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SOLID WASTE ASSOCIATION
of North America

SOLID WASTE AND RECYCLING IN THE UNITED STATES

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SCS ENGINEERS

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**



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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



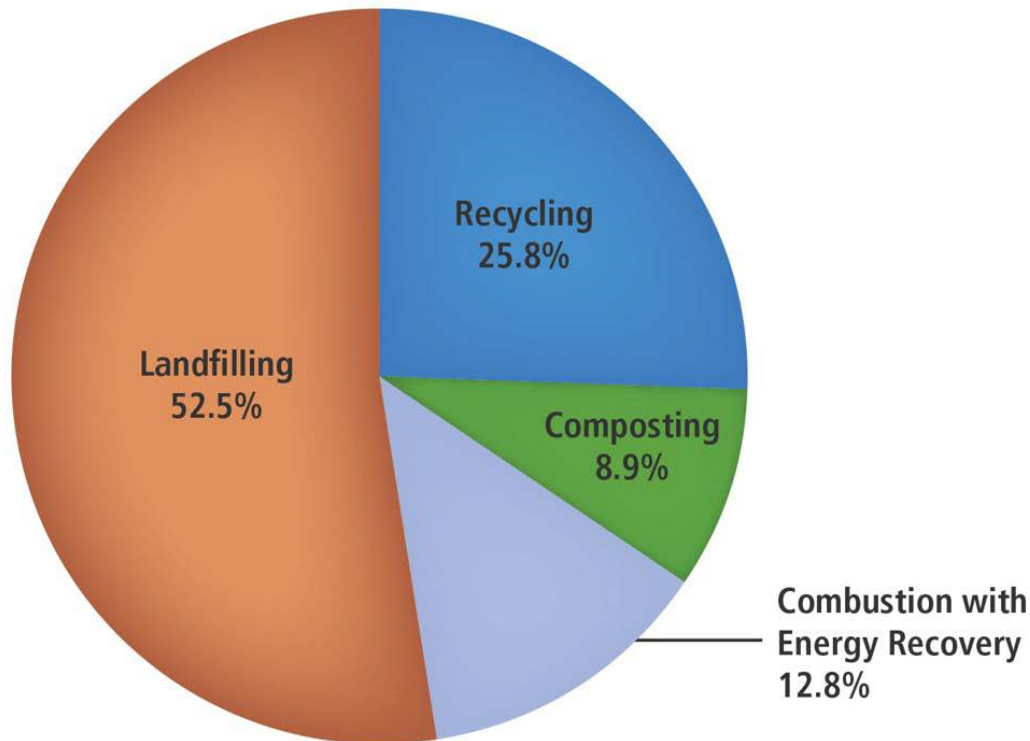
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Background on U.S. Waste

EPA estimates 260 million tons/yr. Trash

– 4.5 lbs./2 kilos per person per day





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Waste Collection – U.S.

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





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Collection Programs

- **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



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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



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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



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Recent Trends

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

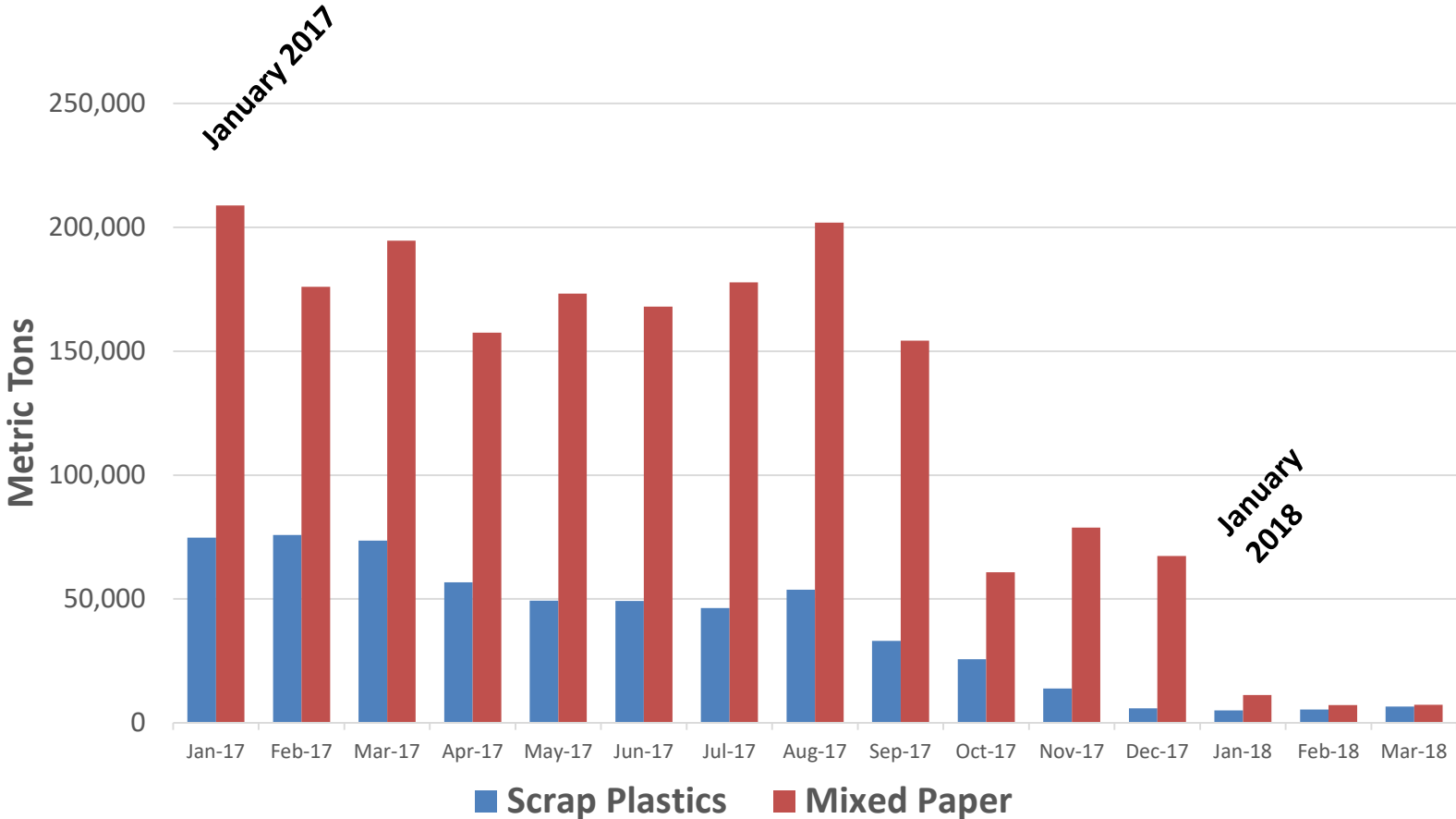
- Landfill disposal costs are low (\$25-100/ton)
- Investing in recycling/diversion infrastructure -limited ROI
- Low value of commodities (paper/plastic/glass)
 - Impact of Nation Sword/China
- Increased contamination is increasing processing costs
- Changes in waste stream affecting processors
 - Less paper, more plastic, flexible packaging



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U.S. Exports of Scrap Plastic & Mixed Paper to China





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New Asian Markets

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





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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



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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



Questions?

Thank you!

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U.S. Exports to China

- **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

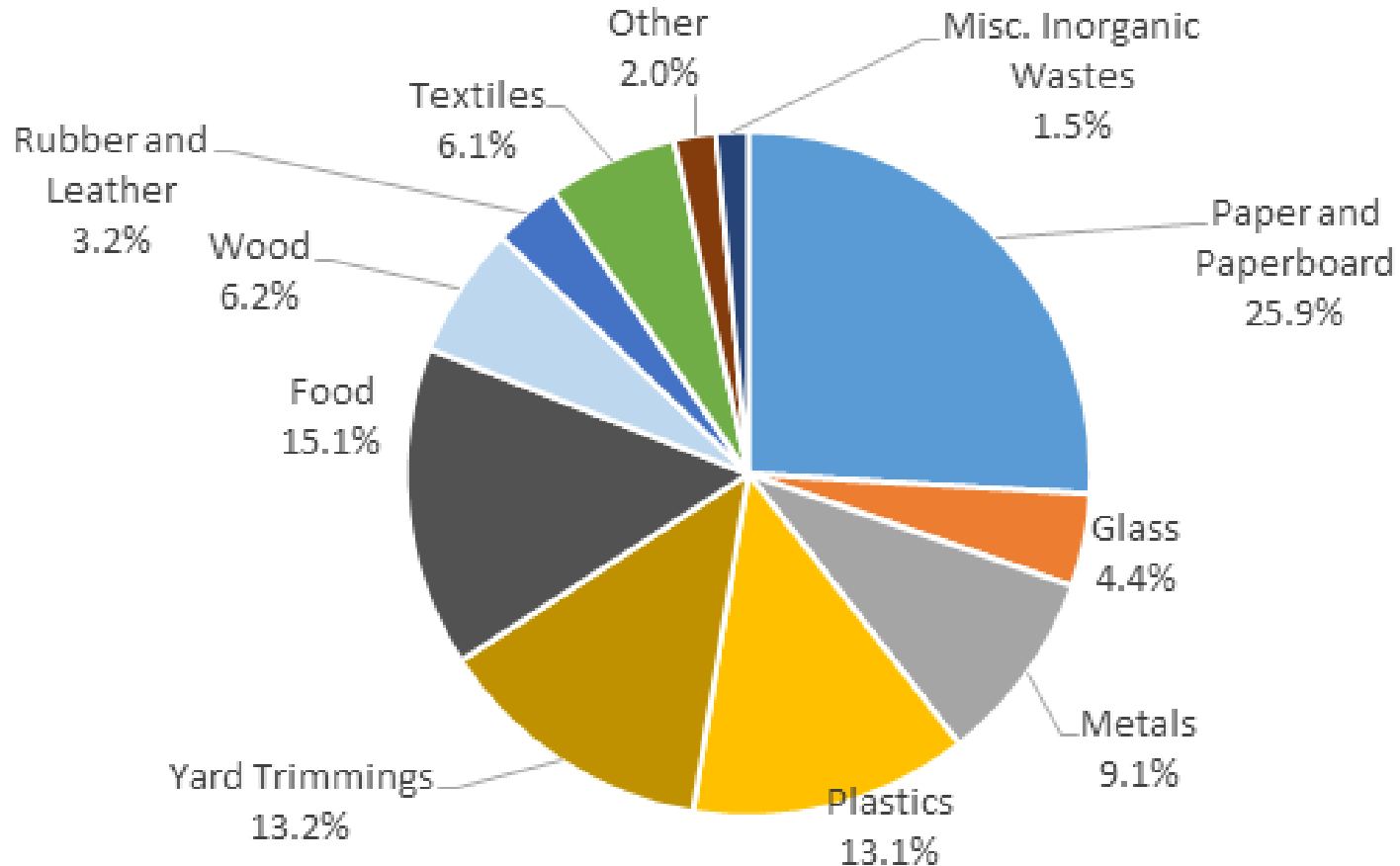


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U.S. EPA 2015 MSW Data

Total MSW Generated by Material, 2015
(262.43 million tons)



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**





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China Waste Ban - 2018

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

