

Germany has a recycling system unlike anything we know in the United States. On prior visits I had observed this already, but this time it hit home. Hotels don't dispense tiny pieces of soap wrapped in paper or miniscule shampoo bottles; instead, a refillable plastic bottle is mounted near the bathroom sink and another in the shower, dispensing a combination soap/shampoo at a squeeze. A sensor turns off all lights instantly, once hotel guests have left the room.

Grocery-store plastic bags do not exist; instead, shoppers bring their own baskets or cloth bags for their purchases, though cloth or heavy-plastic shopping bags are available for a price. Beer cans, plastic bottles, and glass bottles carry a substantial deposit that is refundable; hence, consumers return all of these to stores that include fast-food joints at train stations.

All plastic wrapping is recycled under the "green-dot" program, including what's used to hold together six-packs of soft drinks, water bottles, or juice bottles. Yellow bags and bins are provided for packaging items marked with the green-dot logo; another bin is for cardboard packaging that bears the blue dot. Gray bins are for things like cigarette butts and disposable diapers that will be incinerated.

Producers pay for all the packaging they generate, be it plastics, aluminum, tin cans, or styrofoam. In addition, producers are responsible for the recycling of their material. They employ the trucks and drivers that pick it up and the workers who sort it, writes Charles Moore in *Plastic Ocean*. In spite of high population density, Germany is on a deadline to close all landfills by 2020: packaging, a major landfill component, has been dealt with effectively via the dot program.

Recycling begins with consumer separation. Bottles with a deposit are redeemed at the store; non-deposit glass is sorted by color (clear, brown, green) into neighborhood public bins. Homeowners are provided with green and blue bins for paper and cardboard, brown bins for biodegradables, and yellow bags for material marked with the green dot. Recycling charges to consumers, calculated by weight, apply to the brown, blue, green, and gray bins only. My cousin composts her family's biodegradables in her garden.

Trash burning or "thermal processing" is a last resort for unrecyclables. According to Moore, the plastics industry pushed hard for German incinerators to include plastics, claiming it would generate energy that the industry would use. But voters stood behind the science showing that the burning of mixed plastics diminishes air quality. Not only does the burning of plastics release CO₂, which contributes to global warming, but also it releases atmospheric dioxins and furans, some of the most toxic chemicals known. "Even the newest, fanciest incinerators send traces of dioxins and furans into the air," writes Moore. He condemns the incinerators on large ships that burn trash, including plastics, generated aboard. Their smokestacks often lack scrubbers to remove harmful emissions. From an inspector at the German port of Hamburg he learned that protocols demand preheating the trash ovens to ensure complete incineration, but operators often load the trash first. This results in lower temperatures and incomplete incineration, especially at the center of the heap. Since it is legal to dump the resulting ash in the ocean, the slag (not legal for dumping) gets disposed with the ash, which accounts for some of the marine debris Moore has examined.

In Germany, people who remodel their homes are under strict regulations for disposing used tiles, stones, wood debris, etc. Old furniture and electric appliances, too, are recycled. Homeowners call the appropriate agency for a pick-up, which is cost free. No one complains that CFLs are state mandated: CFL use appeals to the German sense of frugality; additionally, consumers are eager to help reduce global warming.

When my travel companion (my cousin) and I rented a “vacation flat” for a few days in Berlin, I found the various bins neatly enclosed within a chain-link fence, accessible through a sturdy door. The bins for biodegradables bore the logo “extremely valuable.” Into it apartment dwellers had deposited coffee grinds, fruit and veggie peelings, wilted flowers, etc. I found another bin that held things like electric blenders, coffee machines, pillows. Practically every street features a bin for used clothing, and another one for shoes.

The level of energy efficiency in German and Swiss homes is astounding. The homes are so well insulated, they require very little heating in the winter and no air conditioning in the summer. Older homes have been upgraded to higher standards. I observed one such project: outside walls being reinforced with Styrofoam building blocks that, once covered with plaster, looked just as modern as any outside wall, except that the windows appear recessed. Roofs are covered in tile, red or slate-gray in color, plus solar panels. The material for your roof, the plaster and color of paint for your house, the energy efficiency of your windows: all must conform to local standards. So does remodeling of any kind. My cousin’s son, who lives in Switzerland with his family, had his house built entirely of wood, one layer on the outside (plastered over), another on the inside (covered with drywall), with sheep’s wool as insulation in between, hermetically sealed to ward off mice. Triple-paneled windows make for maximum energy efficiency. What little heating is required comes via wood-burning or pellet stoves. In the absence of commercial logging, German and Swiss residents obtain wood cheaply from local forest services.

German green-dot compliance programs have been in place for more than twenty years. They are trademark-registered and can be licensed for use by countries around the world. American breweries and soft-drink companies comply with the programs in Germany, yet leave home-base recycling to consumers and municipalities. Just now I am holding beer bottles bearing the legend of a deposit: five cents in some states, ten cents in California, yet no store will accept them. Twenty years ago, all such bottles could be returned for refund.