

Under China's New Rules, U.S. Recycling Suffers

BY: [Alan Greenblatt](#) | December 2018

Ever since cities began offering curbside recycling programs, skeptics have joked about how it all ends up going to the same place as the garbage. In Franklin, N.H., that's actually true.

Residents there still sort items into separate recycling bins and garbage cans, but the different material all gets hauled to the same incinerator. "We are currently disposing of all of it at the trash plant," says Judie Milner, Franklin's city manager, "because recycling costs are twice as high."

Those costs have spiked all over. Until this past January, China took 40 percent of America's gently used paper, metals and plastic. Now, it accepts hardly any of it. China won't take recycled material from this country, or others, unless it's 99.5 percent free of contaminants. Some of the material is currently being processed domestically or is getting sent to other countries, but the loss of the biggest market has led some domestic recycling plants to shut down and some cities to end curbside pickup of recyclables.

Cities could once count on processors to pay them for material, but now they're being presented with hefty bills instead. Last year, Richland, Wash., received \$16 per ton for its recyclables. Today, it pays \$122 for each ton that's hauled away. When Franklin began its recycling program in 2010, it was getting paid \$6 per ton for the material. Now, it has to pay \$129 to dispose of it. Burning it, along with the regular garbage, is a lot cheaper at \$68 a ton. "We put all our eggs in one basket with China," Milner says.

Franklin is still asking its residents to separate out the recycling, in hopes that the situation can be rectified. Recycling advocates say that waste disposers ignored China's admonishments about contaminants for years. "China has been warning us for a decade that we need to clean up the recycling," says Mitch Hedlund, executive director of Recycle Across America, "but the industry did not heed the warning."

The problem starts with consumers. For too long, they've taken what waste experts describe as a "wishful" approach to recycling. Everything they hope can be recycled -- Christmas lights, batteries, plastic bags, hoses, power cords -- has been tossed into the blue bins, ruining the mix. Those Christmas lights, power cords and other long, stringy, unrecyclable items get tangled up in the gears at recycling plants, particularly those dealing with mixed, single-stream loads. That fouls up the machines, causing delays and driving up costs. "If they'd had any questions in their minds about whether something is recyclable, they've been encouraged to put it in the bins," says Sara Bixby of the Solid Waste Association of North America. "We have to stop that."

Educating consumers can make a big difference in terms of how much they recycle, as well as whether they're doing it right. That pizza box may be recyclable, but not if it's soaked with grease. "Recycling isn't worth anything right now," says Madison Hopkins, an investigative reporter with the Better Government Association in Chicago. "That's because people don't know how to recycle and [so when they do] it's contaminated."

Hedlund's group is working with cities and corporations to encourage the use of standardized labels, so consumers know exactly what's recyclable. Once the public schools in Orlando, Fla., started using labels, the system saved \$370,000 per year in trash hauling. "Cities are spending a fortune on recycling programs," she says, "that aren't working."

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Is Recycling Broken?

To survive and prosper, local recycling efforts are forging ways to update, upgrade and educate.

BY: [Elizabeth Daigneau](#) | June 2017

In 2014, six months after the residents of Lowell, Mass., received new 96-gallon recycling carts, Gunther Wellenstein got a “nastygram.” The letter to the city’s recycling coordinator came from the recycling contractor, Waste Management. It let Wellenstein know that contaminated -- that is, unrecyclable -- items were making their way into the carts.

Wellenstein was incredulous. He got in his car and drove around, stopping every now and then to get out, lift the lid of a recycling cart and inspect what was in it. “Lo and behold,” he says, “there was quite a bit of stuff that I guess people *hoped* could be recycled.”

What he found ranged from the mundane -- plastic forks, metal coat hangers, trash bags and even food waste -- to the outrageous -- diapers, syringes, appliances, bowling balls, doggie beds. He even found a cart full of leaves. “It was like people were saying, ‘Well, my trash can is full, but I’ve got room over here in the recycling cart.’”

Understandably, Waste Management wanted Wellenstein to address the problem. The syringes, bowling balls and other unrecyclable items were causing havoc at its recycling facility. A metal pry bar, for instance, got stuck on one of the conveyor belts and split it length-wise, shutting the building down for two days and costing the company upwards of \$50,000. But the mundane things were also costly. “The first thing that comes off the line at the facility by hand is plastic bags, regardless of what’s in them,” says Wellenstein. “They automatically get thrown into the trash, and we get charged [for Waste Management] to process it and take it to the incinerator.”

Those unanticipated costs are among the primary reasons Wellenstein tapped a state grant to reach out and educate Lowell residents about what can and cannot be recycled. Wellenstein also partnered with the Recycling Partnership, a nonprofit that works with governments to improve recycling programs, to audit two collection routes of 400 homes. Before Wellenstein and his staff fanned out to inspect carts on the routes, the city mailed multilingual postcards to those households that illustrated in full color which items were acceptable and which were not. For the day of the audit, the team was armed with “OOPS” cards. If the team found a cart with nonrecyclable items, they would tag it and it wouldn’t be emptied.

Before the outreach effort, the two routes had a contamination level of about 30 percent. After the effort, which spanned about 16 weeks, the level fell to 20 percent. “It’s still not ideal,” says Wellenstein, “but we could tell that in that zone of 400 households, we made a difference.” Most of the time, Wellenstein reports, it only took one tag for folks to be more careful about what they recycled. Only a fraction of them needed a second or third notification.

Lowell is far from alone in running education campaigns to decrease recycling contamination. For example, last year, Elgin, Ill., and Waste Management wrapped up a “Recycle Often, Recycle Right” campaign to instill key consumer behaviors: Recycle all empty bottles, cans, paper and cardboard; keep food, liquids and plastic bags out. Residents got a red tag on their recycling bins when they threw away nonrecyclables and green tags when they stopped doing it. While it varied by neighborhood, contamination dropped between 21 percent and 41 percent. A similar program was also run in communities in California and Colorado.

People on all sides of recycling agree that contamination is a major problem. “There is a lack of consistency with how communities educate about curbside recycling programs, leading to confusion and frustration regarding understanding what is recyclable and where and how to find program information,” wrote the authors of *The 2016 State of Curbside Report*, which was prepared by the Recycling Partnership for the Environmental Protection Agency (EPA). “Many communities do not provide easy-to-access and easy-to-understand recycling-related information.”

This frustration has led recyclers to begin openly questioning the viability of recycling programs nationwide. They argue that residents don’t know what they can and can’t recycle and that manufacturers are constantly

changing the materials in which they package their products, forcing costly upgrades to recycling facilities. They also note that there's no viable market for some recyclables, like glass, and that recycling contracts with cities don't reflect economic realities.

Lowell's Gunther Wellenstein talks with his team after tagging a cart with an "OOPS" card. (The Recycling Project)

These challenges have led to an essential question: Is recycling in our cities broken?

Nationwide, recycling rates have hovered around 35 percent for the last five years, according to the EPA. "That's a pretty low number," says Darby Hoover, senior resource specialist at the Natural Resources Defense Council (NRDC). "I don't know if I would go so far as to say 'broken,' but there are some definite challenges to getting those numbers up."

One of those challenges arose as a result of cities trying to make recycling easier. Just a decade or two ago, residents sorted their recyclables for curbside pickup. But in order to increase household recycling rates, cities moved to "single-stream" recycling: One bin for everything -- newspapers, glass, aluminum, tin, plastic and cardboard. Compliance is easier for residents and, since the city only needs one truck to pick up everything, it saves money. But the downside is that someone eventually does have to sort out the paper from the cardboard and the glass and cans from the plastic. It makes the process more expensive because now instead of just one household sorting it out, employees at a waste facility and big, costly machines do it. It also leads to more contamination and a decrease in the quality of the materials recovered. That, in turn, matters to the people who buy bales of recycled material and turn it into new products.

Another challenge is that the materials manufacturers are using are becoming more complex. "We are creating packages that are hard to recycle," Hoover says.

Take a juice carton. Five years ago that carton was made of one kind of plastic or paper. Today, it's typically made with two or more types of plastic, an aluminum layer and a paper layer all fused together with adhesive. "It makes a great lightweight, non-breakable, often stable package," Hoover says, "but what it does on the recycling end is kind of stymie the recycling process." It's not only hard to separate out the different levels of packaging, but it's also expensive to get the machinery that does the separating. Even then, not every piece is recyclable.

These increasingly complex materials are costing waste companies millions of dollars. Richard Coupland, vice president of municipal sales for Republic Services, notes that five years ago, the largest fraction of what his company was selling was newsprint. Today, he says, "there's no supply and there's no demand for it, and yet we bought huge pieces of equipment to extract newspaper and are still paying for those."

Extraction aside, the value of recycled products has plummeted over the past five years. *USA Today* recently reported that the North Carolina Department of Environmental Quality found that "the average market value of a ton of mixed recyclable material arriving at a recovery facility in the state dropped from just over \$180 in early 2011 to less than \$80 at the end of 2015." The fluctuating prices can be blamed, in part, on changing streams of materials. But another culprit has been the low price of oil, a key ingredient in the manufacture of plastics. As a result, plastic bottle manufacturers are finding that it's cheaper to produce new bottles rather than use reclaimed plastic.

All of these factors have come together to upend the market for post-consumer goods. The changing materials are forcing recyclers to make costly upgrades to the machinery in their facilities. Meanwhile, the fluctuating value of recyclables is eating into their profits. "That's the crux of the problem," says Coupland. "People don't appreciate how complicated the processing and changes in these material streams have become. There's this assumption that [the cities are] just going to give us their recycling for free and we're going to make money off of it."

That's why waste companies such as Republic Services and Waste Management want to change how they are paid. In some markets, they've restructured their contracts. In Houston, for example, the city and its contractor, Waste Management, moved to a fee-based model. "The processor wasn't going to rely on the commodity price

to cover its risk anymore," says Harry Hayes, director of Houston's Solid Waste Management Department. "They wanted a processing fee to cover their costs."

It was a rude awakening for the city, says Hayes. It was the first time they ever had to pay for recycling. But it's a change that is likely coming to all municipalities. For now, several cities are raising household recycling fees to offset the reduced value of recovered commodities. In March, the city council in Ocala, Fla., approved a rate increase for its recycling program. The city's recycling processor, which sells off the scrap paper, plastic, aluminum and other materials it collects, has not been able to cover its costs to collect and process items. As a result, the city has had to back pay the company \$450,000 annually to make up the difference.

A restructured contract wasn't the only recycling surprise Houston got last year. Waste Management announced it would no longer pick up glass. Glass has always been problematic. In single-stream programs, it is virtually impossible to prevent it from breaking. It cracks apart when residents drop it in their bins or when it is thrown into the recycling truck or when it gets compacted or even when it gets dumped onto conveyor belts to be processed. Broken glass means that not as much gets recycled. What's more, the shards can contaminate other recyclables, such as paper.

For this reason, several communities have recently dropped glass from curbside recycling programs. In Houston, the announcement was met with anger from some residents. That public pressure resulted in a partnership with the largest glass recycler in North America, Strategic Materials Inc. The company, which had relied on Houston's curbside recycling glass, was also upset by the decision to eliminate glass from the city's curbside bins. It was receiving about 1,000 tons a month of recycled glass from Waste Management, according to Curt Bucey, executive vice president of Strategic Materials. Without the curbside program, he figured that volume would shrink to 100 or 200 tons a month.

To solve their mutual problem, the city and the company will set up 10 drop-off boxes throughout Houston. The solution may not be ideal -- collection of glass has dropped off by 75 percent -- but it's a start, says Hayes.

While cities continue to come up with unique ways to keep recycling programs going, there's another player that could help streamline the process: producers of goods. Producer responsibility, as it's called, is a tool used in Europe and, to a lesser extent, in Canada. It essentially says that the manufacturer of a product should be involved in the process of disposing of it. In the U.S., the burden of paying for recycling falls on taxpayers, cities and processors because the government has largely not required manufacturers to take responsibility for the disposal or recovery of what they make and sell. There are some notable exceptions: Producers have responsibility for hard-to-recycle materials, such as electronics, batteries, carpets, paint and other hazardous materials. "What we haven't done," NRDC's Hoover says, "is try producer responsibility for those materials that are already collected in our municipal recycling system and shift that system so that it is financially and to some degree logistically managed by the producer."

In Ontario, Canada, for example, officials are testing out producer responsibility with medical equipment. Prescriptions for injections, for instance, come with a return package. Similarly, here in the U.S., 25 states and the District of Columbia have electronic recycling laws that, in some cases, require manufacturers to collect and recycle their products.

Hard-to-recycle plastic bags are automatically thrown out at recycling facilities. (David Kidd)

In place of producer responsibility, some states and cities have tried bans on certain types of hard-to-recycle material. California, for instance, does not allow groceries to distribute single-use plastic bags, and the state is expected to follow in San Francisco's steps and ban polystyrene, or Styrofoam, food containers. It's not that plastic bags can't be recycled. They simply require different processing equipment than many curbside recycling programs provide. And Styrofoam, made up mostly of air, isn't worth the cost of recycling. "Manufacturers are constantly determining what's going to end up in the landfill or not," Hoover says. "They should hold some of the financial responsibility and some of the oversight so it's not all landing in the city's or taxpayer's pocket."

But laws mandating cooperation are hard to pass in today's political climate. Arizona, Idaho and Missouri recently forbade localities from regulating the sale or use of plastic bags, including the imposition of any fees or taxes. That's why people on all sides of the industry are stressing the need to step up efforts to educate the public about recycling. It's the best way, they argue, to reduce contamination rates, which in turn will reduce costs for the processor.

Indeed, education efforts are not only proliferating, but some states are also lending their localities a helping hand. Massachusetts, for instance, offers on its website a "Recycling IQ Kit," which provides a step-by-step guide for localities on how to improve recycling. As Gunther Wellenstein did in Lowell, local officials are advised to identify what the specific problems are or what the top five problem materials are in the city's recycling program, and to send out info cards to residents that break down what's recyclable and what's not. The city should follow up the mailer with a curbside audit in which feedback is provided to the homeowner either in person or by tagging bins. Finally and crucially, it should track and evaluate the results and report them to the state so it can build a database.

Public education can go even further. Hoover would like people to recognize that recycling, unlike garbage, has the potential to generate revenue for government even with all the challenges and changes underway. For one, recycling creates jobs compared to disposing of materials in landfills. "If we were able to get to a 75 percent recycling rate nationally," she says, "we would create something like 1.5 million jobs, reduce pollution and save energy -- all the environmental benefits we haven't even talked about."

As of 2016, according to the *Curbside Report*, there's a lot of work still to be done. Only 53 percent of the U.S. population has recycling automatically provided at their home. Of those who do, fewer than half are served by recycling carts, a collection mechanism long recognized as fundamental to maximizing collection opportunity and efficiency.

Hoover points to the effectiveness of a fully rounded program. In San Francisco, the recycling rate is closing in on 80 percent. The city has worked with the industry to deal with the current challenges. But it also has robust education programs, and everyone in the city -- especially multifamily buildings and businesses -- has easy access to recycling services. Materials that are difficult to recycle have been removed through bans and other programs. "Even with the existing challenges," Hoover says, "San Francisco shows it's possible to get to the point where you are doing way better than that national average of 35 percent."

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China's Foreign-Waste Ban Could Have Recycling Repercussions in America

BY: [Elizabeth Daigneau](#) | January 2018

Starting this month, China will no longer buy most of the paper and plastic U.S. consumers recycle. In July, Chinese officials told the World Trade Organization that they will limit the entry of "foreign waste" by banning two dozen types of materials that often contain "dirty wastes or even hazardous wastes."

The announcement has thrown recycling programs across the country into turmoil. With China out of the picture, American waste and recycling firms are scrambling to find new buyers for the scrap they collect from curbside bins. For many years now, China has been the largest global importer of most recyclable materials. The U.S. alone exported about two-thirds of its wastepaper and more than 40 percent of its discarded plastic to the country last year. China plans to replace the materials it imports with recycled material collected at home.

In a statement on its website, the Oregon Department of Environmental Quality said the announcement, "coupled with earlier import restrictions on these materials, has severely disrupted recycling markets worldwide with major impacts in Oregon." The Washington State Department of Ecology struck a similar note. "In the short term," a statement on its website read, "more potentially recyclable materials are likely to go to the landfill because no market is available for them." But both agencies urged residents to continue recycling as normal.

While there is no denying the ban will have serious repercussions on recyclers and recycling programs, many observers see China's decision as a golden opportunity. Some U.S. paper mills that use leftover paper as pulp for the making of cardboard and other products, for example, will benefit from the ban. "America has an endless supply of waste and it just got more endless," Anthony Pratt told *The Wall Street Journal*. Pratt is the executive chairman of Pratt Industries, which uses 100 percent recycled material to make boxes for Amazon, pizza joints and other companies.

In addition to a business opportunity, the decision could boost municipal programs. Phoenix's waste innovation hub, the Resource Innovation Campus, focuses on what city leaders call the "5 R's": reduce, reuse, recycle, reconsider and reimagine. The idea is to turn, say, a beer bottle into new glassware or compost into natural gas. While China's ban will certainly affect the city's recycling efforts, it also plays into the hub's larger goals of reusing and reimagining waste. "If you can come up with a way to use Phoenix's garbage," Mayor Greg Stanton said recently at a *Governing* event, "it's yours."

But perhaps the biggest opportunity, observers say, is for cities and recyclers to finally address the contamination issue that led in large part to China's ban. U.S. consumers regularly throw unrecyclable materials into their curbside bins: items that range from the mundane -- plastic forks, metal coat hangers, trash bags and even food waste -- to the outrageous -- diapers, syringes, appliances, bowling balls, doggie beds. In most cities, about 30 percent or more of what residents throw into their recycling bins cannot be recycled as is or at all. To fix the problem, more and more cities have been launching "recycle often, recycle right" campaigns to educate residents on what's recyclable and what's not. If they don't want to see their hard work end up in a landfill, they might have to step up those efforts.

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Since China Banned Most Foreign Waste, U.S. Recyclables Are Being Dumped in Landfills

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Oregon is serious about recycling. Its residents are accustomed to dutifully separating milk cartons, yogurt containers, cereal boxes and kombucha bottles from their trash to divert them from the landfill. But this year, because of a far-reaching rule change in China, some of the recyclables are ending up in the local dump anyway.

In recent months, in fact, thousands of tons of material left curbside for recycling in dozens of American cities and towns — including several in Oregon — have gone to landfills.

In the past, the municipalities would have shipped much of their used paper, plastics and other scrap materials to China for processing. But as part of a broad antipollution campaign, China announced last summer that it no longer wanted to import “foreign garbage.” Since Jan. 1 it has banned imports of various types of plastic and paper, and tightened standards for materials it does accept.

While some waste managers already send their recyclable materials to be processed domestically, or are shipping more to other countries, others have been unable to find a substitute for the Chinese market. “All of a sudden, material being collected on the street doesn’t have a place to go,” said Pete Keller, vice president of recycling and sustainability at Republic Services, one of the largest waste managers in the country.

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Recycling Is Crashing? Far From It.

China's restrictions have certainly had an impact, but there's plenty that local governments can do to keep it viable.

BY: [Neil Seldman](#) | August 20, 2018

The drastic import restrictions on recycled materials that China began imposing last year have thrown American cities for a loop. Prices have fallen for recyclable materials, and some jurisdictions have had to landfill materials for short-term expediency. For the most part, the response so far has been to improve the quality of single-stream, mixed collections through technology and increased labor, reject some materials such as glass and plastic film, and try to educate residents on just what they should and shouldn't be putting in the curbside bin.

Cities can and should do much more to weather this storm and become resilient against future challenges than simply telling Americans that they don't know how to recycle. Recycling is not crashing, and it is not disappearing. Even as cities' recycling operations become more costly, on a per-ton basis recycling and composting can be one-third cheaper than disposal via landfill or incinerator.

China has been the major importer of U.S. recyclables for the past two decades, and market declines due to China's wall of extra inspections, limited ports of entry, limited import and export permits, and prohibitively restrictive specifications have certainly had an impact. But cyclic declines as serious or worse than those affecting today's markets have come and gone, and recycling survived and prospered.

In fact, demand has already rebounded in the wake of China's new restrictions. A 32 percent tariff on Canadian newsprint will prop up domestic recycled newsprint prices. New capacity for mixed paper and corrugated cardboard will be on line in a year in Georgia, Ohio, Oregon and Wisconsin. China is not restricting "furnace ready" recycled-plastic pellets from the U.S.; orders have soared to 300 to 500 million pounds per month. New capacity for processing multiple grades of recycled plastics is opening in Ontario, and another plastics processor is moving from China to Illinois.

In fact, so dramatic is the scramble for "clean stream" U.S. recyclables -- those that are cleaned of food waste and pre-sorted before collection -- that caution is needed. Will the export of processed recyclables to the demands of Asian economies restrict access for domestic manufacturers? U.S. and Canadian paper manufacturing declined precipitously when the Chinese bid up the markets for recycled material in the 1990s and 2000s. Domestic recycling mills could not get enough paper to merit investment.

Based on these realities, the waste industry analyst Chaz Miller [advises](#): "Keep calm and recycle on: The sky is not falling." To keep the recycling engine humming, here are some things that cities, towns and counties can do to recover more wealth from their residents' discards:

- Replace sloppy, high-contamination, single-stream recycling with clean-stream or dual-stream (separating paper from other recyclables), [as was recently accomplished in Oakland, N.J.](#) Well-sorted materials always find markets.
- Implement curb-sort recycling, [as Fayetteville, Ark., has](#). Sorting materials at curbside is the best method for educating households, since non-recyclable items are returned in the recycling bin.
- Adopt unit pricing for nonrecycled household waste. [This "pay as you throw" approach](#) can double the recycling rate in one year, reducing overall waste by up to 40 percent. More than 7,000 towns and cities in the United States now use this system. Worcester, Mass., has used it since 1993 and saved \$10 million in avoided incineration costs.
- Process recovered materials in properly scaled in-town processing facilities to reduce transportation costs and create local jobs.
- Contract directly with end user markets; contract with commercial material recovery material facilities to meet specifications.

- Focus on composting food discards, including soiled paper, with yard debris. This material is at least one-third of household waste. Markets are local and year-round.
- Use glass locally as clean fill or process it into abrasive material for local industry.
- Establish and recruit enterprises that repair and resell bulky waste items such as furniture and appliances.

In short, the actions China has taken do not ring the death knell for U.S. recycling -- far from it. Rather, it's an opportunity for our cities to realize the full potential of appropriate, sustainable and circular development, creating wealth from within.

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