

**Solid Waste Management Now
and What It Can Be in the Future...**



**SOLID WASTE
MANAGEMENT
CONSULTANTS**

Presented by:
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Ohio By-Product
Synergy Network
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- Active in solid waste management field for 40+ years
- Specializes in strategic guidance and infrastructure/services development assistance
- Led preparation of many strategic long-term plans
 - Resulted in sustainable, efficient integrated waste management systems
- Presented SWANA's 2019 Lawrence Lecturer award
 - Recognizing leaders and experts with significant contributions to solid waste management field




Gershman, Brickner & Bratton, Inc.
Innovative, Sustainable Solutions for Solid Waste Management

Our Vision

We believe in a world where **discarded materials are used as resources** rather than wasted – for the benefit of communities and the environment.



Our Mission

We help our clients solve solid waste management issues by providing **innovative, responsible, sustainable,** and **economical** strategies and solutions for the benefit of communities and the environment.




Innovative, Sustainable Solutions for Solid Waste Management



- We work in partnership with our clients to develop innovative, cost-effective approaches that achieve measurable results
- As an international management consulting firm, we help public- and private-sector organizations craft practical, customized and technically sound solutions for complex solid waste management challenges
- Headquartered in McLean, VA, GBB has focused exclusively on solid waste issues since 1980




Our Network of Clients Spans the Globe



48 states, 2 U.S. Territories, Washington, D.C., several island nations, & clients around the world

Presentation Agenda

- 1 - Waste (R)evolution since Earth Day 1970
- 2 - Solid Waste Management in Ohio
- 3 - Where Are We Trying to Get?
- 4 - Project Building Blocks
- 5 - China's Recyclables Market



Waste (R)evolution since Earth Day 1970



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Earth Day 1970

Kicked-off Environmental Management

- 1970: First Earth Day
- 1970: US EPA formed
- 1970: Clean Air Act
- 1972: Clean Water Act
- 1976: RCRA

Resource Conservation

- Reduce
- Reuse
- Recycle/Compost
- Recover
- Dispose

Solid Waste Management

- Protect Public Health
- Protect Environment
- Function Conveniently and Dependably
- Conserve Resources
- Minimize Costs



What Has Happened Since?



1970s:
1st Earth Day, Resource recovery projects



1980s:
Subtitle D, and open dumps become sanitary LFs
Waste-to-energy Facilities Implemented

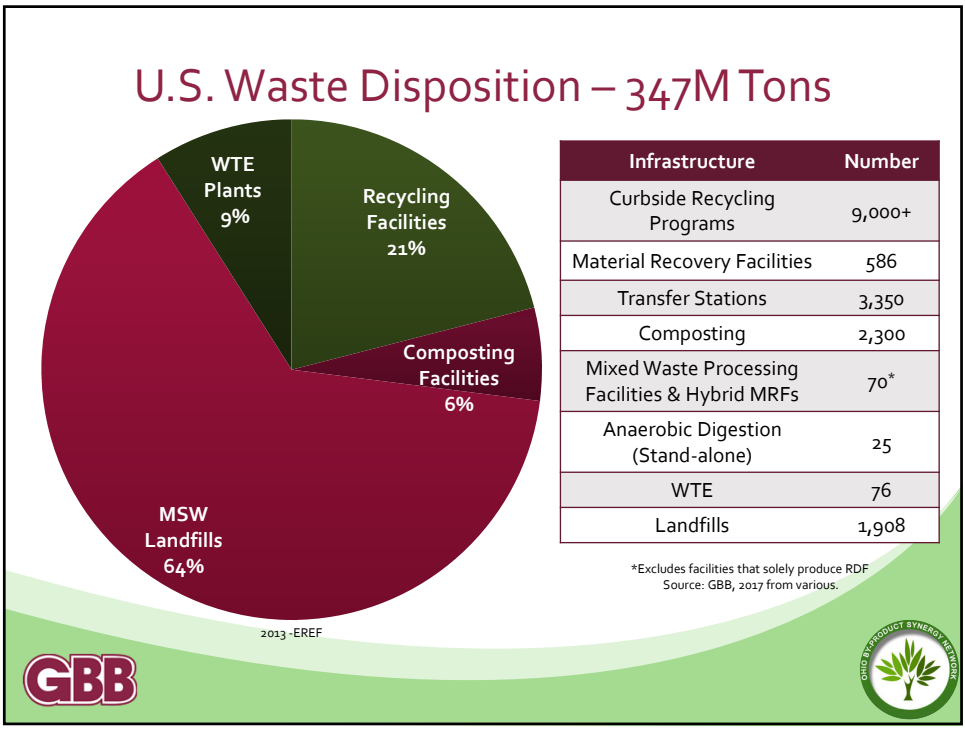
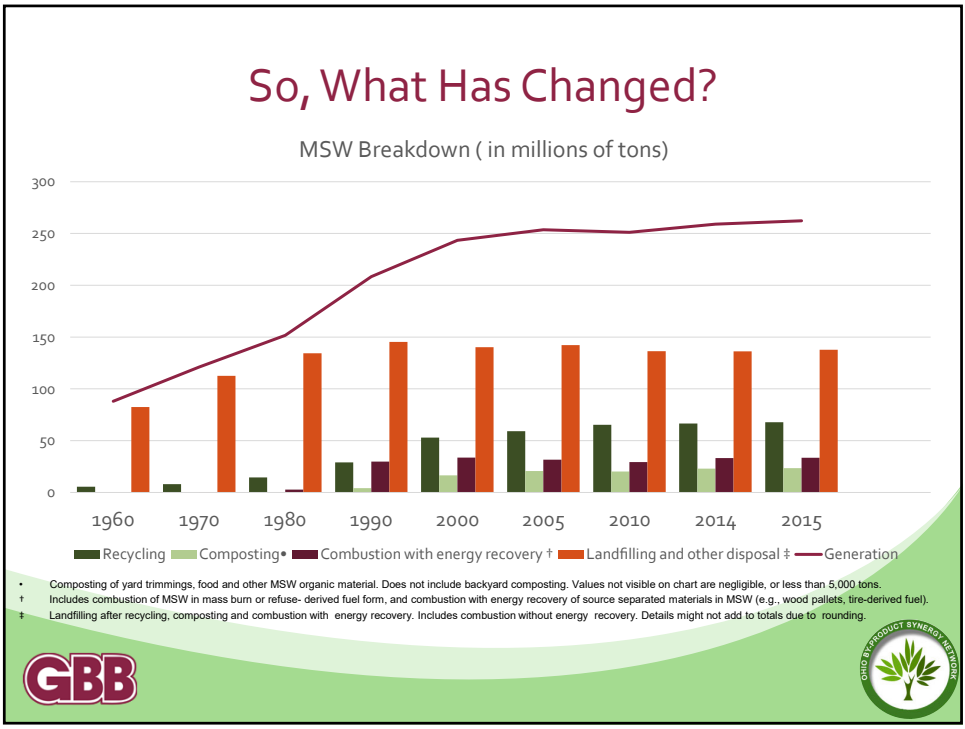


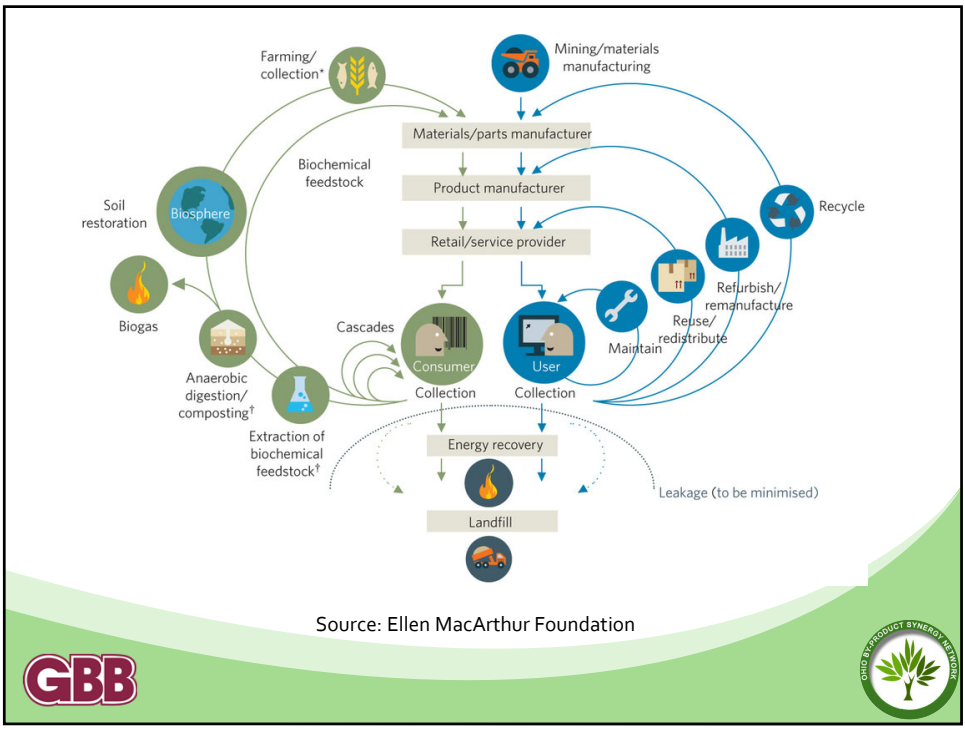
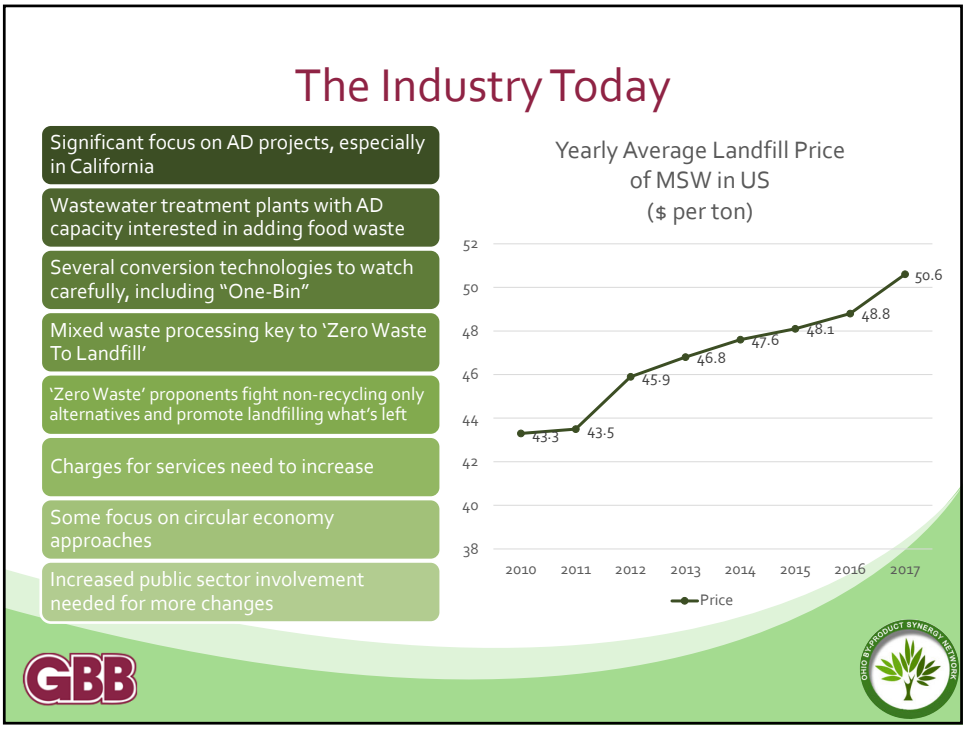
1990s:
Earth Day turns 25, curbside recycling and MRFs go mainstream, "Mega" Landfills



2000s:
Single-stream MRFs, bottled water, WTE facilities start closing, the Internet, collapse of newsprint, China



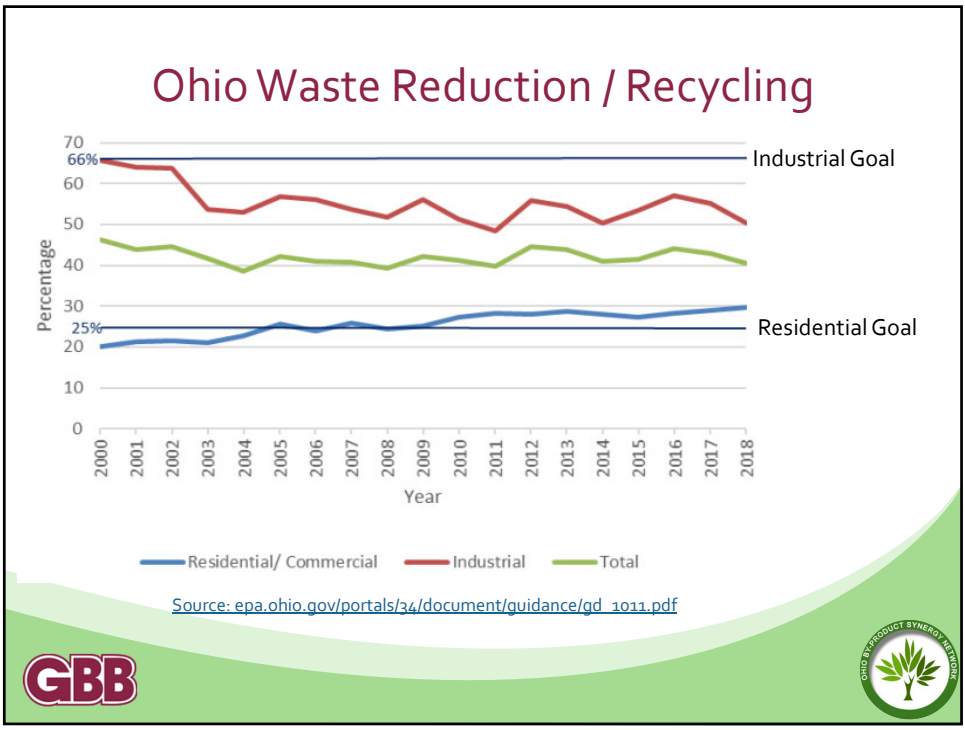




Solid Waste Management in Ohio




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2018 Residential Waste Reduction / Recycling



- Solid Waste Management Districts Over 40%
 - Lucas: 56.2%
 - Putnam: 55.1%
 - Logan: 50.7%
 - Henry: 46.2%
 - Wyandot: 45.5%
 - Franklin: 45.3%
 - Defiance-Fulton-Paulding-Williams: 41.8%
 - Clark: 41%

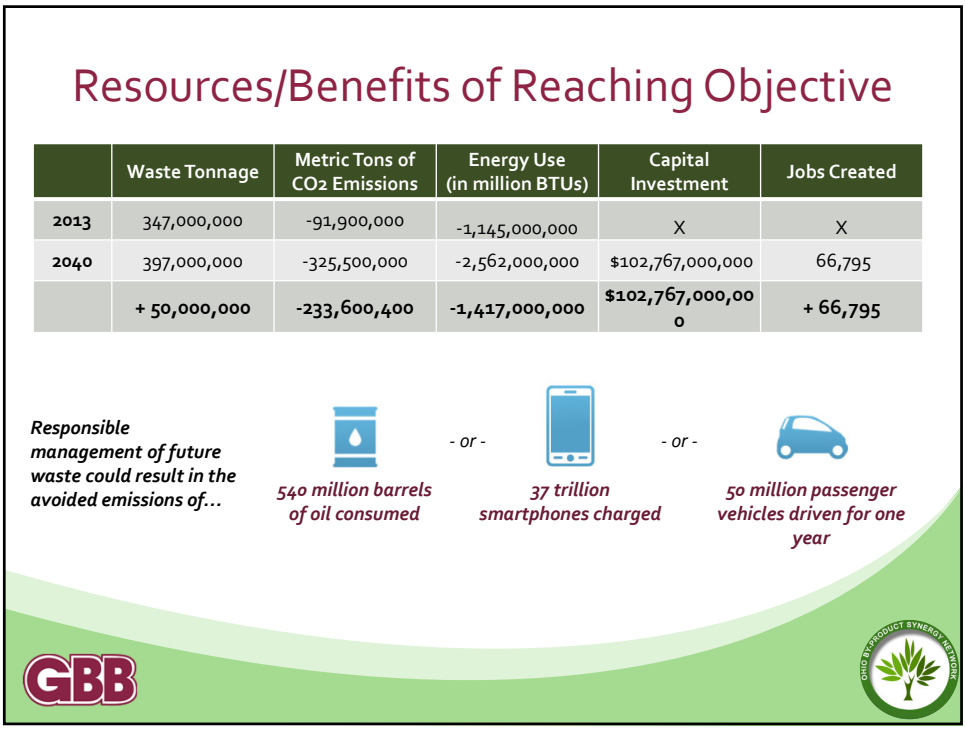
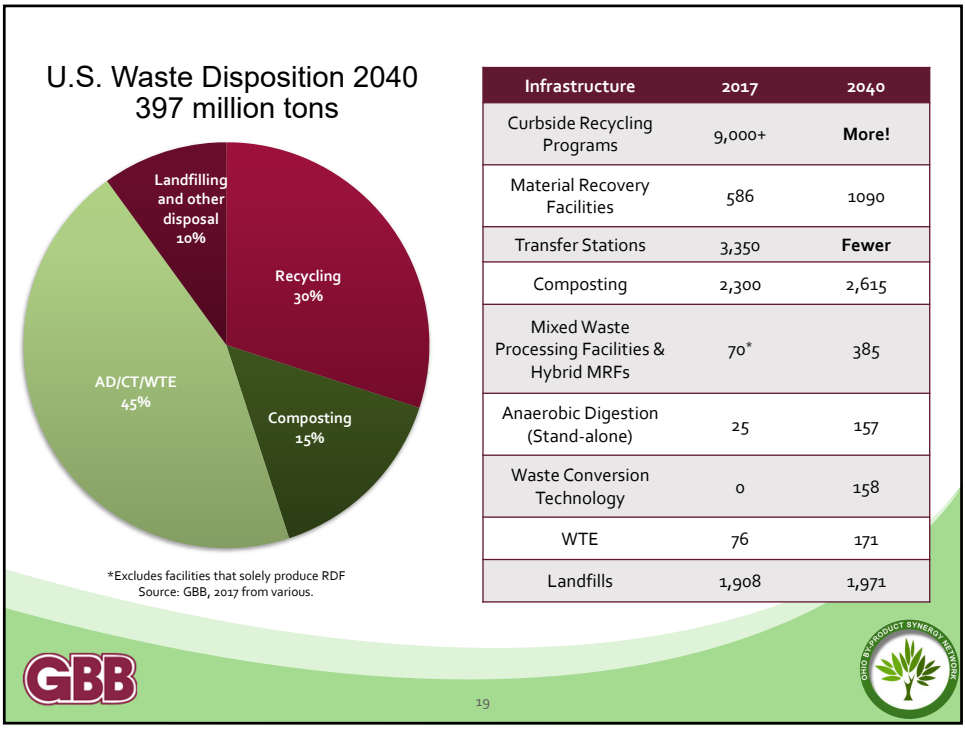
Solid Waste Authority
Central Ohio

- 50% in 2019
- 75%: Goal by 2032



Where Are We Trying to Get?

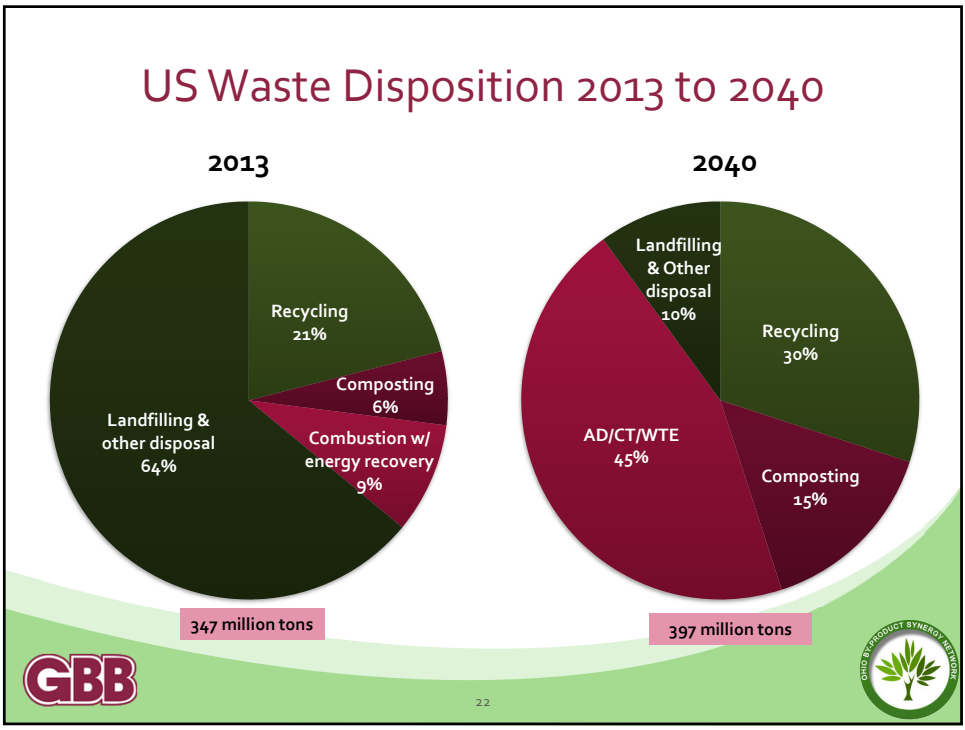






Legislation Needed

| | | |
|--|--|---|
| Nationwide goal: 60% recycling & < 10% to landfill by weight | Tax benefits for manufacturing products with > 50% post consumer recycled content | Personal & business tax credits for living in a jurisdiction meeting goals |
| Tax on waste to landfills to fund tax benefits | Nationwide deposit legislation; MRFs can claim deposits; unclaimed deposits fund tax credits | WTE Facilities termed 50% renewable energy facilities eligible for 50% of renewable credits |



Project Building Blocks






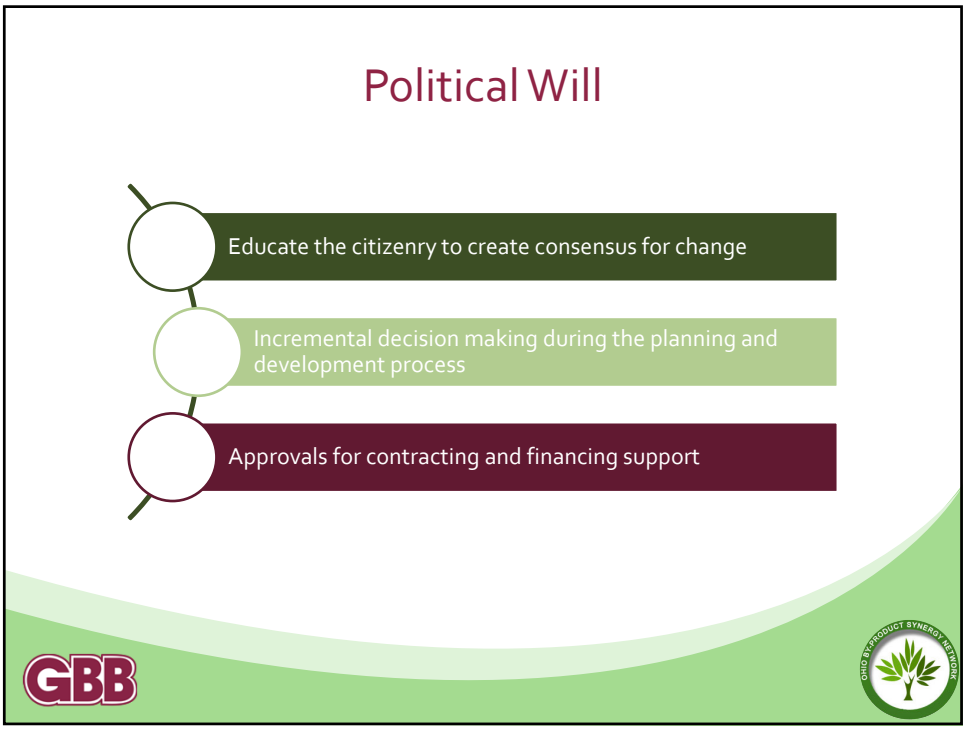
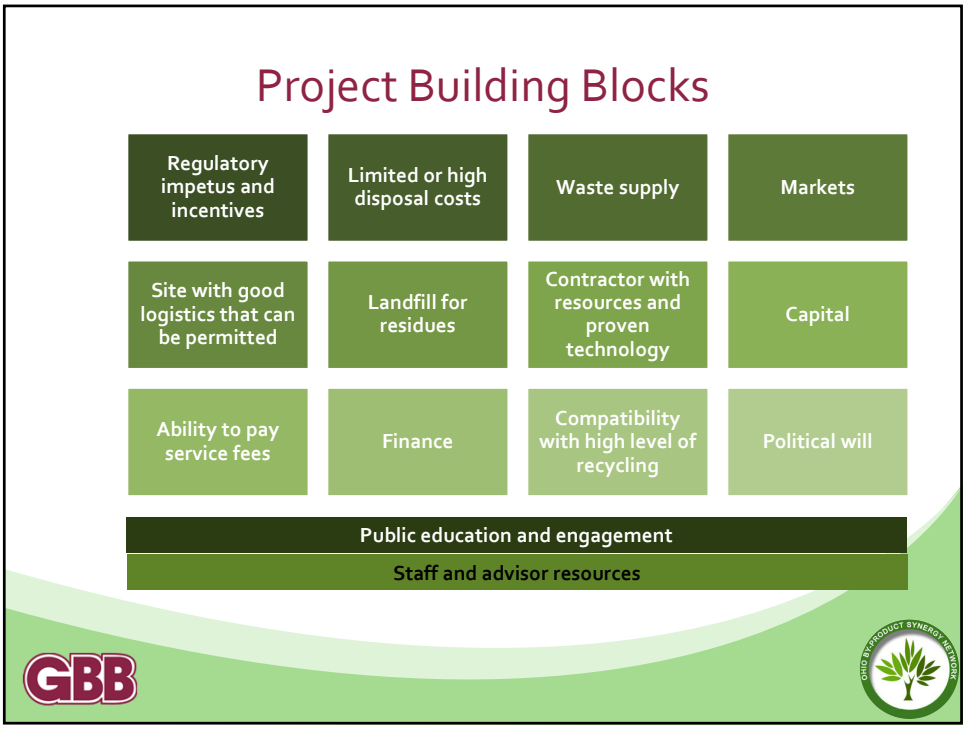
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Project Development Time Spans

| Type of Project | Time Span (months) |
|---------------------|--------------------|
| Drop-off Center | 3 to 9 |
| Curbside Collection | 6 to 12 |
| Full-scale MRF | 24 to 36 |
| Composting Facility | 24 to 48 |
| Waste-to-Energy | 60 to 84 |
| Landfill | 24 to 60 |

Source: SWANA Paying Course Manual, 1999



Best Practices & Lessons Learned

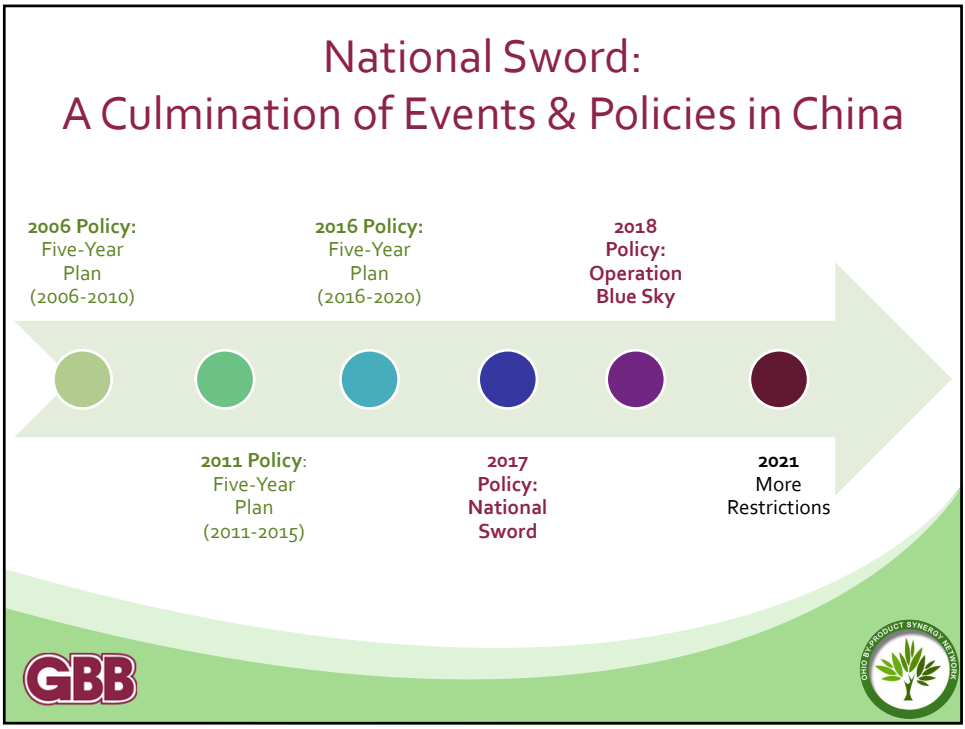
Solid Waste Management Cost:
\$100-400 per ton

| Category | Percentage |
|------------------------|------------|
| Collection-MSW | 40% |
| Disposal | 30% |
| Collection-Recyclables | 20% |
| Processing | 8% |

- Have a plan
- Granular understanding of services and costs
- Identify collection efficiencies
- Markets first
- Available assets owned by others
- Know how the changes will affect costs
- Building blocks management

China's Recyclables Market

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When we were facing the China Green Fence, we thought,
"How do you get over a fence?"

You build green gates in the US!

...to convert recyclables into consumer products!

GBB

Thank you!

GBB
1980-2020
*40 years
of Service*
www.gbbinc.com

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