Recycling at Work

Ted Campbell
South Carolina’s comprehensive Solid Waste Policy and Management Act of 1991 addressed a myriad of solid waste issues, from tightening of regulations, to restricting certain materials from landfills, to establishing this state’s 25 percent recycling goal. The act also included a provision to development of recycling markets. Lawmakers wisely recognized that, without adequate manufacturing and consumer demand for recyclable materials and products made from these materials, there would be no home for the tons of newspapers, glass containers, cans, milk jugs, and soda bottles South Carolinians collect each year.

“Market development is the key to making recycling work and realizing the economic potential for the recycling industry.” This definition from EPA’s Jobs through Recycling program makes sense, but what are we in South Carolina doing to make recycling work? The Recycling Market Development Advisory Council (RMDAC), located within the state Department of Commerce, is working on some of the answers.

“Our recycling market development model incorporates various aspects of economic development, business development, community development, product development, and research,” states Gerald Fishbeck, vice president of operations at United Resource Recycling and chairman of the Recycling Market Development Advisory Council. The RMDAC’s basic strategy has evolved over the years, focusing on four distinct areas.

1. Established Recyclables In order to maintain demand for recyclables that are currently collected, a consistent and reliable source of material must be ensured. Items such as paper, plastic, glass, and aluminum typically have ready markets. The RMDAC’s Established Recyclables Committee encourages the increased collection and use of these materials through its involvement in programs such as the Partnership on Plastics Recycling and the Pay-as-You-Throw Partnership, which foster more effective recycling programs in South Carolina communities.

2. Emerging Recyclables Another council committee works to develop markets for emerging or under-collected recyclables. Recycling markets for scrap carpeting, electronics, and mixed paper have been carefully examined during the past year. The committee assisted AlliedSignal with a study for instate recovery and recycling opportunities for carpet. A Residential Mixed Paper Recycling Forum to encourage the recovery of this material within the state was held in Greenville. The council has proposed legislation to make South Carolina a leader in the country by creating a recovery and recycling infrastructure for electronic equipment.

3. Value Added Projects Technical committees of the council are examining new processes to enhance the market value for certain materials. The Oil and Related Products Committee is contracting with the North Carolina Polymers Extension Program to research the use of waste oil bottles to develop new plastic compounds. Even though markets do exist for scrap tires, the Tire Committee focuses on strategies to encourage market diversification and higher value-added uses for processed scrap tires.

4. Recycling Market Development Assistance The business support and technical assistance offered by the Recycling Market Development staff at the South Carolina Department of Commerce round out the program. Last year, 123 recycling businesses, industries, trade associations, and governmental agencies were assisted with market, economic development, regulatory, and financial resources.

Raising the Bar
Materials recovered from established recycling programs in South Carolina are commonly traded in a relatively stable marketplace. Our state is fortunate to include many of the giants in scrap recycling among its list of major industries. Companies like Nucor Steel, Wellman Industries, Sonoco Products, and Stone Container Corporation are leading manufacturers in their respective fields, in both U.S. and world markets. With this huge processing capacity available instate and regionally, programs to recover more of these “raw materials” should continually be encouraged.

Wellman is the largest PET (polyethylene terephthalate) plastics recycler in the world, with a processing capacity of 190 million pounds annually at their Johnsonville, South Carolina, plant alone. With such a huge appetite, Wellman is constantly sourcing additional plastic soda bottles and other PET feedstock. Annual production of PET packaging continues to grow, but the recovery rate on this material remains constant. Our recycling rate nationally and in South Carolina has declined. The South Carolina Partnership on Plastics Recycling hopes to deal with this decline through targeted educational efforts and programs to strengthen the
companies that either collect or process recyclables, or manufacture products with this material, add significantly to our state’s bottom line.

infrastructure to efficiently collect and recycle a wider variety of plastic.

Another strategy to increase overall recycling rates is one that is being implemented in communities throughout the U.S. Pay-as-You-Throw (PAYT) programs, as they are commonly referred to, charge homeowners for waste disposal services based on the amount they throw away. Recycling services are basically offered at no charge, so the homeowners who consistently recycle can control costs and, potentially, save money on their trash collection bills. Results of these programs show dramatic increases in recycling and reductions in waste disposal.

The Pay-as-You-Throw demonstration project has resulted from a unique public–private partnership, led by the RMDAC, to provide technical assistance to select South Carolina communities as they examine issues for implementing cost-effective PAYT solid waste programs in their areas.

Other members of the PAYT Partnership include the South Carolina Department of Health and Environmental Control, the Southern States Waste Management Coalition, the American Plastics Council, the South Carolina Petroleum Council, the South Carolina Soft Drink Association, and the Glass Packaging Institute. Working through the University of South Carolina’s Center for Environmental Policy, these partners will provide technical assistance, educational resources, and workshops for the model communities.

What Can We Do with those Old TVs and Computers?
The recovery of used electronic equipment (computers, television sets, etc.) is a major issue of concern throughout the world. There are two driving forces that have created an awareness of this waste stream. One is the very large volume of such equipment being scrapped. Computer and electronics technology is and has been growing at such a rapid rate that more and more of the older equipment is finding its way into attics, garages, and, eventually, landfills. It is predicted that 55 million whole personal computers and components from an additional 143 million units will be landfilled by the year 2005.

The other primary issue is the potential for contamination through land and ground water exposure to such toxic substances as lead, polychlorinated biphenyls (PCBs), and mercury when this equipment is landfilled. Electronic equipment also contributes significant levels of cadmium, arsenic, zinc, mercury, and selenium to landfill leachate.

The ability to recycle these products more cost-effectively is growing. The Electronics Industry Association has compiled a list of businesses that recycle electronic equipment in the U.S., while new companies such as Oliver Trading Company and Western Micronics are among the growing number of businesses that recover electronic equipment in South Carolina.

RMDAC is proposing an amendment to the Solid Waste Management Act of 1991 to encourage the recycling of electronic equipment. This amendment, expected to be introduced in the 1999 legislative session, would create a funding mechanism to develop an infrastructure in South Carolina for the recovery and recycling of scrap electronic equipment. The electronic-equipment recycling trust fund would support both public- and private-sector initiatives in this area.
Tires “R” Us

Mention the words “scrap tires” to a group of solid waste or recycling professionals, and you’ll spend endless hours debating regulations, fees, scam recyclers, rubber products, and even septic tanks.

South Carolina, like many other states, established a fee on the purchase of new tires to ensure old tires don’t become havens for mosquitoes or create likely fire hazards. The money has been used quite effectively to build a recycling infrastructure in South Carolina. County governments pay a large portion of this waste tire fee to DHEC-approved tire haulers, processors, and recyclers to appropriately manage their waste tires. The notion of companies getting paid to accept a raw material seems irregular, but the economics of recycling waste tires requires some form of tipping fee on the front end. It’s quite expensive to cut up old tires that were made to last 80,000 miles.

Currently in South Carolina, markets for processed scrap tires fall into two categories. Tire chips can be used very effectively as aggregate substitutes in septic systems or as fuel for industrial boilers or power-generating facilities. Tire recyclers such as GreenMan Technologies reduce old tires to two-inch chips that are relatively wire-free in order to satisfy these two markets.

But, according to Michael Blumenthal, director of the Scrap Tire Management Council, we are experiencing a “paradigm shift” in this profession. No longer are we processing and recycling waste tires. Speaking at the recent Southeastern Scrap Tire Conference in Charleston, Mr. Blumenthal stated that “businesses should consider themselves as manufacturers of rubber products from scrap tires.” He added that “prospective tire-recycling businesses shouldn’t rely on tipping fees to make money. Product sales on the back-end should generate the revenue.”

The RMDAC is excited about South Carolina’s prospects of meeting the challenges resulting from this paradigm shift mentioned by Mr. Blumenthal. GreenMan Technologies, which recently purchased the former United Rubber Recycling facility in Batesburg, plans to upgrade their plant’s capacity to allow for a 100 percent increase in their septic aggregate and tire derived fuel (TDF) production.

In late 1999, Santee River Rubber Company will open its new scrap tire and rubber manufacturing facility in Berkeley County to produce fine crumb rubber for the automotive, rubber products, and industrial compound markets.

According to Clarence Hermann of Michelin Tire Corporation and chairman of the RMDAC’s Tire Committee, “Our challenge is to develop further value-added markets for processed tire rubber. Although we support TDF and civil-engineering applications for these products, we need to continually seek market diversification.”

The Tire Committee is gathering new data on rubber asphalt road-paving projects. The results show significant cost savings and increased durability associated with using crumb rubber in certain rubber asphalt applications. The RMDAC is encouraging the South Carolina Department of Transportation to reexamine the use of rubber asphalt in our state’s roads.

Dr. Serji Amirkhanian, Clemson University professor of civil engineering and RMDAC Tire Committee member, has studied the construction of
five different rubber asphalt paving demonstrations in South Carolina. “It works. It was more expensive than conventional methods, but now that the material costs are coming down, there’s no reason not to pursue the construction of more rubber asphalt roads.”

According to the successes achieved in Arizona, California, Florida, and other states, a two-inch overlay of rubber asphalt will use about 2,000 tires per lane mile of pavement. Almost half of South Carolina’s nearly four million scrap tires generated annually could be used to pave the interstate from Greenville to Charleston and back.

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**It Makes Cents**

South Carolina companies that either collect or process recyclables, or manufacture products with this material, add significantly to our state’s bottom line. Nearly 300 companies employ over 10,000 people and add $958 million in value to material that would otherwise be landfilled. It makes sense to support the growth of recycling companies, both from an economic and recycling market viewpoint.

A key element of this state’s economic development program fosters the growth and expansion of our existing industry base, thereby creating wealth for the citizens of South Carolina through increased capital investment and new job opportunities. Recycling market development complements this effort within a specific industry sector, attempting to accomplish these same goals, but principally with the idea of strengthening market demand for recyclable materials.

Additionally, a healthy, growing recycling economy results in the availability of expanded services to other industry. More and more manufacturers are seeking ways to reduce their solid waste costs by recycling certain waste materials. And some industries opt for recycling over conventional waste disposal methods to limit potential liability, even though, in some cases, recycling may be more costly.

**Funding a Great Idea**

Access to capital is a challenge for any start-up business or small enterprise, especially with the consolidation of the banking industry. Recycling firms often have additional barriers in the negative perceptions of investors of the recycling industry. Changing governmental regulations and mandates, new technologies, commodity price fluctuations, and uncertain markets can all make recycling ventures seem too risky for banks or other capital sources. For recycling enterprises to succeed, however, good management, innovative technology and services, and customer demand must be matched with strong financial backing.

Hosting the Southeast Recycling Investment Forum (SERIF) has emerged as a key part of our program to facilitate growth among recycling businesses in South Carolina and the region. These events offer a way for recycling businesses seeking growth capital to present their plans to interested investors. By educating and introducing investors, economic developers, and entrepreneurs, these recycling enterprises will be more readily financed. A well-financed recycling industry will be better-equipped to reduce waste, increase market capacity, and create jobs.

Each year the SERIF has attracted from ninety to 100 attendees, consisting of three distinct groups that include investors and financiers, recycling businesses seeking capital, and state recycling and economic development officials. Of the total thirty-three firms that have presented at the past three forums, seven companies have gone on to successfully achieve their goals for start-up, expansion, or acquisition. According to Bill Miller with Santee River Rubber Company, “The forum set us on the path to finding the capital and state support needed to start our new state-of-the-art tire-recycling facility.”

The SERIF was the first of its kind to focus on investment in the recycling business. Northeast and Midwest recycling market development programs have hosted investment forums, and others are being planned in the Southwest and West Coast regions. The Fourth Annual Southeast Recycling Investment Forum is scheduled for August 23, 1999, and will once again be held in the Charleston area.

**Closing Another Loop**

The success of the recycling market development initiative in South Carolina is due in part to a supportive network of allied programs. By working closely with the South Carolina Department of Commerce, the South Carolina Department of Health and Environmental Control’s Office of Solid Waste and Recycling, Clemson University, the University of South Carolina, DHEC’s Waste Minimization Department, the Southern States Waste Management Coalition, and EPA Region 4, the RMDAC is able to utilize its limited resources to achieve significant milestones. Finally, the commitment, energy and drive of the appointed RMDAC members, along with the support of their employers, ensures the success of the overall program.

Ted Campbell has served as manager for the Recycling Market Development Advisory Council at the S.C. Department of Commerce since 1993.