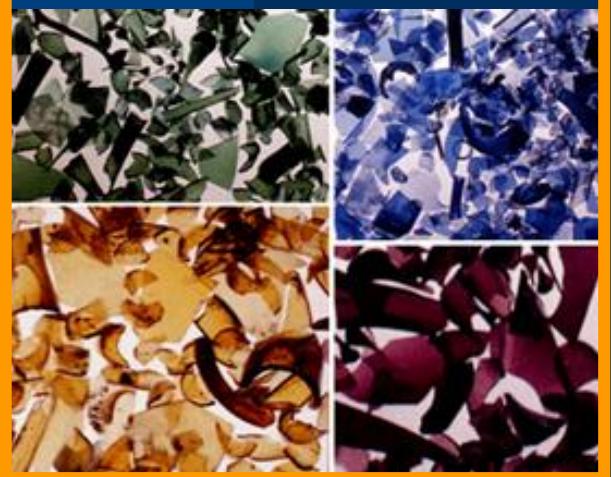


INTRODUCTION

- q This presentation is created as a continuing effort to assist the local government units and various stakeholders to support the implementation of solid waste management and ensure compliance of the provisions stipulated in RA 9003.
- q Likewise, to provide the local government units options and access to different equipment, processes or technologies that sustain an effective waste management system.
- q This is a compilation of presentations as of December 28, 2005 from different companies offering alternative technologies and from the swarm summit and residual management conference

TECHNOLOGIES THAT PROCESS RECYCLABLE WASTE

Recycling Practices:
Glass Packaging



- Glass is 100% recyclable. No waste byproducts.
- Glass recycling extends furnace life and reduces energy costs.
- Glass Cullet - Broken glass from softdrinks, beer, liquor, pharmaceutical bottles and packers jars (food, condiments, chemicals, etc.).

TECHNOLOGIES THAT PROCESS RECYCLABLE WASTE

Recycling Practices:
Glass Packaging



Cullet Classification

Flint or clear



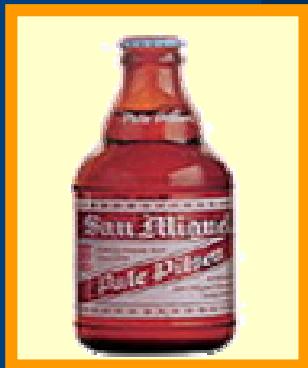
Sources:
Coke, gin, catsup bottles, beer, pharma and packers jars

Green



Sources:
Sprite, Cosmos Sparkle, Cali

Amber or brown



Sources:
Beer and pharma bottles

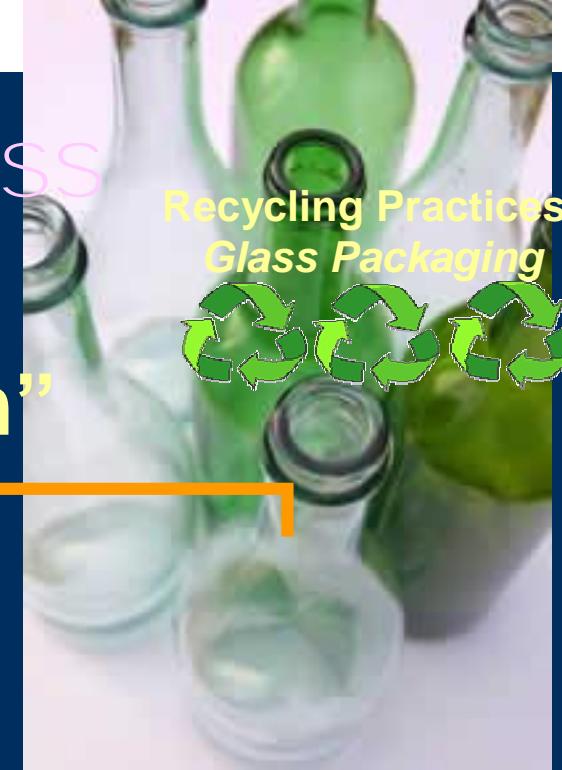
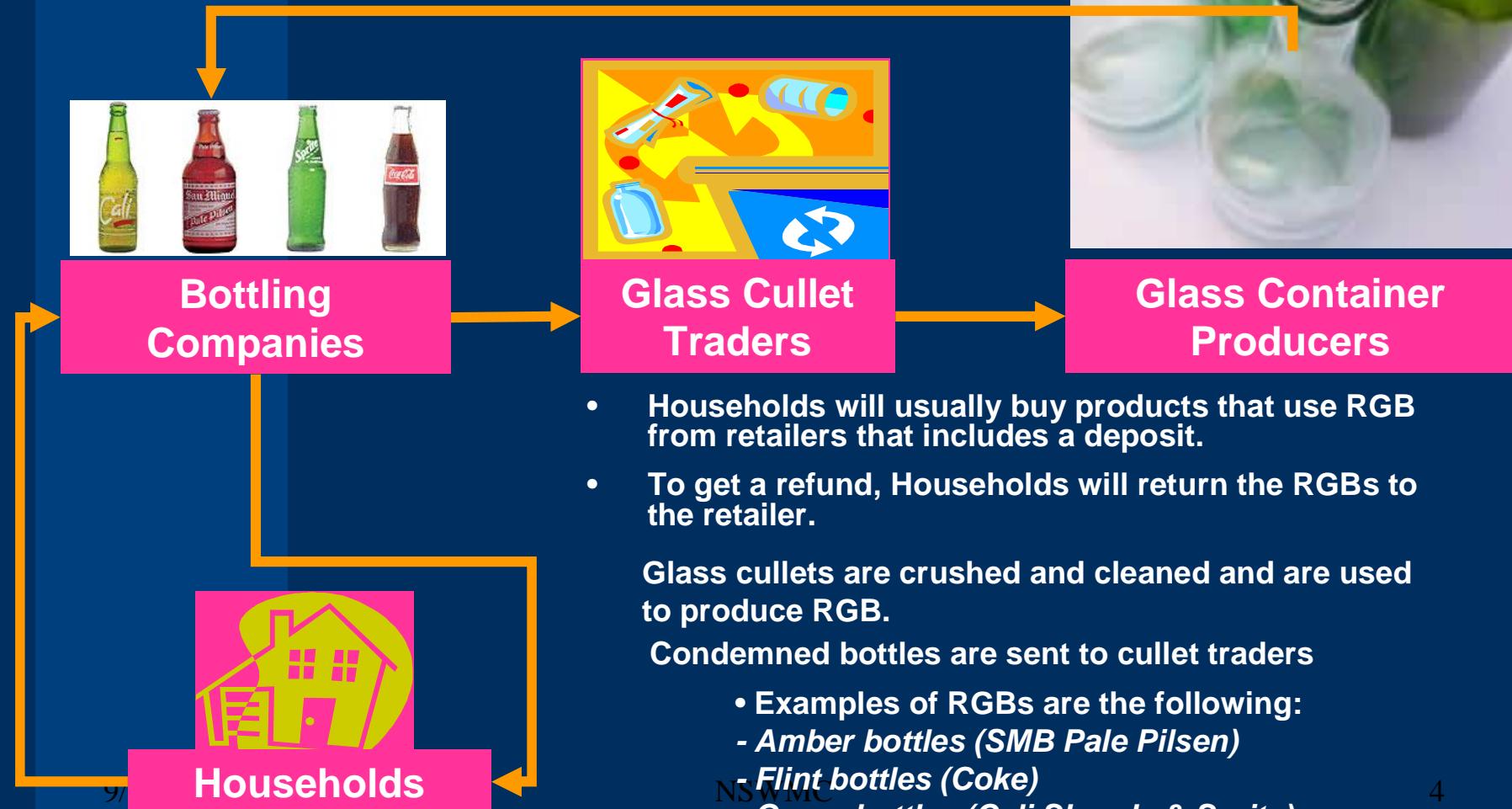
Flint with blue prints



Sources:
Royal Tru-Orange, Pepsi

TECHNOLOGIES THAT PROCESS RECYCLABLE WASTE

“Returnable Glass Bottle System”



“No-deposit” Glass Bottles (Food jars, Pharma, Personal Care)

- Some local industries make use of used glass bottles.
 - Ex. TSP, Industrial Solvents (paint thinner)

Recycling Practices: Glass Packaging



Junkshops /
Consolidators

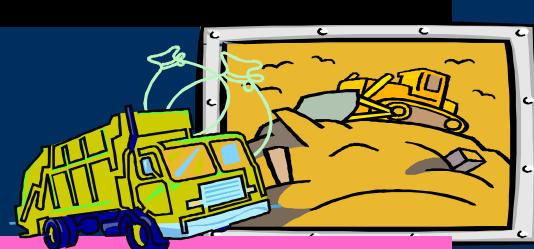


Glass Container
Producers



Households

- Glass cullet is used to produce glass bottles, jars, etc.
- Segregation and primary cleaning.



Garbage Trucks /
Waste Pickers /
Dumpsite / Landfills



Secondary
Glass Users

- Glass containers are usually unsegregated.
- Full of contaminants.



Food / Beverage Companies

- Cleaning and crushing

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TECHNOLOGIES THAT PROCESS RECYCLABLE WASTE

FLAT GLASS

- Asahi Glass Corporation (Pasig City)

CONTAINER GLASS

- Arcya Glass Corp. (Makati)
 - San Miguel Manila Glass (Manila)
- Premium Packaging International (Tanza, Cavite)
 - San Miguel Yamamura Asia Corp. (Imus, Cavite)

- San Miguel Mandaue Glass (Mandaue, Cebu)

Recycling Practices:
Glass Packaging



LUZON

VISAYAS

MINDANAO

PHILIPPINES



TECHNOLOGIES THAT PROCESS RECYCLABLE WASTE

Recycling Practices:
Paper Packaging



Why Recycle Paper?



- Every ton of paper recycled saves almost 17 trees.
- The Philippines has the second lowest paper recovery rate in the Asia Pacific Region.
- 17% of our waste is paper
- 60% Energy Savings / 90% less air pollution
- Recycling paper also means that there is a substitute available for virgin paper.

TECHNOLOGIES THAT PROCESS RECYCLABLE WASTE

Recycling Practices:
Paper Packaging



General Standards

Segregate paper by type.

Unsorted paper will be classified as mixed waste



ONP



White



OCC

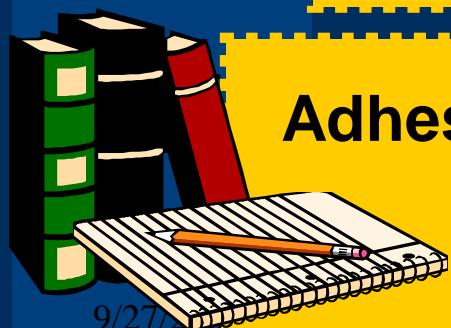


Mixed waste



Paper should
be dry

NO mixture
of non-paper



Adhesive binders
of books and pad
papers should be
removed

Envelopes or any
paper with glue are
classified as **mixed**
waste



TECHNOLOGIES THAT PROCESS RECYCLABLE WASTE

Recycling Practices:
Paper Packaging

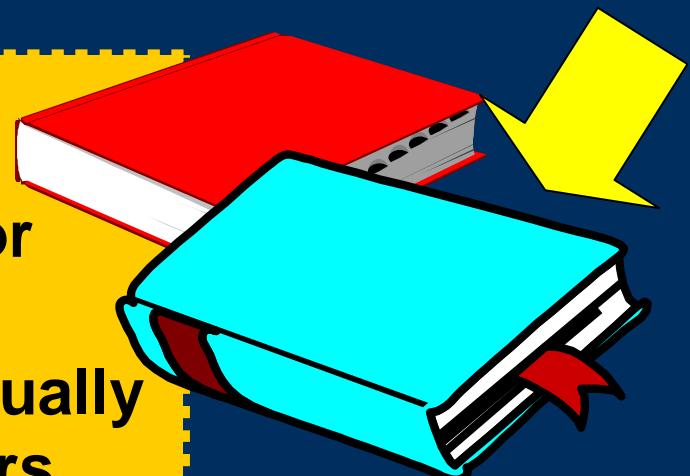


Non-usable Paper



Carbon papers

**Plastic coated or
laminated
papers, usually
book covers**

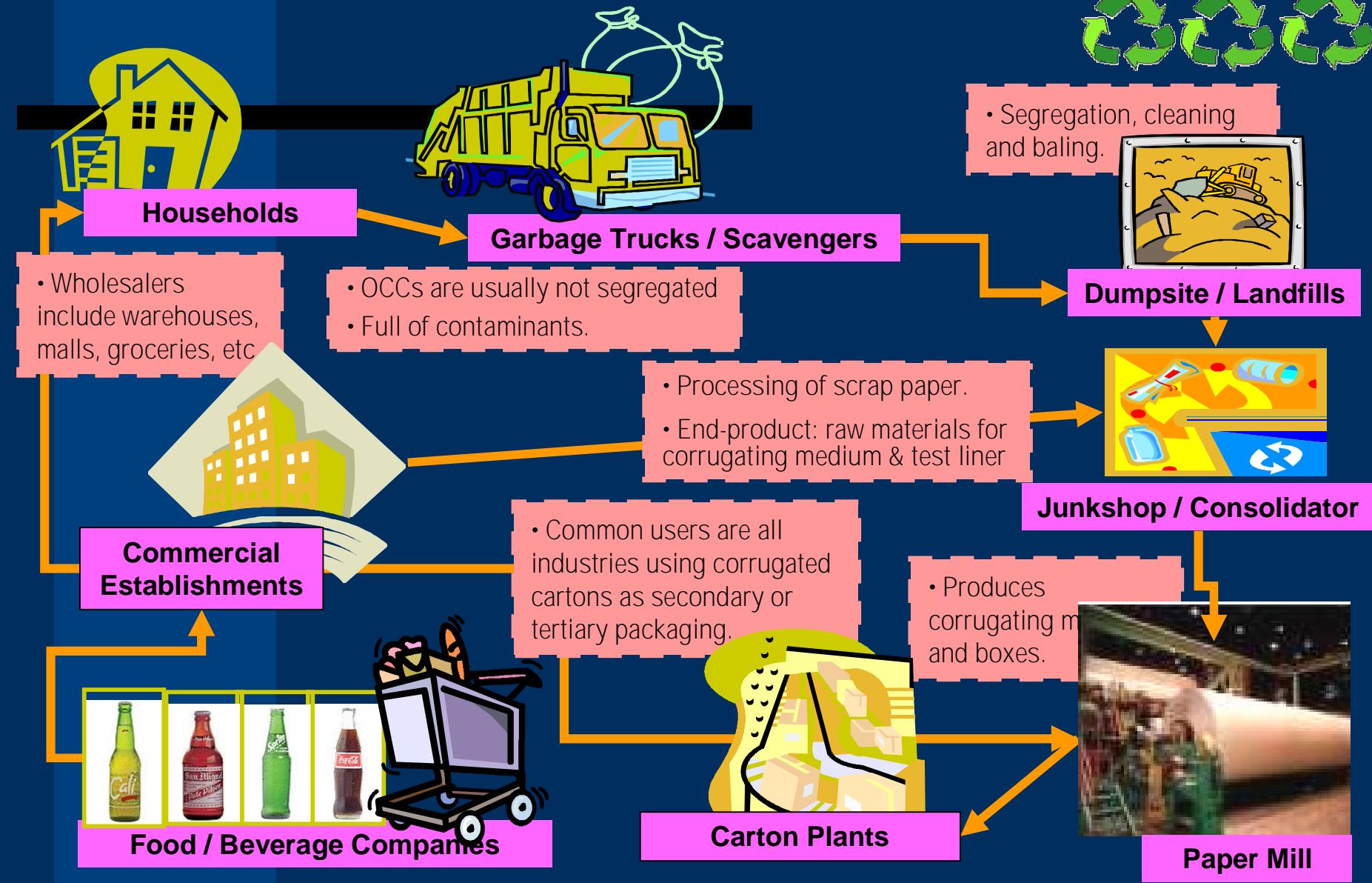


**Wet-strength or
unrepulpable papers**



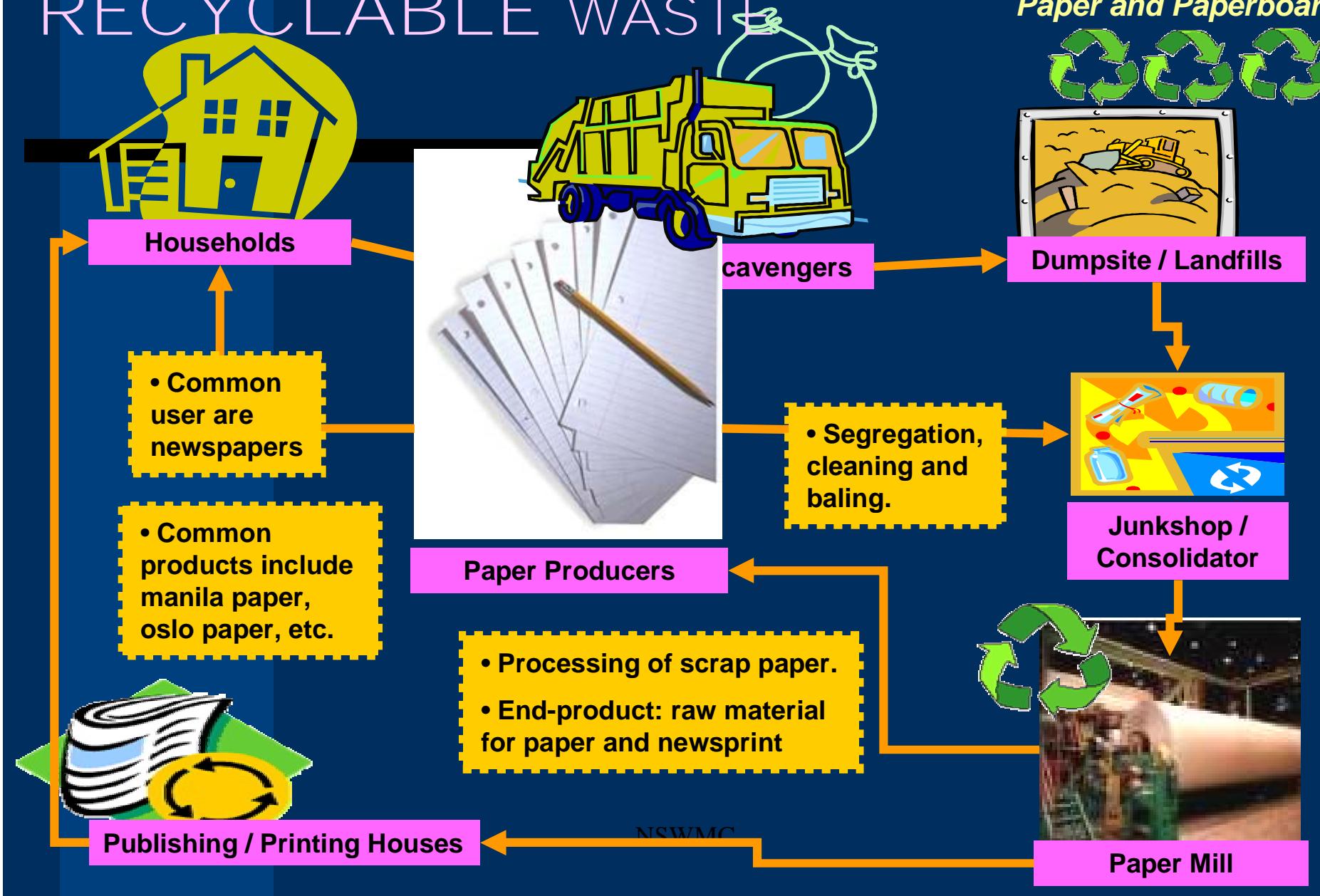
TECHNOLOGIES THAT PROCESS RECYCLABLE WASTE

Recycling Practices:
Paper Packaging, Old Corrugated Cartons (OCC)



TECHNOLOGIES THAT PROCESS RECYCLABLE WASTE

Recycling Practices:
*Paper Packaging,
Paper and Paperboard*



TECHNOLOGIES THAT PROCESS RECYCLABLE WASTE

Recycling Practices: Paper Packaging



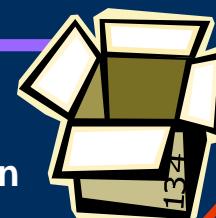
TETRAPAK

- Tetrapak Philippines (Taguig City)



PAPER

- Asia Paper Ind. Corp. (Caloocan)
- Bataan 2000 (Makati)
- Container Corp. of the Phil. (Quezon City)
- Global Paper Mills (Malabon)
- Hansson Paper Corp. (Pasig)
- Noah's Paper Mills Inc. (Marikina)
- Paperland Industrial Corp. (Quezon City)
- San Miguel Rengo Packaging Corp. (Parañaque)
- Trans-National Paper Co. (Pasig)
- United Pulp and Paper Co., Inc. (Makati)



- Dasma Paper Mills (Dasmariñas, Cavite)



LUZON

- TIPCO (Mabalacat, Pampanga)

- Aclem Paper Mill (San Pedro, Laguna)

VISAYAS

- Mindanao Corrugated Fibreboard, Inc. (Davao City)



MINDANAO

PHILIPPINES

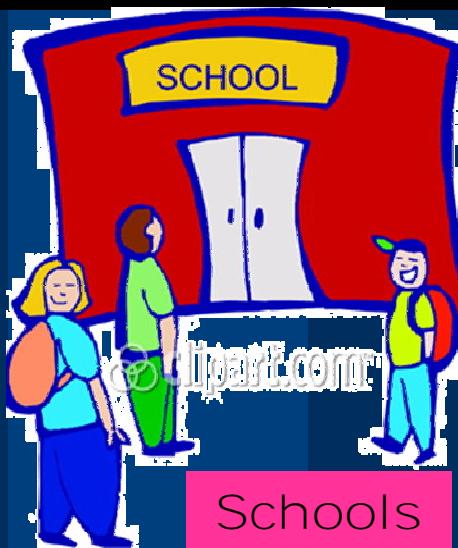
LOCATION OF RECYCLING COMPANIES

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TECHNOLOGIES THAT PROCESS RECYCLABLE WASTE



- Tetra Pak & TNPC partnered with schools to collect Tetra Pak containers.

9/27/2006



Trans-National Paper Corp.

- TNPC processes these Tetra Pak containers and turns them into Composite Boards.
- These boards are water & fire resistant and fire retardant.

NB: WMC



Composite Boards

- Composite Boards are used for the following:
 - pallets
 - cement formers
 - furniture backings
 - flash doors
 - roofs

Recycling Practices:
Tetra Pak Containers



TECHNOLOGIES THAT PROCESS RECYCLABLE WASTE

Recycling Practices: Aluminum Cans



Households

- Segregation and baling.
- No cleaning is done because scraps are already clean.



Garbage Trucks / Waste Pickers / Dumpsite / Landfills

- Directly buy from SMYBC and reprocess into raw material for various products.

- Trims & rejects in the production of beverage aluminum cans.
- In the Phil., SMYBC* is the only producer of aluminum cans.

SMYBC - San Miguel Yamamura Ball Corp.



SMYBC

Foreign Smelter / Producer



- China is the largest importer of aluminum scrap to-date.

Local Manufacturers/ Recyclers

- Manufacturers produce kitchen utensils, wheelchairs & other finished manufactured products.



Junkshop / Consolidator / Scrap Dealers

TECHNOLOGIES THAT PROCESS RECYCLABLE WASTE

Recycling Practices:
Types of Plastics



•**Type 1** - PETE Polyethylene Terephthalate (PET): *Softdrink and mineral water bottles; cosmetic bottles; peanut butter, pickle, jelly and jam jars*

Type 2 - HDPE High-Density Polyethylene: *Milk, juice bottles; Shampoo, detergent and oil bottles, trash and retail bags*

Type 3 - V Vinyl/Polyvinyl Chloride (PVC): *Food wraps, shower curtains, book covers, blister packages.*

Type 4 - LDPE Low-Density Polyethylene: *Clear plastic bags, shrink wrap, crop protection sheets, computer covers*

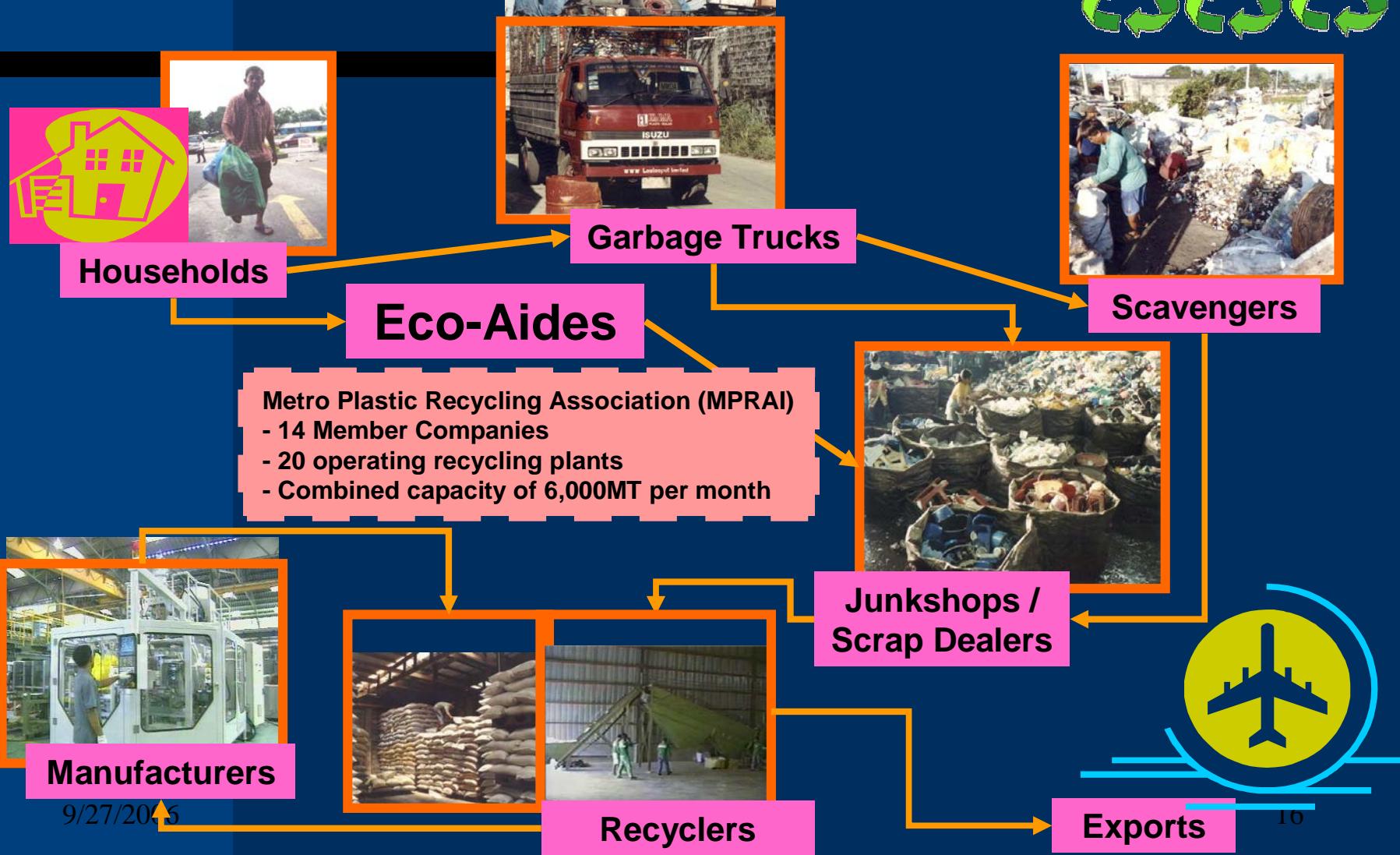
Type 5 - PP Polypropylene: *bottle caps, microwaveable food containers, clear cups, drinking straws, wash basins, woven sacks*

Type 6 - PS Polystyrene: *disposable spoons, forks, knives, cups, foamed fast food trays, meat trays, protective packaging*

Type 7 - OTHER Usually layered or mixed plastic. Limited recycling potential

TECHNOLOGIES THAT PROCESS RECYCLABLE WASTE

Recycling Practices:
Plastics
(**HDPE, PP, LDPE, PVC, HIPS, PET, others**)



TECHNOLOGIES THAT PROCESS RECYCLABLE WASTE

Recycling Practices:
Plastics
(HDPE, PP, LDPE, LLDPE)

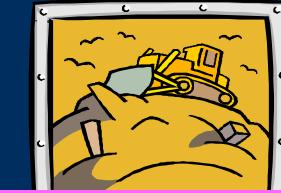


Households



Garbage Trucks / Scavengers

- Plastics are usually not segregated.
- Full of contaminants.



Dumpsite / Landfills

- Most local manufacturers use recycled plastics to produce different kinds of plastic products.



Local Manufacturers / Recyclers

- Segregation and primary cleaning.
- Cleaning, crushing, grinding, pelletizing and compounding.



Junkshops / Consolidators

- Primary countries of destination are China and the Middle East.



Exports

TECHNOLOGIES THAT PROCESS RECYCLABLE WASTE

Recycling Practices:
Plastics Packaging (PET)



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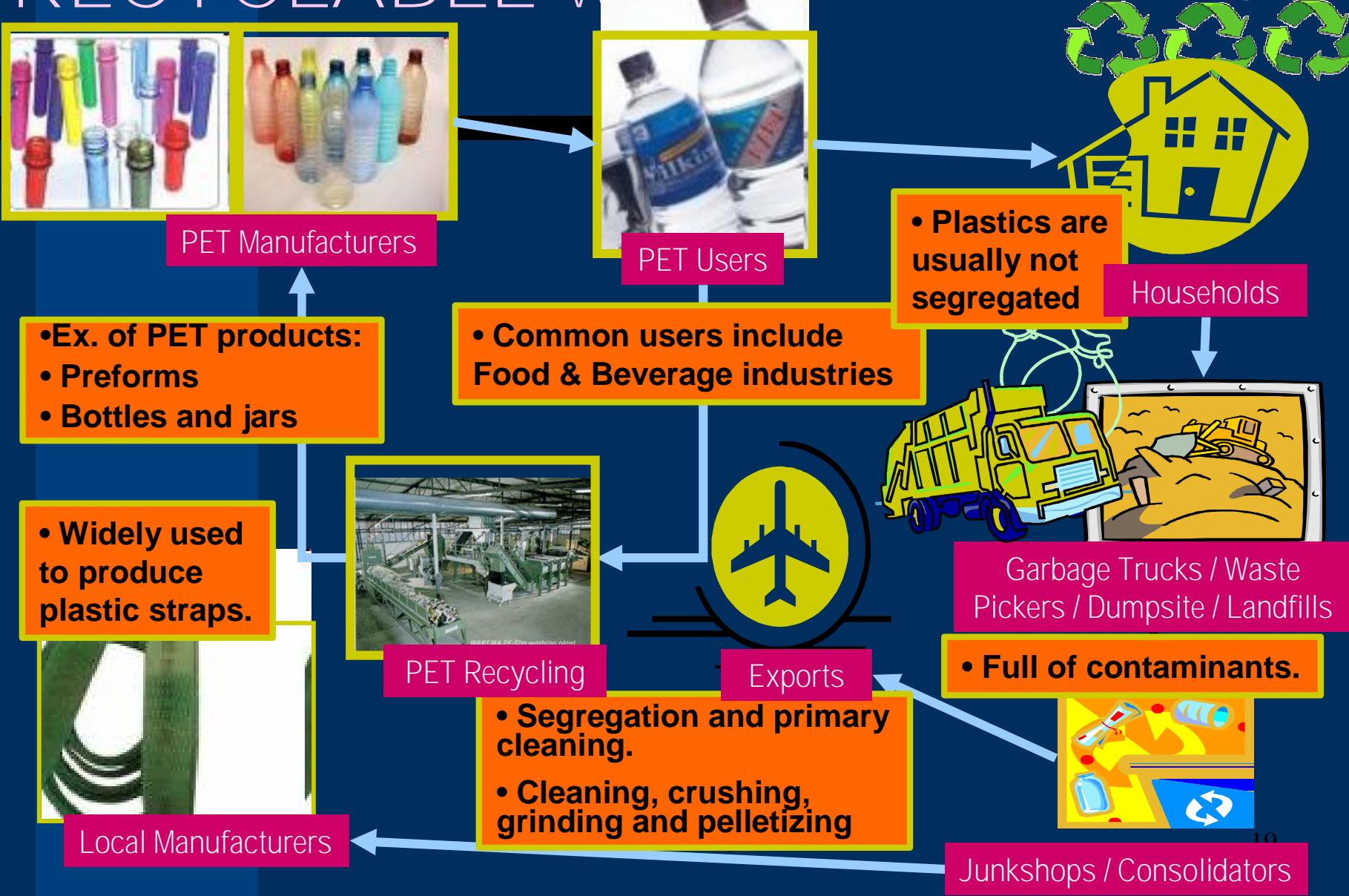
YMC

PET as Solid Waste

- q **Domestic usage of 30,750 MT annually.**
- q **1M cubic meters of landfill; non-biodegradable.**
- q **P791 million in hauling cost.**
- q **Millions more spent in clearing of waterways and road repairs.**

TECHNOLOGIES THAT PROCESS RECYCLABLE WASTE

Recycling Practices: Plastics Packaging (PET)



TECHNOLOGIES THAT PROCESS RECYCLABLE WASTE

For Metro Manila



Households

- There are currently 2 centers located in Valenzuela and Laguna.
- They currently buy PS at P1/kilo.
- PS is melted and created into useful items such as bricks and table tops.



Garbage Trucks / Scavengers

- PS are usually used for food packaging especially from fast food takeouts.



Exports



Recycling Centers

Recycling Practices: Plastics (Polystyrene)



- PS are usually not segregated.
- Full of contaminants.



Dumpsite / Landfills

- These junkshops and dealers are specialized and collect only PS products.
- Segregation and primary cleaning.



Junkshops / Consolidators

TECHNOLOGIES THAT PROCESS RECYCLABLE WASTE

PLASTICS

- Asiano Industries (Valenzuela)
- Asia-Plas Industries (Caloocan)
- Ecoplast Industries (Valenzuela)
- E-Friend Trading (Valenzuela)
- Excellent Plastic (Valenzuela)
- Filco Plastic (Valenzuela)
- Marulas Industrial Corp. (Valenzuela)
- MCS Plastic (Valenzuela)
- Metal Worth Ent. Co. (Quezon City)
- Moonstar Plastic (Valenzuela)
- National Plastic (Valenzuela)
- New Ace Master (Valenzuela)
- Now Trading Concepts (Muntinlupa)
- PEMA Plastic Mfg. Corp. (Quezon City)
- Phil. Polystyrene Recycling Corp. (Manila)
- Pro-Earth Plastic (Valenzuela)
- RA Plastic Corp. (Valenzuela)
- San Miguel Manila Plastics (Manila)
- Seacom (Parañaque)
- Top Fine Plastic Mfg. Corp. (Valenzuela)
- Valenzuela Pelletized Plastic (Valenzuela)



LOCATION OF RECYCLING COMPANIES

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Recycling Practices:
Types of Plastics



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TECHNOLOGIES THAT PROCESS RECYCLABLE WASTE

Tire users range from ordinary car owners to industrial equipment users.



Tire Users

- Some NGOs create pots & sandals from used tires.
- Minimal volume needed.



NGOs



Tire Dealers

- Usually used tires are left at the dealership once new tires are purchased.



LGUs

- Used tires that find its way to the waste stream is collected by the LGU.
- Some LGUs have MOAs with Holcim and they deliver the tires to the plant.

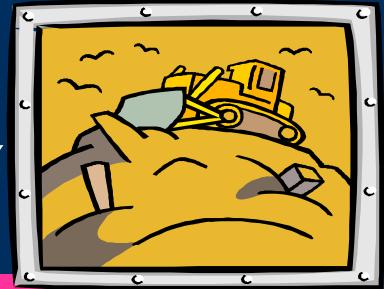
- Linis Ganda drops off the used tires at Payatas where it is cleaned.
- Holcim picks up the used tires here.



Linis Ganda

- Linis Ganda already has an MOA to get all used tires from all TMAP dealers in Metro Manila.
- Only Passenger Car tires are collected.

Recycling Practices: Used Tires



Payatas Staging Area

- Holcim uses the used tires as Tire Derived Fuel (TDF) in their cement kilns.



Holcim Cement Plants

TECHNOLOGIES THAT PROCESS RECYCLABLE WASTE

TIRES



- Accorn Reclaim Rubber Corp.
Sta. Maria, Bulacan)

- Hi-Mileage Retreaders, Inc. (Manila)
- Linis Ganda (Quezon City)
- Metro Manila Retreaders, Inc. (Pasig)
- Metro Recapping, Inc. (Marikina)
- Vacphil Rubber Corp. (Las Piñas)



Recycling Practices:
Tires

