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Metals and some plastics are worth separating, but the rest of it is costly and can hurt the environment.



Garbage bins proliferate in Denmark. ALAMY

Most Recycling Is a Waste

By Bjorn Lomborg

I recently finished an ice cream in Copenhagen and found myself stumped at the trash bins, wrapper in hand. Denmark sorts its garbage into 10 official categories, so that throwing something away becomes a small bureaucratic exam. The bins embody an idea that has gone too far: that more recycling is always better.

Modern enthusiasm for recycling was turbocharged by the 1970s panic that the world was running out of resources. But the biggest item households recycle is paper, and we aren't running out of trees.

The case for recycling then shifted to protecting the environment. That argument has some merit. Recycling plastic can save oil. But heavy glass has to be collected, trucked, cleaned and remelted. Almost anything can be recycled if you throw enough money and energy at it. But are the benefits worth the cost?

Valuable materials were long recycled without government programs to make it happen. A century ago, scrap supplied about 30% of America's copper, close to the 32% recycled globally today. Iron, steel and construction debris are recycled because businesses find it profitable.

Yet governments have increasingly pushed citizens to recycle paper, glass and plastics worth less than the cost of collecting and processing them. Sometimes the environmental benefits made up the difference. But over time the means became the end.

Governments in Europe and North America now chase suspiciously round numbers. The European Union sets mandates for 90%, 85%, 80%, 75%, 70%, 65%, 60%, 55% and 50%, covering everything from beverage containers and packaging materials to municipal rubbish. In 2010 Scotland promised "zero waste" with 70% recycling by 2025. Its household recycling rate stands at 44%.

The world now spends more than \$250 billion a year managing municipal waste, perhaps \$50 billion of it on recycling. That money can't go to policies that do more good.

A new study from Denmark's Environmental Protection Agency shows the trade-off. Mechanical post-sorting of household trash nationwide would lift Denmark's recycling rate by almost 5 percentage points toward EU requirements. By the usual scoreboard, that is a win.

But the costs far exceed the benefits. Each ton of carbon dioxide avoided would cost nearly €4,000. That's almost 50 times the European carbon price, meaning emissions can be cut far more cheaply elsewhere.

Even California's governor has begun asking whether another recycling rule is worth the cost. Last week Gavin Newsom vetoed a bill tightening requirements for recycled-content claims, having concluded that it would bring "little benefit."

Recycling for its own sake can do harm. For decades, rich countries collected low-value plastic and shipped more than a quarter of it to China and other poorer countries that promised to recycle it. Much of it was never recycled. One U.S. study found that about one-fourth of exported plastic scrap was unusable, and half of that was badly managed. This trade fell sharply after China's 2018 import ban, but even in the years immediately afterward perhaps 5% to 10% of land-based plastic entering the ocean came from plastic that wealthy countries had virtuously collected for recycling.

Some recycling clearly pays, but the question is how much. Japan, which publishes the world's best data on municipal waste, offers an answer. One peer-reviewed study estimated the socially optimal recycling rate—the point at which benefits, including environmental ones, most exceed costs. It was 10%. A newer study finds that municipal management costs alone were minimized at 7.6%. Recycle less and you miss cheap gains from metals and plastics. Recycle more and you pour ever greater resources into ever smaller gains, leaving society worse off.

A much-cited U.S. analysis imagined a suburban county designing its waste system from scratch. It tested every combination of recycling, landfill, incineration and anaerobic digestion. The best social outcome? Collect everything in one bin, send it to a central sorting plant, pull out recyclables and organics by machine, turn the organics into biogas and soil amendment, and burn the rest. Roughly half the waste ends up incinerated, 38% digested and 12% recycled. One bin instead of 10, with the best mix of low cost and environmental benefit, delivered by machines rather than by hectoring households. Official accounts ignore a cost every household pays: the time spent sorting. Peer-reviewed studies from Sweden and Finland find it takes 26 to 29 minutes a week per person. Value that time at half the minimum wage in each country and it comes to €43 billion to €47 billion a year across the EU, about as much as the entire cost of Europe's municipal waste system. Across the Organization for Economic Cooperation and Development's member states, it amounts to \$111 billion to \$123 billion.

Recycle what is worth recycling. Then throw away the idea that more recycling is always better.

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