Recycling Industry in Transition

An Update

It has been tough sledding for the domestic recycling industry for the past couple of years, and as challenges continue, this resilient industry finds itself amid a transition to become sustainable.
We are now in our third year of responding to changing market dynamics resulting from China’s ban on imports of mixed paper and plastics and its quality restrictions for all materials that can be exported. China has continued to reduce volumes of clean recyclables allowed into the country and is well on the path to achieving its goal of eliminating imported recyclables by 2021. After playing an important role supporting the global recycling market for over two decades, China’s shift in policy has had profound adverse effects on recycling market conditions, with corresponding impacts on recycling programs in communities across the United States and around the globe.

**Global Impacts**

*Global market demand impacted by China’s policy changes.* By banning materials, reducing import quotas, and increasing quality specifications for all imports of recyclables, China’s policies created a ripple effect affecting global supply and demand for recyclables and increasing material recovery facility (MRF) operating costs.

**Impact on commodity values.** Without China as an end market for recovered recyclable materials, global supply of these materials exceeds demand. Commodity values are the lowest in over a decade, with resulting increases in the cost of recycling.

**Paper.** Paper makes up almost 60% of the material collected for recycling and, hence, plays an important role in the economic health of community recycling programs. The dramatic drop in the export of recovered mixed paper to China is illustrated in Figure 1. In response, mixed paper prices have fallen from a revenue value of US$88 per ton in 2017 to US$5–US$20 per ton today. Even prices for cardboard, historically a particularly valuable material, are the lowest that we’ve ever seen. At the extreme end of the scale, the value of cardboard in the Pacific Northwest was US$170 per ton two years ago, but fell to US$15 per ton in fourth quarter 2019. Fortunately, new domestic paper mill capacity is beginning to come online, which should have a stabilizing impact on paper pricing.

**Plastic.** As with paper, there has been a substantial reduction in recovered plastics exported from the United States to China, as illustrated in Table 1. However, the impact of China’s import bans on plastics markets in the United States has varied by polymer type and is a more complicated story than the paper markets.

For example, prices for polyethylene terephthalate (PET) #1 (water and soda bottles) and high-density polyethylene (HDPE) #2 (milk and juice jugs) remained fairly stable until mid-2019 as overall market demand in the United States for these polymers continued to grow. After a reduction in pricing in mid-2019 with new virgin resin capacity that made it less expensive for manufacturers to purchase virgin resin than post-consumer resin (PCR), markets are shifting again.

In a testimony to the importance of driving demand for post-consumer content in goods and products, prices for post-consumer HDPE began to increase in fourth-quarter 2019, in response to the new demand by U.S. manufacturers for post-consumer resin required to meet their aggressive corporate sustainability goals. To date, this is the only polymer experiencing a price resurgence.

Other grades of post-consumer plastics such as polyvinyl ethers (PVE) and polystyrene were part of mixed bales of plastic marketed by single-stream recycling facilities and they no longer have viable end markets for recycling in the United States.

**The Cost of Recycling**

For years, communities have hidden the true cost of recycling to encourage participation and support for this important conservation activity. For example, many communities bill residents for their trash collection, but include recycling services for “free”, when, in reality, the cost of recycling is included in the trash fees.

Recyclers learned to adapt to the peaks and valleys of the commodity market and its historic short-term cycles, carrying the risk of the down cycles in order to benefit from periods of market strength. There are limits to recyclers’ ability to adapt, however. The prolonged and extreme downturn in market conditions (see Figure 2) has
resulted in numerous recycler bankruptcies and contract defaults. The average commodity price for all recyclables sold from Waste Management’s (WM) MRFs, for example, is roughly 70% less than the average two years ago.

As a matter of survival, recyclers have begun negotiating new contact language to reduce their risk. This new contracting paradigm brings long-needed cost transparency to the system and ensures that recyclers are paid first for the cost of processing the recovered recyclables (i.e., separating, sorting, cleaning, baling). Only after processing costs have been covered, will they share remaining commodity revenues.

Industry groups such as the Solid Waste Association of North America (SWANA), the National Waste and Recycling Association (NWRA), the Institute of Scrap Recycling Industries (ISRI), and the Recycling Partnership are working together to develop a municipal contract template that supports stable, sustainable recycling in the United States.

This work puts us on a path toward economic sustainability for recycling, but we can’t ignore the fact that costs associated with recycling have increased in communities across the United States. Whether cities provide their own services or contract with third-party processors, the new economics of recycling are being played out in communities across the country. Higher costs trigger hard choices, but this is an important path to sustain the environmental benefits recycling clearly provides. The next few years are expected to continue to be challenging, but resetting rates to recognize the true cost of recycling will result in more sustainable recycling programs.

**Impact on Municipal Programs**

The media has reported on the “crisis” and tends to highlight cities eliminating their curbside recycling programs. In reality, even as the cost of recycling has increased, most communities are choosing to manage the increase through increased rates or decreasing the scope of services to reduce their overall costs (e.g., decreasing collection frequency, reducing specific materials collections, shifting some materials from collection to drop-off). A scan of the country in November 2019 reveals fewer than 60 cities have stopped their recycling programs (out of roughly 20,000 U.S. towns/cities). Of this number, half a dozen restarted their program after it was paused. It is also important to remember that two-thirds of the communities have populations under 8,000, presenting a particular challenge to the economics of rural and small-scale recycling.

We are pleased to report that cities are evaluating their programs carefully, and the vast majority are choosing to make changes to rates or services to continue to provide this valuable public service.

**Improving the Quality of Recyclables**

There are several bright spots on the horizon resulting from the increased attention that recycling is receiving. Importantly, current market conditions have created the necessity and opportunity to work with customers to help them recycle correctly.

Recyclers and communities have stepped up their efforts, increasing their funding and focusing on recycling education that is directed toward improving the quality of material collected at the curb for recycling. This new focus has resulted in improved quality, and hence, value in the material being delivered for recycling.

For example, through these collaborative efforts, contamination (i.e., “residue”) present in the mixed recyclable materials delivered for sorting at WM MRFs has been decreasing from a high of 24% in June 2018, to less than 18% today, as illustrated in Figure 3. This improvement in recycling efficiency requires continual effort by recycling professionals and communities alike, but we are seeing real results.

**End Market Demand**

Without end market demand for recycled materials, recycling does not happen. Recycling plays an important and fundamental role in the growth of thriving economies, but only when recycled feedstock is used in the manufacture of new products and packaging, offsetting the use of virgin materials.
resources. We have seen renewed recognition of the need to develop domestic demand for recycled feedstock. The United States simply must demand that, as an essential sustainability measure, more products and packaging be manufactured from recycled feedstock.

When China imposed its ban on recyclable imports in 2018, this suddenly eliminated 50% of the world market for mixed paper and plastics. In response, the development of U.S. domestic demand became imperative. Waste management companies like WM have made a commitment to sell all the residential plastics they recover to domestic markets. This is done in partnership with sustainable domestic outlets that need recycled material to support their goals.

Overall there has been a dramatic shift toward using more recycled material domestically. This is illustrated in Figure 4, which depicts the changes from 2017 to 2019 in the flow of WM's recyclables exports worldwide. WM previously exported 27% of its recyclables to China. Without China as a market, these tons shifted to other countries, but the global marketplace simply could not absorb the volume once sent to China. Many recyclers across the globe were left with no markets for their material. Domestic markets have begun to respond as new mill capacity has been announced, increasing domestic consumption. This must continue if we are to develop sustainable recycling markets in the United States.

**Opportunity from Crisis: An industry Investing in the Future**

The recycling industry is resilient. Although the past three years have been difficult, they've led to a reevaluation of global recycling programs and an infusion of capital, with a renewed focus on communicating why we recycle and what we need to do to ensure healthy recycling programs. Companies are investing in the future of recycling, and in new technologies.
By way of example,

- **Over a dozen new paper mills and mill expansions have been announced in the United States alone.** Paper mills are increasing their use of recycled feedstock, and domestic markets for recycled plastics are developing. As government and private sector initiatives drive higher demand for recycled content use in products, we expect to see additional demand for feedstocks we can provide.

- **WM is investing in the future of recycling.** With more than US$1 billion dollars already invested in its recycling infrastructure, WM invested over US$200 million in recycling infrastructure in the past two years alone and expects this cadence to continue. A brand-new WM recycling facility of the future is in the startup phase in Chicago and will officially open early in 2020, paving the way for the next generation of recycling.

**There Is Still Work to Do**

The U.S. recycling industry has proven largely resilient, but our work is not done. We must invest in education, infrastructure, market demand, contract transparency, and policies that ensure that recycling can thrive in global recycling conditions.

Certainly, there is now more attention on recycling than we’ve had in years. And we needed it. Recycling is an important community service, like water, sewer, and garbage collection. Recycling plays a key role in protecting human health and the environment, and it is an important point of pride in many communities. Additional investments will create sustainable programs.

It’s been a tough few years and the next two will likely be hard as well as we wait for domestic mill capacity to come online. However, governments, industry, and other key stakeholders are working together to ensure recycling not only survives but thrives.