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## Recycling Revolution

Jerry Grillo published June 2008

Reclaiming waste is good for the environment – and it can be good for the economy, too. But experts say Georgians are missing opportunities, burying big dollars in our landfills.

Every time she arrives at the grocery store checkout counter Judy Gordon is given the same choice we all get: paper or plastic. And she always chooses neither.

“If I had to choose, I guess I’d go with paper because the plastic bag is petroleum-based,” says Gordon, who teaches biology at Augusta State University. “But I always bring my own bag.”

Gordon wants to leave the world the way she found it, or in better condition, yet she knows that completely erasing mankind’s environmental impact is an impossible dream.

“You can’t eliminate it. But you can try to make less of a negative impact, you can consume less and reduce your carbon footprint as much as possible,” Gordon says.

So, she lives mindfully. She conserves water and energy. She volunteers, serving as co-chair of the Savannah River Group, part of the Georgia Sierra Club chapter. And she recycles everything she can.

Gordon is like thousands of other Georgians who pick through their trash, obeying the mantra, “Reduce, reuse, recycle,” in the uphill battle to limit the use and growth of landfills and keep Georgia green, through participation in municipal recycling programs.

Recycling waste, it turns out, is not only good for the environment – helping to conserve water and energy, reduce greenhouse gas emissions, prevent toxic materials from festering underground. It can also be good for the economy. But we Georgians have a tendency to throw out the baby with the bathwater.

“We’re burying big dollars in our landfills. Whether you’re talking about paper, plastic, aluminum, it’s all going in the ground. It’s like throwing money away with the trash,” says Lisa White, materials manager for Atlanta-based SP Newsprint. “All of those materials have end markets in Georgia, companies that can turn those things into other products.”

Old news is good news for White, who secures the feedstock for SP Recycling, a division of the newsprint company. SP brings in over 800,000 tons of old newspaper a year to its mill in Dublin, and recycles it into new newsprint.

Recycling a ton of newspaper saves enough electricity (vs. creating newsprint from virgin materials) to heat a home for six weeks. But there are environmental and economic tradeoffs. Georgians throw 320,000 tons of newsprint into landfills each year, which means SP has to truck tons of old newspapers from all over – at least a 500-mile radius, says White. That’s expensive, what with diesel going for about \$4 a gallon, not to mention the resulting carbon emissions from all those road miles.

“What goes into Georgia’s landfills is about 40 percent of what we use on an annual basis,” White says.

And newsprint is just one drop in the Georgia waste bucket. About 2.6 million tons (based on curbside recycling studies), roughly 40 percent of the stuff Georgians toss into landfills, consists of secondary commodities – recyclable materials that have end markets within Georgia. This came across in a 2005 study by the Georgia Department of Community Affairs (DCA) and business-consulting firm R.W. Beck, which showed that Georgians were throwing opportunity out with the trash.

“This was a wake-up call, a real eye opener, and not only because of the lost opportunity to do the right thing for the environment. Georgia is second only to California for the number of companies that make products out of recycled materials, and we were just throwing out massive quantities of useful stuff,” says Randy Hartmann, director of DCA’s environmental management office.

The February 2008 market value of all of that useful stuff – namely paper, glass, metal and plastic – is more than \$300 million. Recycling just 1.7 million tons of the stuff would conserve some 7 million barrels of oil. Taken together, the energy and commodity values alone represent more than \$1 billion a year.

“Something is wrong with that equation. We can use what we’re throwing away,” Hartmann says. “So when we talk about recycling, we’re talking about protecting the environment, but we’re also talking about economic development.”

### **Golden Garbage**

Georgia already was becoming a poster child for runaway growth in 1990 when the General Assembly

passed the Comprehensive Solid Waste Management Act. More people meant more garbage, and the measure sought to reduce per capita municipal solid waste 25 percent by July 1, 1996.

That didn't happen for a number of reasons. For one, municipal recycling programs cost money and like so many other environmental initiatives in the past, it fell low on the public service totem pole. It happens at local levels and statewide – the 2005 General Assembly totally removed the 25 percent goal, in favor of the nebulous dictum that “every effort be undertaken to reduce” waste.

Georgia has increased the volume of waste it accepts from other states (about 1.7 million tons today, compared with 194,000 tons 10 years ago). Meanwhile, municipal recycling programs, in spite of the obvious environmental benefits, declined from 1988 through 2004, according to DCA's research, and that bothered Hartmann.

“The disposal activity in the state was growing and recycling programs were going in the other direction,” Hartmann says. “We wanted to reverse that trend, so we tried to find out what Georgians were throwing away. What we discovered alarmed us.”

Here's what Georgians throw away each year (these figures reflect industrial as well as residential waste): 1.9 million tons of paper (including 730,000 tons of cardboard, valued at \$84 million); 1.1 million tons of plastic (most is film plastic – all of those grocery bags, but the 90,000 tons of plastic beverage bottles buried in Georgia landfills is valued at \$30 million); 360,000 tons of metal, including 48,000 tons of aluminum cans; and 240,000 tons of glass.

“A billion and half dollars in aluminum cans go into U.S. landfills every year,” says Brenda Pulley, vice president of corporate affairs for Novelis, an \$11 billion global aluminum rolling and beverage can recycling company, with an executive office in Atlanta and a recycling plant in Greensboro, where they recycle more than 5 billion cans a year. “In Georgia the economic value is around \$75 million. That's a lot of cans.

“Frankly, it's cheap to landfill waste. But we want to look at this more holistically, long term. Granted, aluminum is the most valuable thing in that blue recycling box, and we value it as a company. So there is an economic benefit.

“But when you think in terms of energy, there are substantial savings there also. If we recycle just the cans that are consumed in Georgia we can avoid 153,000 metric tons of greenhouse gas emissions – the equivalent of taking 33,000 cars off the road. With aluminum, the energy is invested up front, when the product is first made. We call it an energy bank, because you can recycle it again and again.”

The same is true of glass – it can be recycled indefinitely without any loss of purity or quality, unlike other substances, such as paper. In making new glass, sand must be heated to 2,600 degrees Fahrenheit – a huge consumption of energy. Recycled glass becomes cullet (crushed glass), and uses 40 percent less energy because it melts at a lower temperature than virgin materials. But only 22 percent of the 11 million tons of glass in the municipal solid waste stream gets recycled.

“We make a pound of glass from a pound of glass, and we do that over and over,” says Hazel Mobley, supply manager for Strategic Materials, which has a recycling plant in College Park.

Headquartered in Texas, Strategic Materials is the largest glass processor in North America, selling some 1.3 million tons of cullet each year. “But we can't reclaim enough jars and bottles, simply because there isn't enough being recycled. At this plant we pull from a five-state area.”

Recycled glass also moves quickly. It can go from College Park onto a liquor store shelf in less than a month. But it can also be used in other ways, in sports turf, kitchen tiles or back to the egg as sand for depleted beaches.

“I’ve been in the industry for 15 years and in that time I’ve seen what the technology and level of entrepreneurship has been able to do,” says Gloria Hardegree, executive director of the Georgia Recycling Coalition. “We’re taking many things we didn’t used to think were recyclable, and turning them into new, useful products. In Georgia we have such abundant end markets for using things like recycled paper and plastic that the need to discuss paper versus plastic is less prevalent. We promote choice.”

### **One Word: Plastics**

There’s a famous scene early in *The Graduate*, in which an older businessman pulls the title character, played by Dustin Hoffman, aside for some helpful career advice. He looks gravely into Hoffman’s eyes, saying he has one word, just one word: Plastics.

“There’s a great future in plastics,” he says. “Think about it.”

Apparently, Brett Stallworth was paying attention. Stallworth is co-owner of Nemo Plastics, a 14-year-old plastics processing and brokerage firm with a main office in Atlanta and a 52,000-square-foot processing facility in Gainesville. He spends much of his time on the road, procuring source material that otherwise might sit in a landfill.

After the DCA study came out, when municipal recycling administrators realized there were viable markets within the state, Nemo Plastics is the type of client they had in mind. Stallworth buys from small municipalities such as Roswell and Sandy Springs.

“All of that plastic has value – we pay for it and get paid for it,” says Stallworth, who cut his plastic teeth for eight years at KW Plastics, which has one of the nation’s largest recycling operations.

Plastic is petroleum-based material, and the price of petroleum is at record levels, making for an interesting plastic marketplace.

“When gas prices go up, plastic prices go up, so business has been strong, especially in the past five years, in terms of the amount of material we’re dealing with,” says Stallworth, who says the Gainesville plant is processing 200 truckloads of mainly HDPE (high density polyethylene) plastic a month – think of milk jugs and detergent bottles. “The price for virgin and recycled materials is not that far apart right now, and a lot of companies require that a certain percentage of recycled materials go back into each bottle. Everyone seems to be trying to be eco-friendly.”

Stallworth sells plastic to pipe manufacturers, the nursery industry and the automotive industry. He acquires material in Georgia, but he doesn’t sell in Georgia – most of his business is in Ohio and the Carolinas. But the largest end user of recycled plastic in Georgia is Mohawk Industries, which diverts about 6 billion plastic bottles (polyethylene terephthalate, or PET) from the nation’s landfills.

“One out of every four recycled PET bottles in the country comes through Mohawk and gets turned into carpet fiber at our Summerville plant,” explains Lewis Perkins, Mohawk’s director of sustainable strategies. “The product we can’t use for carpet, we’ll use as filler for pillows, comforters, bean bags and that sort of thing.”

Perkins says Mohawk, like most of its Georgia carpet brethren, is trying to be in the forefront of the green building movement, which is being driven in large part by architects. When architects started asking for eco-friendly products and practices in carrying out their designs, the market started responding.

The American Institute of Architects (AIA) launched “Sustainability 2030” with the goal of reducing carbon emissions generated in the construction and operation of new and renovated buildings. Part of sustainable architecture emphasizes reused or recycled building materials. It all starts on the drawing board.

“Once we determine whether to renovate or build new, then we start thinking about salvaged or recycled materials to include in the design,” says Decatur architect Eric Rawlings, whose residential design projects are featured on the Discovery Network’s Planet Green this summer. “We hope the builder is on board with construction waste recycling and we encourage it as much as possible.”

### **Fueling A Trend**

For its next study, Hartmann says DCA will look at the construction/demolition waste streams and the recycling benefits therein. And he also wants to get a better handle on other forms of usable waste.

Companies such as Marietta-based Molam International, established in 1995, have created a business out of recycling electronics, such as computers, cell phones, TVs and sound equipment. The company has recycled more than 25 million pounds of electronics under contract with the U.S. Environmental Protection Agency, resulting in new products, such as plastic lumber and decorative landscaping stones.

Georgia also has an abundance of organic waste, and some of that is finding a useful purpose above ground. Georgia is positioning itself as a leader in biofuels research and production, especially in the area of cellulosic ethanol – fuel from pine trees, forest waste and agricultural debris, just about anything that grows, because cellulose is the most copious organic compound on Earth.

“We’re working with residues from agriculture and forestry, we’re harvesting waste for fuel; and the carbon footprint of that material is very low,” says K.C. Das, associate professor and coordinator of the Biorefining and Carbon Cycling Research Program at University of Georgia. “Left in the forest to dry, these materials become potential fuel for forest fire. There is a cost in terms of energy in collecting and transporting the material; but, of course, this is not a food source and it does not require irrigation.”

There is real potential in all of the waste we blithely bury – the fallen limbs and brush, the empty beer cans and bottles, yesterday’s news. So now, Hartmann says, “The state is setting commodity-based goals in waste management, and [we do] not base our plans on weight alone.”

In 2017, DCA plans to do another waste characteristic study, but has contracted with a company to check yearly progress. And Hartmann’s office has implemented strategies to make it easier for Georgians to preserve the environment and commodities that may have life after trash.

The state has made \$2 million available to establish collection hubs in rural communities around Georgia. Hartmann has requested funding also for a marketing campaign. But one of the effects of the DCA’s municipal waste study is a statewide emphasis on single stream recycling – in other words, put all of your recyclables in the same bin and let the collectors sort it out.

SP Recycling has been a leader in facilitating the single stream methodology, investing in sorting technology at its Forest Park facility that separates one recyclable from another.

“There are markets for everything. For example, we send plastic to Mohawk, and aluminum to Novelis,” White says. It’s a neat little side business for SP, which sells 350,000 tons of recyclables (not newsprint) to domestic and export markets. The company also provides brokerage and hauling services.

But the emphasis remains heavily on paper.

“Paper is a \$10 billion industry in Georgia, and 15 of our state’s mills use recycled fiber. Nine of them, including our Dublin plant, use 100 percent recycled newspapers,” White says, noting the state’s 25,000 paper industry employees, and the \$1 billion annual payroll.

You’d think the checkout counter choice would be a slam-dunk for White. Not exactly. She remembers putting herself on the spot after being asked to speak in front of a large audience at a plastics conference in Chicago.

“There were all these deadpan faces, these plastics people wondering what this paper woman was doing in front of their group,” White says. “So I told them about a recent experience in the grocery store, when the cashier asked me, ‘paper or plastic?’ I told her I can swing both ways. I’m bi-sacksual.”



All the news that’s fit to reuse: SP Newsprint Materials Manager Lisa White at the company’s Dublin recycling facility

Jennifer Stalcup

