle to Other Packaging



rPET products

Da Fon Environmental Technology Co., Ltd.



Waste



Regenerated grains



Products

	100% PCR regenerated grains	
EU Blue Angel ecolabel awarded		
	SGS carbon footprint certificated	



Standard Test Method	Item	Unit
ASTM D1238	Melting Index	g/10min
	Density	g/cm ³
ASTM D638	Tensile Yield Strength	Kgf/cm ²
	Tensile Break Strength	Kgf/cm ²
	Tensile Break Elongation	%
ASTM D790	Flexural Strength	Kgf/cm ²
	Flexural Modulus	Kgf/cm ²
ASTM D256	Izod Impact	J/M
	Hardness Shore	HDD
	Moisture	%
IEC 62321	Pb、Cd、Hg、Cr、Br	ppm

Conclusion

- Comprehensive waste recycling and treatment systems.
- Promoting circular economy. Making recycling waste generate economic values.
- Reducing the use of single-use plastic products from the sources.(plastic bags, disposable tableware and straws are commonly found in the marine waste)
- Promoting environmental education. Raising the awareness of environmental protection of the general public. Joint participation in actions of waste reduction.

Thank You