TextileExchange
Creating Material Change

RRS recycle.com

Webinar #1:
The Cost and Environmental Impact of U.S. Textile and Apparel Waste

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The Cost and Environmental Impact of U.S. Textile and Apparel Waste

Webinar #2:
How U.S. Textile Recovery Works and Emerging Innovation in Sortation Technologies

Webinar #3:
State and Municipal Views on Textile Waste in the U.S.

Webinar #4:
A Rising Tide of Apparel and Textile Waste - What Brands are Doing and is it Enough?

We INSPIRE and EQUIP people to accelerate sustainable practices in the textile value chain.

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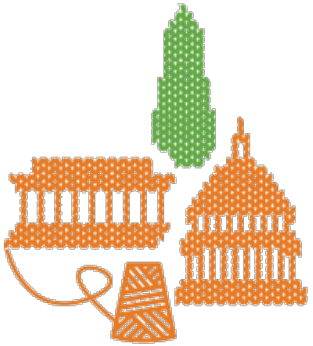


TextileExchange
Sustainability
Conference

United by Action

Catalyzing the Sustainable Development Goals in Textiles

Washington, D.C. | October 9-13, 2017

More Information:

http://textileexchange.org/2017-textile-sustainability-conference/

#TExtileConf | #CreatingMaterialChange | #GlobalGoals

TE Standards

CONTENTCLAIM STANDARD

Newly Revised Versions

RECYCLED 100 claim standard

Global Recycled Standard

rPET Working Group

- Brand and suppliers
- Addressing how to increase the availability and demand for recycled polyester
  - Cost
  - Quality
  - Regional issues

Marisa Adler,
Sr. Consultant, RRS

RRS

RRS recycle.com

Providing solutions to meet sustainability, resource management and waste recovery goals of clients and their supply chains

ORGANICS MANAGEMENT

WASTE RECOVERY

GLOBAL CORPORATE SUSTAINABILITY

Managing change in a resource-constrained world for 30 years.

Jay V. Bassett,
Principal Advisor - SMM
USEPA

Sustainable Materials Management

The significant impacts of materials, products, and services can:

- Be concentrated in a single stage of the life cycle (e.g., VOCs released in use phase, or metal emissions from blast furnaces)
- Occur across multiple stages of the life cycle (e.g., chemicals in various processing steps)
- Be the sum total of lots of small upstream impacts
- Arise in the life cycle of the "support systems" (e.g., transportation, energy)

"An approach to serving human needs by using/reusing resources productively and sustainably throughout their life cycles, generally minimizing the amount of materials involved and all associated environmental impacts."

Sustainable Materials Management: The Road Ahead, EPA

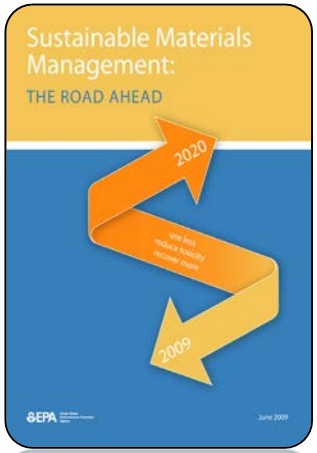
Why SMM?

- "Costs of pollution, ecosystem depletion and health impacts have grown steadily"
  - These now exceed $ 1 trillion/year for US companies - ~equal to 6.2% of GDP.
    - $3 trillion/year for global companies.
  - If businesses had to pay the costs it would more than wipe out their profits.

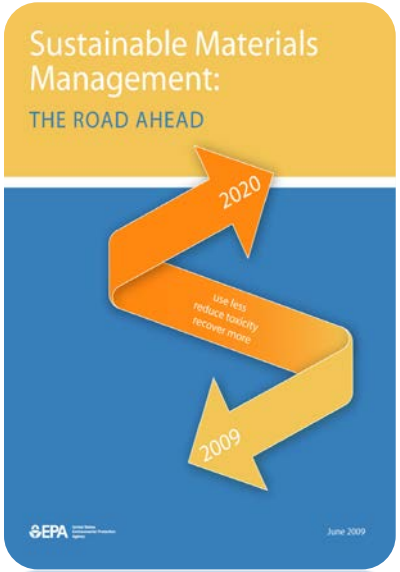
(Source: State of Green Business 2015 by Joel Makower and the editors of GreenBiz.com)

EPA's SMM Program: Brief History

- RCRA provides the legislative basis for EPA's SMM Program efforts.
- 2002: EPA's report, *Beyond RCRA: Waste and Materials Management in 2020* made the argument for focusing efforts on materials management.
- 2009*: SMM: The Road Ahead* provided recommendations and an analytical framework for moving toward sustainable materials management.
- 2017: SMM FY2017-2018 Strategic Plan In FY 2017-FY 2022
  - Improve measurement systems to track and evaluate trends associated with prevention, reuse, recycling, disposal, processing capacity, feedstocks for markets, and public access to recycling or reuse options.
  - Maintain and improve the analytical tools and methods for quantifying the environmental and economic impacts of SMM efforts.
  - Collaboration with stakeholders at the national and international levels continue and be strengthened.



Sustainable Materials Management: The Road Ahead (2009)



- **Used life cycle assessment to evaluate materials use across the U.S. economy.**
  - 38 materials, goods and services with significant environmental impacts identified.
- **Report also had specific recommendations for Government:**
  - Promote efforts to manage materials and products on a life cycle basis
  - Build capacity & integrate materials management approaches in existing government programs.
  - Accelerate the broad, ongoing public dialogue on life cycle materials management.
- **Recommendations and analysis serve as the foundation for current and future materials management efforts.**

Sustainable Materials Management: The Road Ahead (2009) Results

- Broad Materials/Products/Service Categories which ranked high:
  - Food,
  - **Textiles,**
  - Non-renewable organics (e.g., coal, petroleum products, chemicals),
  - Metals,
  - Construction,
  - Forest products and
  - Several services and products such as hospitals and electronics

Table 1: Summary of Top-Ranked Materials, Products, and Services

	Material, Product, or Service	Final Rank			Environmental Aspects Significantly[b] Contributing to Final Rank		
		DI	IC	FC	Direct Impact/Resource Use/Waste Perspective	Intermediate Consumption Perspective	Final Consumption Perspective
Food Products & Services	Dairy farm products	19	–	–	LUC		
	Poultry and eggs	20	–	–	LUC		
	Meat animals	6	6	–	LUC	LUC, FAETP, TETP, EP	
	Food grains	13	–	–	LUC, EP		
	Feed grains	9	15	–	LUC, FAETP, TETP, EP, MU	ADP, LUC, FAETP, TETP, EP	
	Miscellaneous crops	16	–	–	FAETP, TETP, EP		
	Meat packing plants	–	11	7		LUC, FAETP, TETP, EP	LUC, FAETP, TETP
	Poultry slaughtering and processing	–	–	17			LUC,
	Eating and drinking places	–	16	5		LUC, GWP, FAETP, TETP, POCP, EP	LUC, GWP, ODP, HTP, FAETP, MAETP, TETP, FSETP, MSETP, POCP, AP, EP, MU, MW, EU
	Food preparations, n.e.c.	–	–	19			FAETP,TETP,EP
	Fluid milk	–	–	20			LUC
Textiles	Cotton	2	2	–	FAETP, TETP, EP	FAETP, TETP, EP	
	Apparel made from purchased materials	–	13	2		FAETP, TETP, EP	ODP, HTP, FAETP, TETP, MSETP, EP
	Broadwoven fabric mills and fabric finishing plants	–	10	–		FAETP, TETP, EP	
Nonrenewable Organics	Coal	5	9	–	ADP, MU, MW	ADP, MU, MW	
	Crude petroleum and natural gas	4	4	–	ADP, GWP, POCP	ADP, GWP, POCP, AP, EP	
	Industrial inorganic and organic chemicals	3	3	–	ODP, HTP, MSETP, MW	ODP, HTP, MSETP, POCP, EP, MW	
	Petroleum refining	8	5	3	MU, MW	ADP, GWP, POCP, AP, EP, MU, MW	ADP, GWP, ODP, POCP, AP, EP, MU, MW
	Electric services (utilities)	1	1	1	GWP, HTP, MAETP, FSETP, POCP, AP, EP, WU, EU	ADP, GWP, HTP, MAETP, FSETP, POCP, AP, EP, MU, MW, WU, EU	ADP, GWP, HTP, MAETP, FSETP, POCP, AP, EP, MU, MW, WU, EU
	Natural gas distribution	15	14	12	MU, MW	ADP, MU, MW	ADP, MW
Metals	Blast furnaces and steel mills	–	17	–		GWP, HTP, POCP, MW, EU	
	Primary aluminum	18	20	–	ODP, HTP, MAETP, FSEPT, MSEPT	ODP, HTP, MAETP, FSETP, MSETP	
	Motor vehicles and passenger car bodies	–	12	4		GWP, ODP, HTP, MAETP, FSETP, MSETP, POCP, EP, EU	ADP, GWP, ODP, HTP, FAETP, MAETP, TETP, FSETP, MSETP, POCP, AP, EP, MW, EU

EPA's role in promoting and supporting the re-use and recycling of materials

- Waste must be managed well in order to minimize environmental impacts
- Avoid new raw material extraction

Rethink

CHANGING HOW WE THINK ABOUT OUR RESOURCES FOR A BETTER TOMORROW

Working With U.S. Industry

Recent conversations with industry representatives indicate EPA can do more to help:

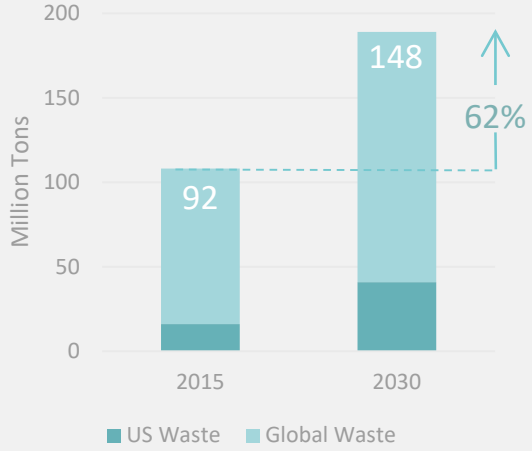
- Better data, research and knowledge.
- A focus on measurement and system approaches
- Convene stakeholders to accelerate optimization of changing collection and processing systems and the use of materials using life cycle based approaches.

Anne Johnson, Vice President, RRS

KEY FACTS

- Globally, we produce 92 MT of textile waste. By 2030, this will increase 62% to 148 MT.
- Most of this waste is landfilled or incinerated; only 20% is collected for reuse or recycling.
- Textiles result in a diverse range of environmental impacts. The cumulative impact from wasted textiles will grow.

ENVIRONMENTAL IMPACTS OF GLOBAL FASHION PRODUCTION



Source: 2017 Pulse of the Fashion Industry, USEPA

Environmental impact

		2015	2030	
Water consumption	Consumed water (billion cubic meters)	79	118	+50%
Energy emissions	Emissions of CO2 (millions tons)	1,715	2,791	+63%
Chemicals usage	Chemicals management (Pulse Score in %)	37	*Pulse Score not to be projected*	
Waste creation	Produced waste (million tons)	92	148	+62%

A GAP ON WASTE ACROSS FASHION INDUSTRY AND NGO INITIATIVES

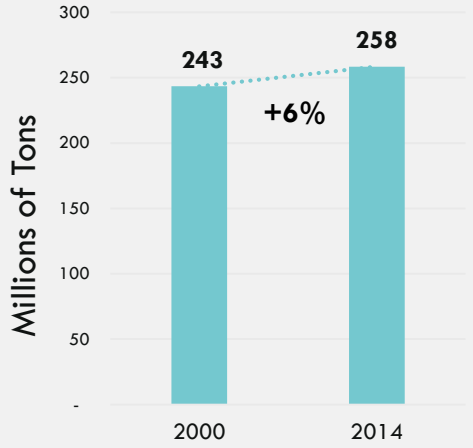
	Design & development	Raw materials	Processing	Manufacturing	Transportation	Retail	Use	End of use	Total Pulse Score
Total	22	17	38	28	41	28	23	9	32
Top quartile	37	47	66	56	67	33	24	21	63
2nd quartile	22	16	43	26	47	35	26	9	32
3rd quartile	19	4	29	22	34	29	29	4	22
Bottom quartile	10	2	14	11	17	14	14	2	11

Source: 2017 Pulse of the Fashion Industry

KEY FACTS

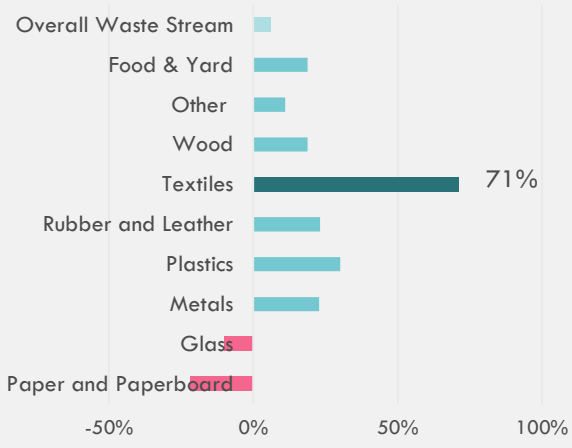
- In the U.S., we generated 16.2 MT of textile waste in 2014, up from 9.5 MT in 2000, an increase of 71%. Meanwhile, overall MSW grew only 6%.
- Over that same time period, per capita generation rose from 67 lbs/pp/yr to 102 lbs/pp/yr, while per capita generation of MSW fell -6%.
- Textiles in the MSW grew from 3.9% in 2000 to 6.2% in 2014.

TONS US MSW GENERATED



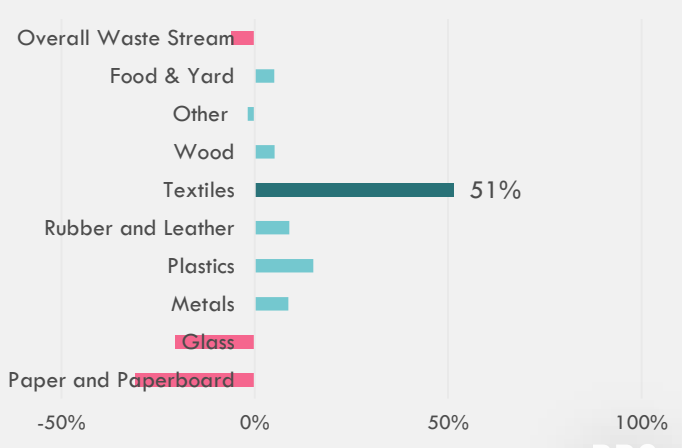
Source: USEPA

PERCENT CHANGE IN TONS GENERATION 2000 - 2014



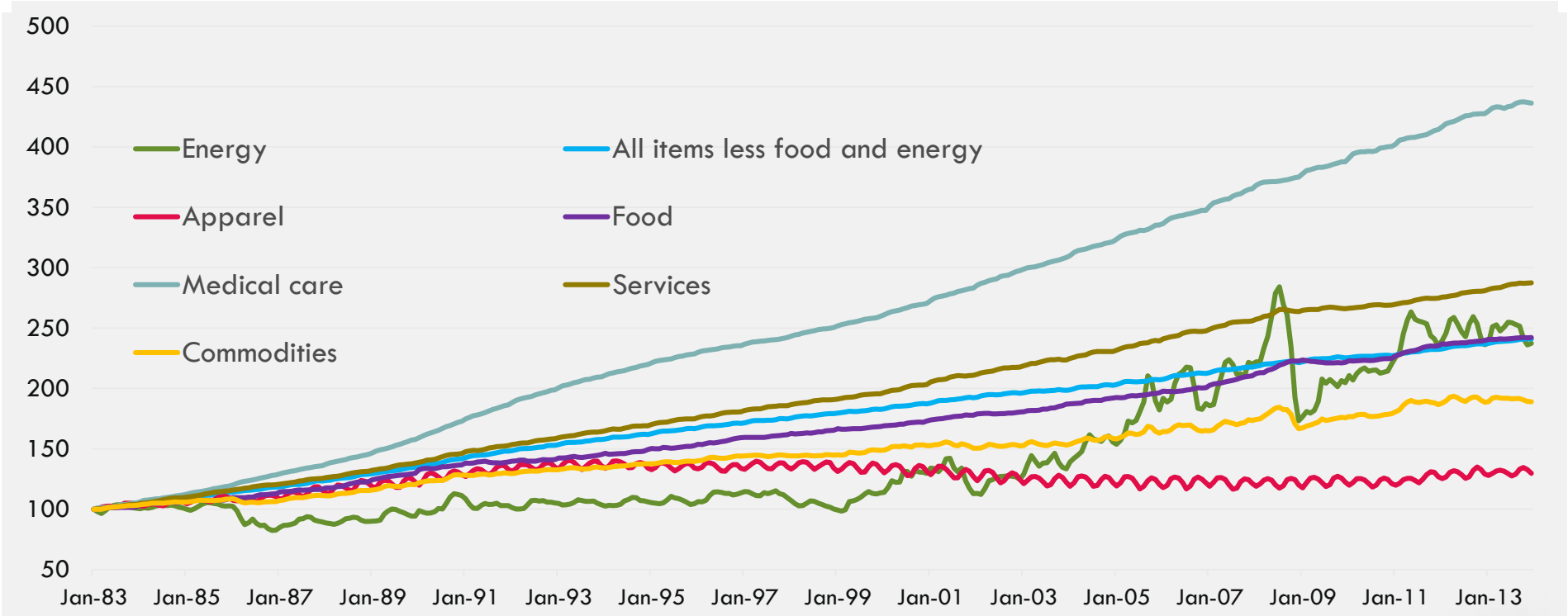
Source: USEPA

PERCENT CHANGE IN PER CAPITA GENERATION 2000 - 2014



Source: USEPA

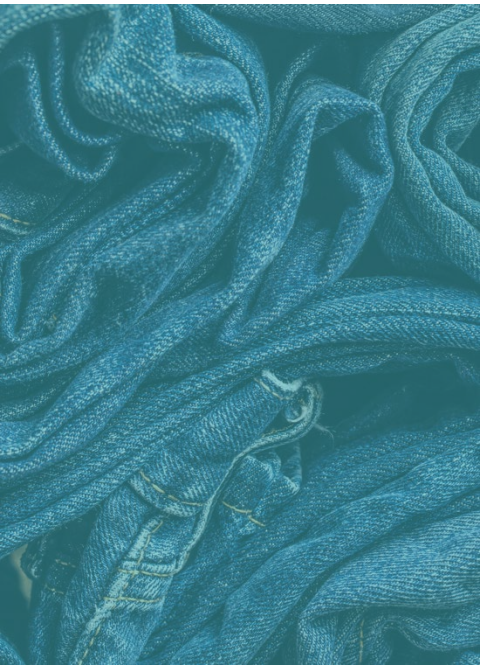
U.S. CONSUMER PRICE INDEX SERIES. 1983-2013

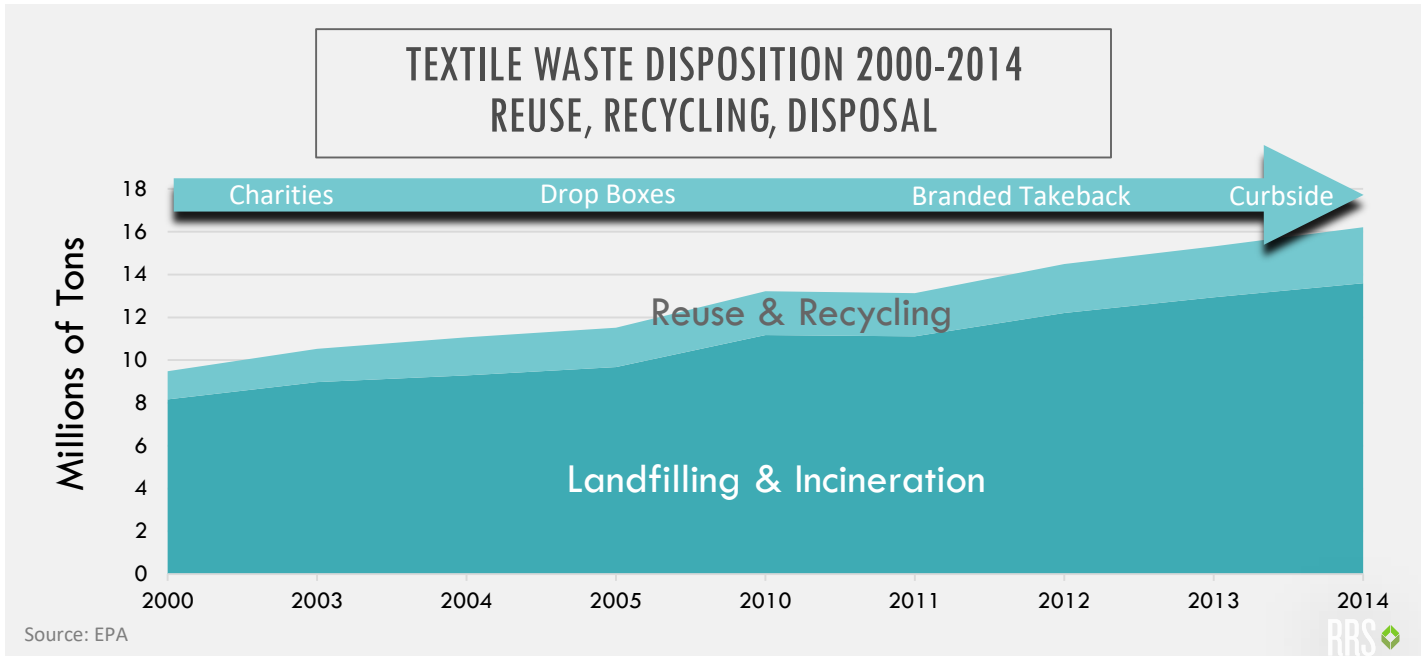


Source: BLS

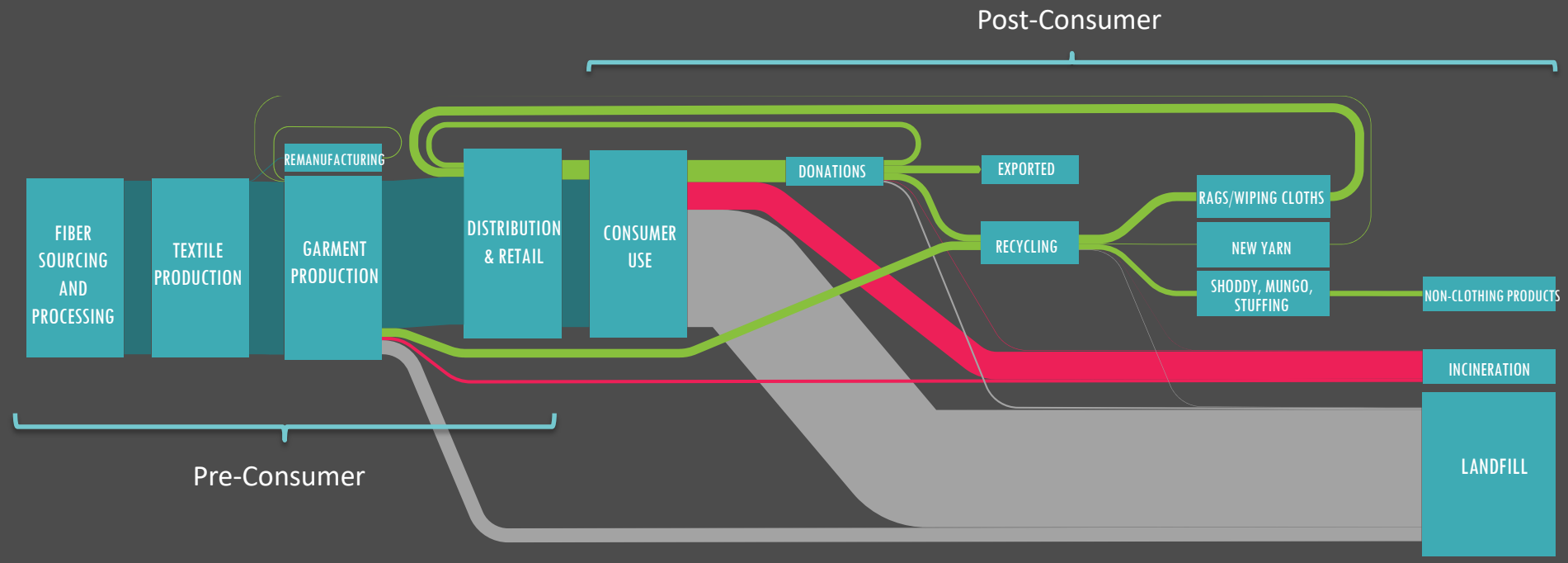
KEY FACTS

- Diversion through reuse and recycling has remained relatively flat at 16% between 2000 and 2014.
- Incineration and landfilling have accounted for about 84% of textile disposal for more than a decade. In 2014, about 19% of textiles went to waste to energy.
- The cumulative carbon impact and lost resources due to landfilled and incinerated textiles and apparel is growing each year.





TEXTILES AND APPAREL FLOWS IN U.S.



Source: 2014 USEPA SMM Facts & Figures, US Dept. of Commerce Export Data, industry waste generation facts

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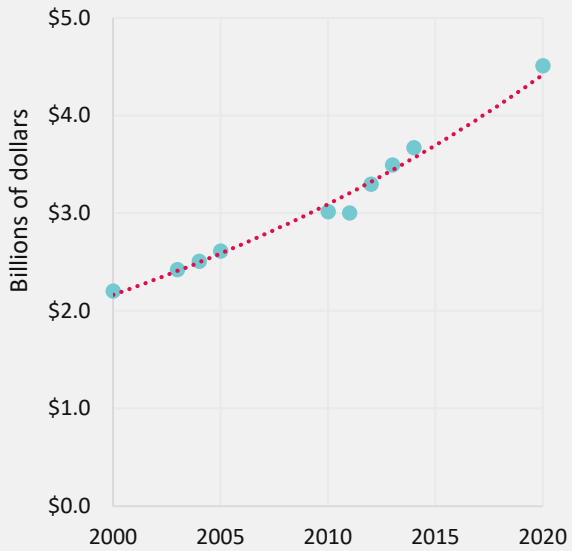
A WASTE TREND WITH NATIONAL & LOCAL COSTS

ANNUAL COST TO COLLECT & DISPOSE OF TEXTILES



Source: USEPA tip fees and RRS collection costs used to estimate avg. per ton costs; 2015 costs were used for forecast

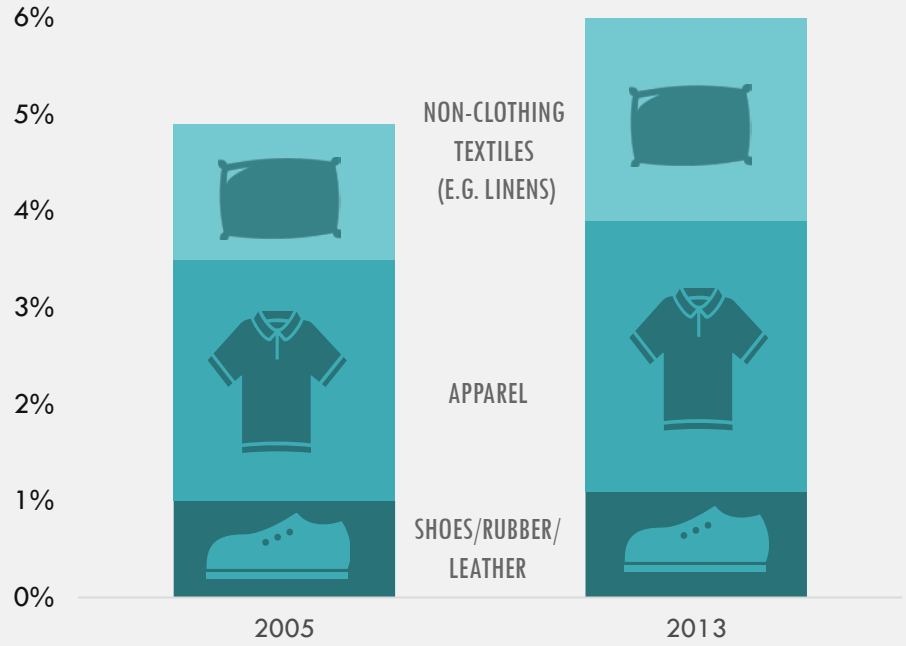
National Trend with Significant and Growing Local Costs

MANAGED LOCALLY

- Landfilled materials are collected and managed locally.
- Both the volume and the cost to manage on a per ton basis is growing exponentially in many communities.
- On average only 16% of textiles are diverted for reuse and recycling depending on locality.

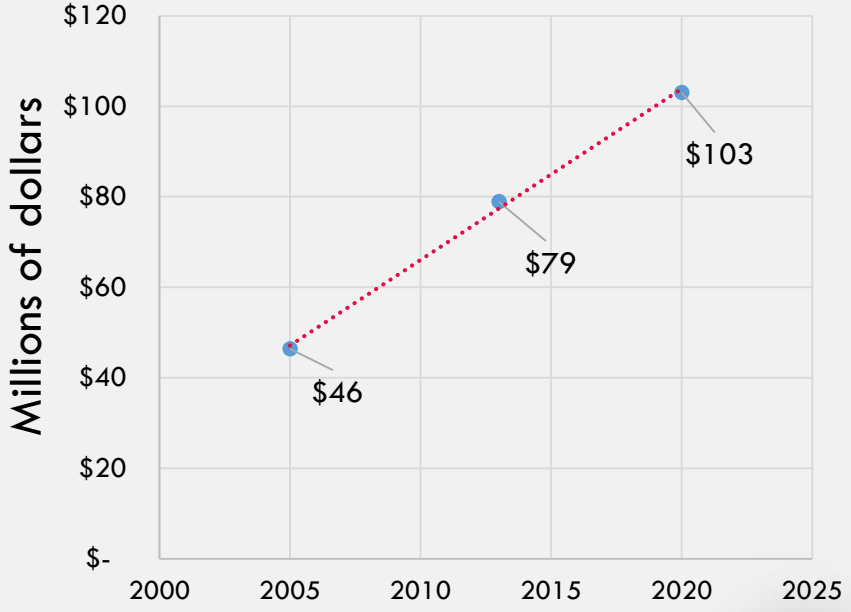
COST OF TEXTILES TO NEW YORK CITY

PERCENT OF TEXTILES IN NYC'S WASTE STREAM



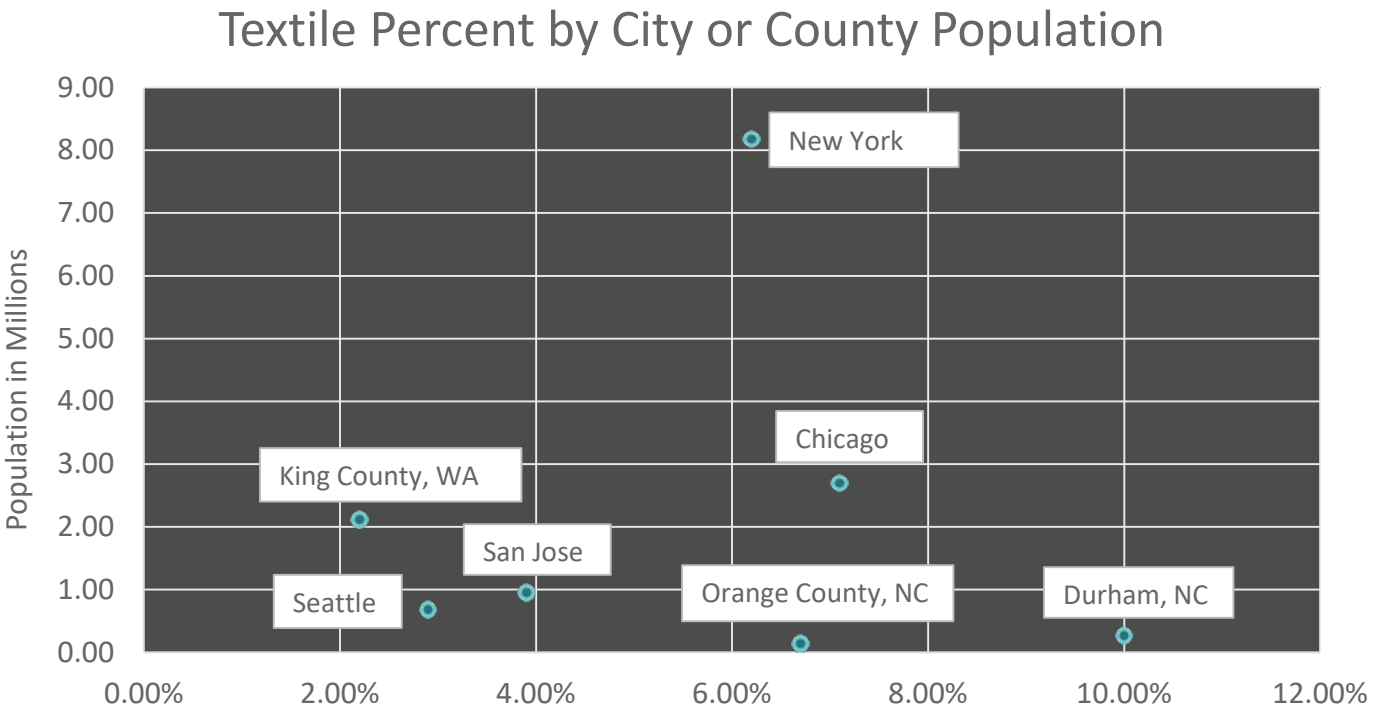
Source: NYC Dept. Sanitation

COLLECTION & DISPOSAL COSTS FOR TEXTILES IN NYC



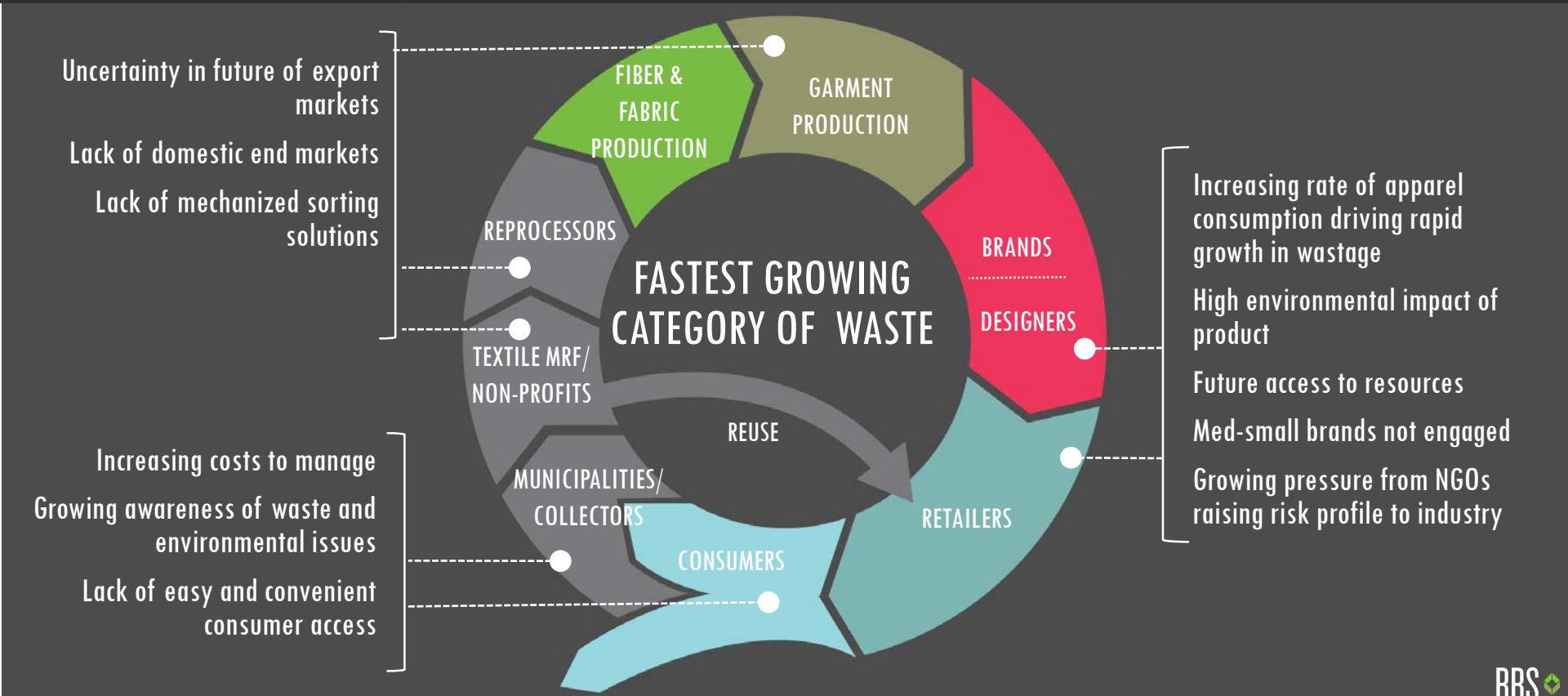
Source: NYC Dept. Sanitation; 2014 costs/ton were used to forecast foreword

PERCENT TEXTILE WASTE IN OTHER CITIES

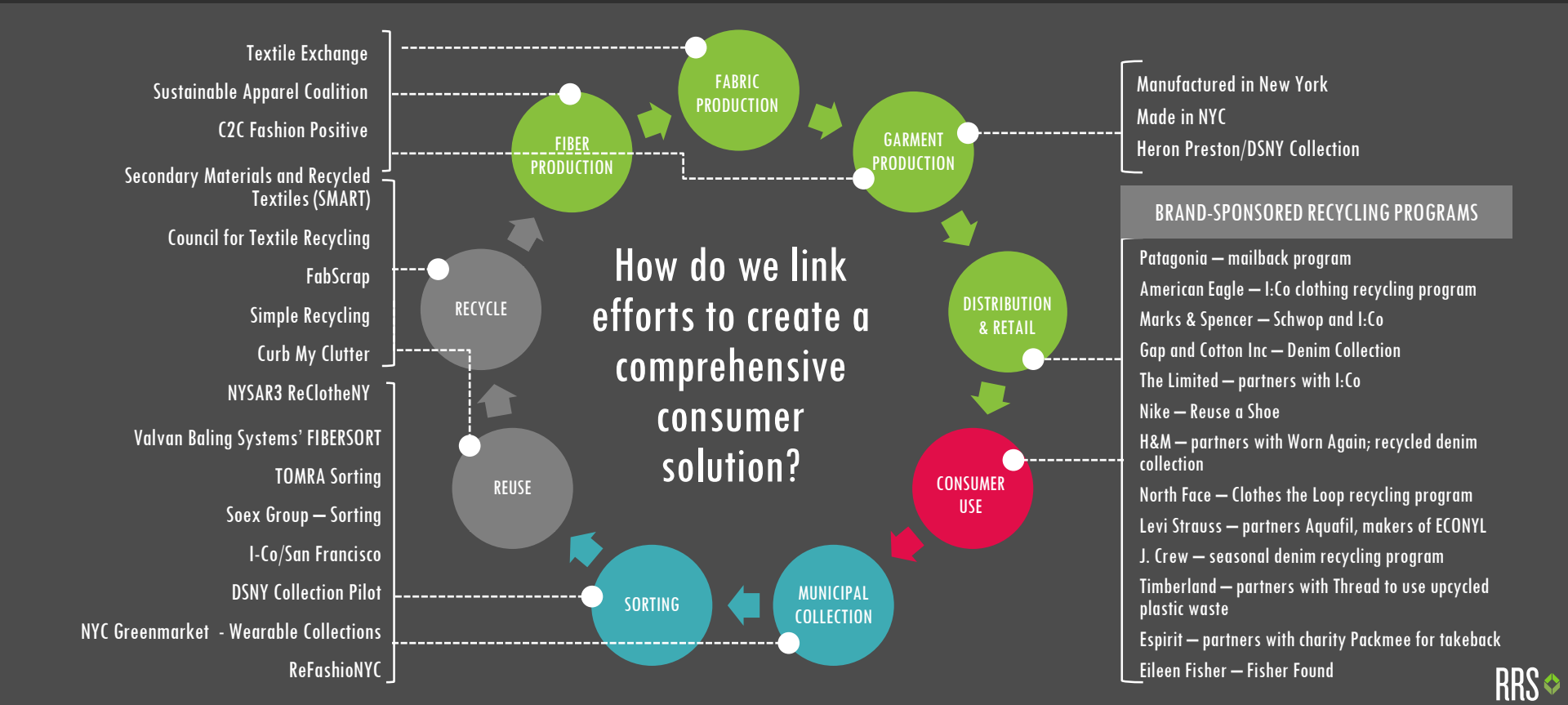


Sources: Published Waste Characterization Studies

GROWING RISK TO A VARIETY OF STAKEHOLDERS



LANDSCAPE OF CURRENT TEXTILE INITIATIVES



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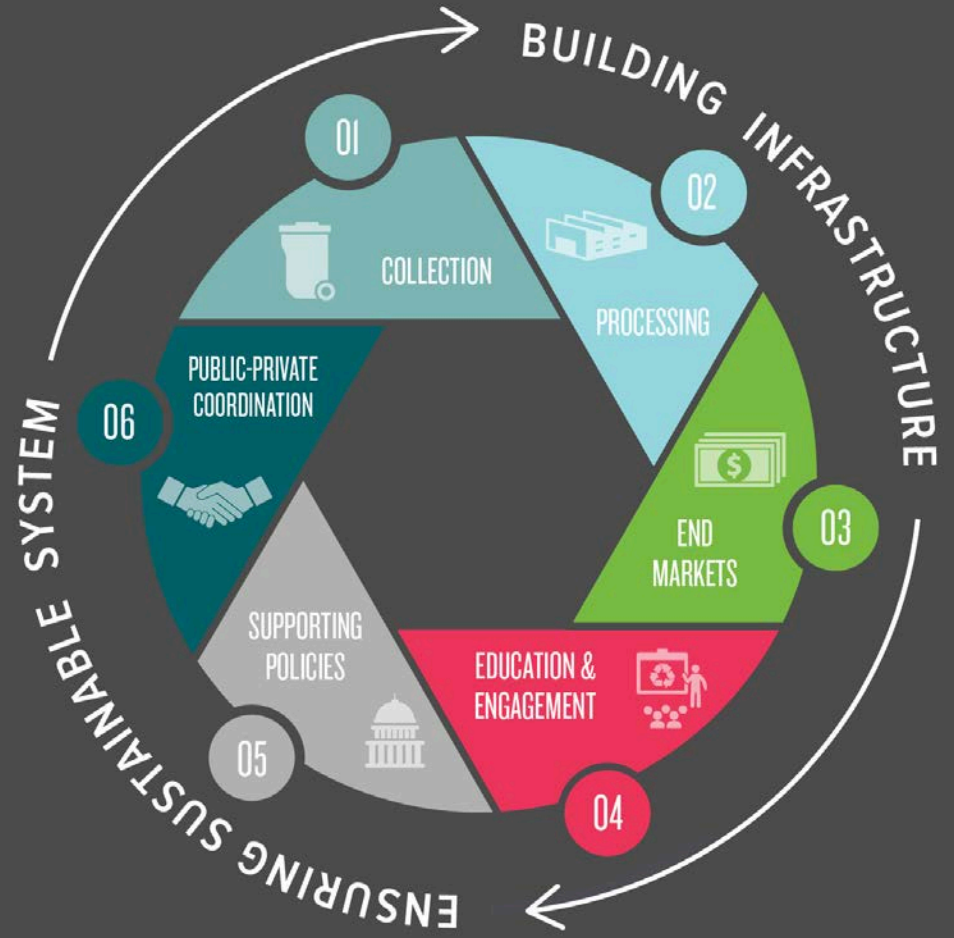
ELEMENTS OF A SUSTAINABLE RECOVERY SYSTEM



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What are the Barriers?

INDUSTRY SURVEY RESULTS ON SUSTAINABILITY – APPLY TO WASTE ISSUES TOO

- Low consumer willingness to pay for sustainable products
- Missing regulations/policy
- Brands focused on self-optimization
- Lack of consumer awareness
- Short-termism of planning and budgeting cycles

Source: 2017 Pulse of the Fashion Industry

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QUESTIONS

LOOKING TO THE FUTURE

- How do we find economically viable solutions to reduce textile and apparel waste?
- Why are some cities more successful than others?
- What is needed to develop successful strategies and scale solutions to the reuse & recycling of textiles and apparel?

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JOIN US

WEBINAR SERIES

#	Webinar Topic	Date/Time
1	The Cost and Environmental Impact of U.S. Textile and Apparel Waste	Wednesday, August 9, 2017 1-2pm EST
2	How is that shirt collected and where does it go? Overview of U.S. textile recycling and emerging innovations in sorting technologies.	Wednesday, August 23, 2017 1-2:15pm EST
3	State and municipal views on textile waste and where they are headed in the future.	Wednesday, September 6, 2017 1-2pm EST
4	A rising tide of apparel and textile waste. What are brands doing and is it enough?	Wednesday September 20, 2017 1-2pm EST

CONFERENCE

Washington D.C. 2017 | TextileExchange Sustainability Conference	Monday-Friday, October 9-13, 2017

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ARE YOU READY TO EFFECT CHANGE?

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