SOLID WASTE AND RECYCLING IN THE UNITED STATES

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Technical Deep Dive – Solid Waste
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Background on SWANA

• SWANA is the largest association for the waste & recycling sector in the U.S.  
  – 10,000+ members

SWANA has 46 chapters in the United States, Canada, the Caribbean, and a new Pacific Basin Chapter

• SWANA’s core programs focus on improving the professionalism of the entire industry – both public and private sector
Evolution of U.S. Waste

In the Early 20th Century:

- Governments assumed responsibility for sanitation
- Created systems to protect public health

National Policy:

- Resource Conservation Recovery Act
- Clean Water Act
- Pollution Prevention Act
Background on U.S. Waste

EPA estimates 260 million tons/yr. Trash
– 4.5 lbs./2 kilos per person per day

- Landfilling: 52.5%
- Recycling: 25.8%
- Composting: 8.9%
- Combustion with Energy Recovery: 12.8%
Different Waste Collection Models

• Local government provides directly
• Local government regulates through franchise/contract
• Open market competition between haulers
• Rural areas have drop off centers
• **Informal Management**
  – Drop off locations (rural)

• **Formal Collection:**
  – **Trash**
  – **Recycling**
    • Source separated
    • Single stream
  – **Organics**
    • Green waste
    • Food scraps
    • Green waste/food scraps
    • Mixed waste

**Sectors**
- ✓ Single-Family
- ✓ Multi-Family / Apartments
- ✓ Commercial
- ✓ Mixed Use
Infrastructure

- **Recycling Facilities**
  - Single stream, mixed material, organics
  - Robots, optical sorters

- **Organics Processing**
  - Windrows, in-vessel, anaerobic digestion (AD)
  - Pre and post processing

- **Waste Treatment**
  - Sewer treatment facilities, combining wet AD
Development

• Organized and paid for by:
  – Public
  – Private
  – Public Private Partnerships

• Operational Arrangements
  – Public owned and operated
  – Public owned / private operated
  – Private owned and operated
Recent Trends

U.S. moving **slowly** towards Sustainable Material Management and the Circular Economy

- Landfill disposal costs are low ($25-100/ton)
- Investing in recycling/diversion infrastructure - limited ROI
- Low value of commodities (paper/plastic/glass)
  - Impact of Nation Sword/China
- Increased contamination is increasing processing costs
- Changes in waste stream affecting processors
  - Less paper, more plastic, flexible packaging
U.S. Exports of Scrap Plastic & Mixed Paper to China
Other countries in Asia are receiving more paper/plastic from U.S. and other countries in wake of China’s actions

– Vietnam
– Malaysia
– India
– Indonesia

These nations are starting to impose restrictions as they become flooded with containers.
Necessary Changes

• Moved from source separated to single stream
  – Increased U.S. recycling rates
  – Also increased contamination levels

• 20-25% Contamination Rate
  – Impossible to meet China’s 0.5% requirements

American stakeholders need:
• Better education/communication
• Consistent rules across 50 states
• More enforcement of existing regs/rules
• Engage the brands – light weighting
• Risk sharing among local govts/processors
Waste Reduction Trends

• **Policy**
  – Food ware ordinance
  – Rethink disposables
  – Bag ban

• **Behavior Change**

• **Reduction of Waste to Landfills**
  – California SB 1383 (Greenhouse Gas Reduction)
  – Zero Waste Goals
Thank you!

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The U.S. generates about 66 million tons of recyclables annually (EPA SMM Report). About 1/3 of these materials were exported, and the majority (16-17 million tons) went to China/Hong Kong. Nearly 1/4 of all the international shipments from Los Angeles/Long Beach were scrap/recyclables going to China (CalRecycle). The U.S. had become dependent on China as an outlet for increasing volume of material. China was becoming increasingly concerned about environmental issues.
Total MSW Generated by Material, 2015 (262.43 million tons)

- Paper and Paperboard: 25.9%
- Food: 15.1%
- Plastics: 13.1%
- Yard Trimmings: 13.2%
- Metals: 9.1%
- Glass: 4.4%
- Wood: 6.2%
- Textiles: 6.1%
- Rubber and Leather: 3.2%
- Other: 2.0%
- Misc. Inorganic Wastes: 1.5%
Chinese Waste Restrictions - 2018

January
• China finalizes ban on mixed paper and some plastics

January - March
• Very few import licenses granted for paper/plastic

March
• China’s new 0.5 contamination (carried waste) std imposed

May
• China’s Inspection Service (CCIC) stops pre-shipment inspections of scrap/recyclables for 30 days
  – Announced during US-China trade talks in Beijing
Chinese Waste Restrictions - 2018

June
• China announces complete ban on all imported recovered material by 2020

June
• CCIC requiring in-person inspection of all scrap/recyclable shipments and new higher fees

August
• China imposes 25% tariff on all imported scrap
Focusing on education, quality materials, and a renewed focus on waste reduction

- We forgot that “reduction” and “reuse” come before recycling in the waste hierarchy
- Focus on reducing single-use plastic straws
- Discussions with brand owners about reducing packaging
- Increased Zero Waste emphasis