

From Waste to Resource: Breakout Sessions Report from Waste Management's 2020 Sustainability Forum January 2020

Background

The World Bank estimates that rapid urbanization, population growth and economic development will push global waste to increase 70 % over the next 30 years.¹ While most of this growth will be focused on middle income countries like those found across Asia, North America and other highly developed nations have long been the primary source of global waste. The average American produces an estimated 4.5 pounds of waste per day.² This doesn't include the additional loss across the value chain as we grow, harvest, manufacture and sell those materials that end up in landfill. How we use and discarded these resources has a significant impact on our environment. *We can do better.*

As the concept of materials management grows, this creates an opportunity for us to redefine our relationship to waste. Rather than see waste a burden to be managed we begin to see it as a lost resource and identify ways to reduce resource demand while recapturing materials and their end of life towards reuse and repurpose. Not only does this paradigm shift create an environmental benefit, it also creates economic opportunity through innovation, job creation and resource efficiency.

Our belief in "Big Ideas, Bold Action and Better World" led us to design a series of breakout sessions at our 2020 Sustainability Conference to explore opportunities for materials management for three of the fastest growing materials in America's waste stream: packaging, food and textiles. Cumulatively these three materials represent an estimated 53% of the municipal waste sent to landfill and are all anticipate keeping growing.³ We need to explore why these materials are growing, and why, when there are alternative pathways to recapture their value, are they being sent to landfill? Ultimately, our intent was to inspire and identify ways we as a collective group of government, industry, nonprofits and citizens could work to reverse these trends and turn our waste into a resource for all.

1. Packaging

Packaging and containers makeup 23% of the municipal solid waste sent to landfill in America.⁴ Despite the fact that packaging and containers are the most recycled material within municipal solid waste stream, a significant amount of this material stream is still being sent to landfill. Rising concerns around the global mismanagement of packaging waste, and the rise of marine and land pollution associated with packaging waste has focused significant attention on packaging and the options to improvement its' end of life management.

Panelists in the packaging breakout noted that one of the key challenges inherent to packaging is the tendency to view it as a waste. Rather we need to understand that the primary purpose of packaging is waste prevention, through product protection. When we shift our perception to see how packaging can prevent waste, then we begin to see where opportunities lay to leverage packaging for waste prevention—doing so is likely to prevent unintended consequences.

¹ World Bank (2018) [What a Waste 2.0](#)

² US EPA (2017) [SMM Facts and Figures](#)

³ Ibid

⁴ Ibid

While packaging needs to be recognized for its value in waste prevention, it was also recognized that some materials and packaging formats are not being recaptured and reprocessed and there is still opportunity for packaging optimization. Several the panelists shared examples of how their companies were designing with a focus on waste reduction.

Panelists noted that consumers play a key role in packaging recovery and they noted there are opportunities to make packaging recovery and recycling more accessible. Ideas included better consumer labelling and education, consistent recycling practices between communities. It was also noted that access to recycling is inconsistent across the country. Improving access to recycling for those away from home or living in multi-family units could help support a culture of reuse and recycling.

2. Food Waste

Food waste makes up an estimated 22% of the materials sent to landfill, making it one of the largest materials in the landfill.⁵ Since 1970, our generation of wasted food has tripled!⁶ While diversion methods such as composting and anaerobic digestion are available, there are not enough facilities to address the volumes of food that is wasted in America, nor is management of waste the most environmentally preferred approach.

Panelists suggested that education and tools for food waste prevention should be a key focus for America. Most of our wasted food comes from households and retail environments⁷ where prevention is generally a behavior choice. Data suggests when we raise awareness and empower people with solutions, they are more likely to act. Having more data therefore to help us better understand reasons for household and retail food waste and design effective strategies. Additionally, having data to help identify excess in the supply chain for rapid remobilization is another way we can emphasize strategies to prevent, rather than mitigate, food waste.

Participant Comment: *Imagine if we had a surgeon-general like warning on food packaging about the impacts of wasted food!*

Food waste in North America is primarily a behavior challenge and one that offers high return on investment when we identify solutions.

3. Textiles

While only 8% of total materials sent to landfill⁸, textile waste has grown 50% over the past two decades⁹. Global clothing production has doubled over the past fifteen years, while the duration in which consumer retain and wear clothing has decreased.¹⁰ The trend of “fast fashion” means we are producing more but using these materials less. With only an estimated 16.3% of textiles recycled¹¹, textiles are an area that is ripe for innovation.

⁵ ibid

⁶ ibid

⁷ ReFED (2016) [A Roadmap to Reduce US Food Waste by 20%](#).

⁸ US EPA (2017) [SMM Facts and Figures](#).

⁹ EMF (2017) [A New Textiles Economy: Redesigning Fashion's Future](#).

¹⁰ Ibid

¹¹ US EPA (2017) [SMM Facts and Figures](#).

There is growing interest in the creation of a circular textiles economy—textiles are a highly resource intensive industry and with current growth rates, they are primed to have a significant impact on climate change. To aid the development of circular systems, panelists suggested we need supply chain collaboration and more data to increase the transparency of textiles after the point of sale.

Panelists noted that digital marks on garments to track use after the point of sale could help advance resale or rental programs and certainly recycling initiatives. Having insight into the type of materials within garments is essential towards identifying recycling opportunities, and successfully sorting textiles towards the right re-use or re-processing opportunity.

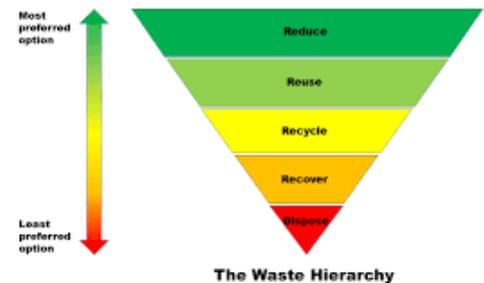
Supply chain collaboration, where manufacturers understand the value in designing for deconstruction, and know what options are available for certain materials, as well as how to digitally mark them across the lifecycle, is needed in order to advance circular pathways for textiles.

Breakout Session Feedback/Feedback for Action

While each of the different materials across the three breakouts faced different challenges and had unique needs, common themes emerged across all as participants explored potential strategies for reduction. Overall, participants insights suggested there are ways we can collectively address waste. We need to start by examining our own behavior and preconceptions towards consumption and waste prevention. It was felt that we would leverage the power of collective to create systems of change. The more collaborative and transparent we are, the faster we can identify and scale strategies for change.

Prevention

Participants all felt that in order to create change we needed to begin with prevention of waste. Prevention was widely understood as the most environmentally preferred strategy for all three of the materials identified. This focus on prevention aligns with the waste hierarchy. Prevention opportunities were focused on designing for source reduction, including how we meal plan to produce less waste and reuse leftovers, as well as designing for recycling or recovery. The ideal design was one that incorporated both reduced material demand and opportunities for reuse/reprocessing.



Participants strongly supported education to raise awareness of the impacts of waste on our environment, economic and health. There was a belief that increased consumer transparency could help shift behavior and counter popular misperceptions. Participants wanted to see an educational approach that focused on the impacts of waste and how careful use of these materials could avoid environmental impacts. They also felt it was necessary to create educational campaigns that provided more access to alternative consumption models—via the shared economy with programs such as clothing rental services, food donations and exchanges, and packaging reuse, where available.

Participant Comment:

Educating my high school students on the importance of being wise consumers may be the most impactful action I can take-away from today.

Role of Regulation in Materials Management

Participant Comment:

Commit to take a picture of the food you waste over the course of one day. It will help raise personal awareness.

Participants recognized that as these materials grow, and innovation abounds, that the recovery system needs to keep pace. It was noted that textiles have a significant opportunity for reuse but innovation and technology to advance recovery is needed. Additionally, while packaging and containers are the most widely recycled material stream in municipal solid waste, we lack the technologies needed for reprocessing many types of plastics, and many and/or have little to no markets for resale. Participants felt there was an opportunity for regulation to support investment in the system.

Two key pathways were identified:

1. **Producer Stewardship Policies:** In this scenario those who produce materials wasted would help invest into research and innovation to advance technologies to reprocess and sort their materials—in essence, designers would help plan for end of life. It should be noted that participants saw a need to grow end markets and ensure the technology to support sortation and processing was available. Funding was identified as needed to advance—not maintain—current recycling systems.

Participant Comment:

Investment is needed to advance strategies for materials management. This is a competitive space with value for all.

2. **Economic Incentives for Advancing Shared Models:** Participants felt tax incentives could be created to encourage food donation, secondhand clothing purchases or reusable packaging models. The idea behind these incentives would be to encourage new consumption behavior or assuage fears surrounding food donation.

Reimagining our Waste as a Resource will Require Collaboration

Participant Comment:

Solutions are not singular; everyone needs to be involved to avoid unintended consequences.

Current production and consumption systems are not designed with waste prevention and re-utilization in mind, participants felt shifting our vision of consumption and material use towards resource efficiency would require engagement from all stakeholders in the value chain. Designers would need to consider efficiency and reuse opportunities up front; governments could help incentivize behavioral shifts; and consumers need to become aware of their own consumption patterns. This shared responsibility extended from design all the way to how we pay for recovery. Several participants felt that consumers, just as much as industry, should help pay for the cost of materials management. Contamination and consumer demand are both created from their interests and are more difficult to change without their engagement.

As Technology Advances, this Create Opportunities for Transparency

In all the breakout sessions, presenters noted the value that increased data and transparency would have on advancing strategies to reduce materials sent to landfill. For packaging and textiles, a lack of

data on how products are made creates challenges for identifying recovery solutions. With food waste, a lack of insight into where excess food might be found hindered the opportunity to mobilize for reuse.

Participants felt that the internet of things or blockchain technologies could create opportunities to provide insights into material design (ex: a digital watermark) that would help recyclers understand the composition of certain mixed materials. Digital watermarks for example are being tested in both packaging and textiles. Technology advancement is an area where participants felt industry investment through initiatives like producer responsibility could help advance recovery strategies.

Designing with the End in Mind will Support Recovery Efforts

Current production and consumption systems are not designed for preventing and reusing waste. From product design and packaging to material choices and consumer behavior, the entire chain is not designed to maximize resource efficiency. Participants felt this behavior shift was required across the value chain and industry collaborations to encourage design standards, or technology interventions to identify materials would help reduce unknowns and increase recovery efforts to ensure materials were redirected back to their highest use.

Big Ideas, Bold Action and Better World

Waste Management believes that materials are resource to be utilized, not wasted. We want to create the necessary enablers to shift perceptions so we can all realize the inherent opportunities that can arise when we shift towards a mindset of resource efficiency versus resource management. This dialogue is just the beginning of what we hope will become a more robust discussion across America about how we consume, how we can prevent waste, and how we can collectively turn our discards into opportunities. Thank you to all our participants and presenters who gave freely of their thoughts and ideas.

To create the change, we want to see we need your help, please consider these comments and explore ways you can help drive a small change for the greater good.