

THE FUTURE OF WASTE

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MUNICIPAL recyclers and solid waste managers often see composting as the feeble step child of resource management. In fact, recycling biodegradable organics was the big recycling success story in the United States during the 1990s.

Understanding the fundamental difference between community-generated organics and manufactured products and packaging is a key to achieving sustainable production and consumption systems. In the future, recycling of community-generated organics will increasingly become the centerpiece of municipal waste management. This is because community-generated organics will be the only material left. Products and packaging will have found their way back to the marketplace without ever becoming part of the municipal waste management system.

The world envisioned by Bill McDonough, Michael Braungart and a growing number of Zero Waste advocates distinguishes between two basic types of resources. "Technical nutrients" are recyclable and reusable products that should be designed to remain in the industrial cycle perpetually. "Biological nutrients" are materials that can be safely cycled back into the biosphere via composting. The keys to economic nutrition are keeping biological and technical nutrients separate, so that each can be fully "up-cycled" to remain in the economic food chain, and phasing out unsafe and mixed products.

Interestingly, the U.S. Environmental Protection Agency (EPA) got it right decades ago when they started tracking what we call "municipal solid waste" (MSW). EPA separates municipal waste into basic categories analogous to technical and biological nutrients — product-related wastes and non-product wastes. Product-related wastes include all the durable goods (appliances, furniture, books — anything that lasts over five years), nondurable goods (newspapers, disposable diapers —

anything that lasts less than five years), and packaging. Nonproduct waste materials include food scraps (about 11 percent of our total trash pile), yard trimmings (another 12 percent) and a small amount of miscellaneous inorganic waste (1.5 percent).

In contrast, municipal waste a century ago (1905) consisted of household ashes from cooking and heating (75 percent), kitchen scraps (16 percent) and miscellaneous rubbish (7 percent). The striking fact about the evolution of America's waste over the past century is that product waste has mushroomed from obscurity to dominance. The ashes are gone, but the "miscellaneous rubbish" (today's consumer products and packaging) has swollen to take their place. Today, product-related wastes account for 75 percent of municipal discards by weight, and almost 90 percent by volume, according to EPA. And in the process of this shift over the last century, the municipal infrastructure created to deal with waste has become an unintended subsidy for industries making products that are designed to become waste, perpetuating the Disposable Society.

HOW PRODUCT RECYCLING HAS FAILED

A decade ago, we congratulated our cities for introducing curbside recycling. We saw this as an important step in the right direction. Instead of throwing things away, our cities now treated waste as a resource. Recycling has become a civic responsibility that Americans practice more faithfully than voting. We continue to press our elected officials to take further steps in this direction, like collecting more plastics.

The broad popularity of municipal recycling is often taken as a measure of our success in sustainably redirecting our waste. But conscientious citizens need to grapple with some troubling facts. While it is still better to

recycle than to throw everything in the trash, we need to be realistic about the current state of recycling in America. The numbers show that our community recycling programs are failing to deal with our waste effectively. Many of the products that we think are “recycled” by our community programs are actually “down-cycled.” Paper is turned into low-value products like cattle bedding and insulation. Recycled glass is crushed and used in construction as a gravel substitute (a complete write-off of the energy that was invested to turn gravel into glass in the first place). Plastic containers come back as textiles or throwaway garbage bags — if they come back at all.

The generation of product-related wastes increased significantly during the curbside recycling era, at a rate faster than population growth. According to the EPA, the total quantity of products and packaging generated as waste in the United States increased nearly 20 percent between 1990 and 2000, from 146.5 million tons to 174.7 million tons.

Recycling has not turned the tide of waste. Even after the enormous exertions of America's cities and towns recycling bottles, cans, newspapers and other consumer products, seventy percent of the products we buy are still going to landfills and incinerators. The total quantity of throwaway products and packaging going to America's landfills and incinerators was actually larger in 2000 than in 1990 (121.3 million tons, compared to 117.5 million tons).

... WHILE ORGANICS RECYCLING HAS SUCCEEDED

But it's not all bad news.

Yard trimmings diversion is the real recycling success story of the 1990s. The amount recovered for composting has grown nearly four-fold in the United States since 1990, from 4.2 million tons to 15.8 million tons. Today, 57 percent of the yard trimmings generated in America's cities and towns are recycled (compared to a 30 percent recycling rate for products and packaging).

And here's a startling fact. Unlike product-related wastes, which have grown at the same pace as the economy, the quantity of non-product, organic wastes that we generate has

not increased in the past ten years. In fact, it has *declined* by 1.6 million tons, from 58.7 million tons to 57.1 million tons. This is despite a U.S. population increase of 13 percent during the same period. The EPA attributes this decline to the spread of backyard composting and to ‘grass-cycling’ (leaving clippings on the lawn rather than bagging them up for collection). In many places, yard trimmings cannot be put out with the trash.

THE EVOLUTION OF THE DISPOSABLE SOCIETY

Why is it that product wastes continue to grow out of control while our nonproduct wastes decline? And who should be responsible for which wastes? To answer these questions, it helps to put municipal waste into historical perspective. At the approach of the 20th century, the rapid industrialization of the previous century led to urban squalor. People were crowded together in tenements, throwing their garbage into the streets. But a dedicated urban reform movement helped to establish municipal sanitation departments. Uniformed crews began to provide convenient collection and disposal of municipal waste. The system was overseen by municipal engineers who convinced local elected officials to invest in modern waste disposal technologies such as “sanitary” landfills, waste-to-energy combustion facilities and recycling plants.

It only seems sensible, when you think about it, that there would be an explosive growth in throwaway products and packaging. Municipal waste management was provided as a public service, perceived by citizens as a free resource. There was no incentive to economize on waste either at the household level or, more importantly, in the marketplace. Producers of consumer products have never thought twice about designing their products to be thrown away. It started with the convenient “no deposit no return” pop can that consumers were urged to toss in the trash rather than return to the store to be refilled.

And it continues today with a new generation of throwaways: consumer electronics. The personal computer is the pop can of the cyber age, a disposable container for quickly obsolescing information technology. Computer makers have shipped hundreds of millions of units *without ever a thought of what*

would happen to them when the newer, better, faster version became available. And it is local cities and towns that are expected to bear the brunt of the problem. These computers are treated as "municipal waste," the responsibility of local governments, managed in a system that was designed a century ago for ashes and food scraps.

THE CRADLE TO CRADLE FUTURE

During the 1990s, while North American cities and towns were beginning to budget for recycling, there was a quiet policy revolution underway in Europe and the Canadian province of British Columbia. There, governments and a handful of citizens were questioning the century-old assumption that local communities should clean up after the Disposable Society.

A new waste policy known as Extended Producer Responsibility (EPR) has led to the adoption of laws requiring any company that sells a designated consumer product to provide 'cradle-to-cradle' take-back and recycling. In British Columbia, these laws have been introduced one product category at a time. First the producers of paint were called to the table and required to set up a program to take back and recycle leftover paint. Producers of pesticides, pharmaceuticals, fuels and paint thinners were next. Then all beverage producers except the dairies were required to implement deposit refund programs for their empty containers. Most recently, it was the producers of packaged motor oil and oil filters. Soon it will be tires and batteries. The government of British Columbia just announced that it will follow Europe's example and require

producer take-back and recycling of electronic products early in 2004.

To understand the future of waste and who will be responsible for managing it, it is necessary to distinguish between wastes that are products (technical nutrients) and wastes that are organic materials (biological nutrients). It is also necessary to distinguish between our roles as citizens and our roles as consumers.

It is reasonable for citizens to take responsibility for managing community-generated nonproduct organic waste such as yard trimmings and, arguably, food scraps. But it is ineffective for citizens to spend our tax dollars managing product waste. Responsibility for product waste should be shared by participants in the market system, which includes producers and consumers. The party with the greatest ability to reduce life-cycle impacts — typically the brand owner who controls product design — should have primary responsibility. Extra costs are indeed ultimately borne by consumers, but as product design is improved, costs will go down.

Assigning responsibility to producers and consumers increases efficiency by bringing product waste management into the market system. It also frees up civic funding for projects that improve the quality of life at the community level. In the future, cities and towns will devote their resources to the operation of state-of-the-art composting and sewage treatment systems, not to mention libraries, parks and schools. It will be the dream come true of those 19th century pioneers of waste management who established the first municipal curbside collection programs for ashes and kitchen scraps.

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