



Elizabeth B. Crumbley

Today's Trash- Tomorrow's Treasure?

Virginians Realize Savings in Recycling

Written by
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Ann Powers (left) and Alice Lovern of Community Recycling in Pulaski with the aluminum cans they have brought to Radford for recycling. Theirs is one of numerous volunteer recycling programs started by Virginians concerned about diminishing landfill space.

"A volunteer base is necessary for a successful recycling program," says Patricia Katzen, founder and coordinator of Fauquier County's recycling and litter control program and president of Keep Fauquier Clean. To meet the goal set by the 1989 Virginia General Assembly of using recycling to bring about a 25 percent reduction of the solid waste stream by 1995, local governments will need to encourage voluntary efforts on the part of local citizens, Katzen emphasizes.

The Virginia Department of Waste Management (DWM) is in the process of establishing final regulations for localities to follow in developing solid waste management plans and achieving recycling

goals. After the U.S. Environmental Protection Agency (EPA) recommended a nationwide recycling goal of 25 percent by 1992, the General Assembly directed the DWM to include in the regulations a schedule for statewide municipal recycling goals: 10 percent of local solid waste by 1991, 15 percent by 1993, and 25 percent by 1995.

"Twenty-five percent of our waste is easily recyclable," Katzen says. In Fauquier County, for example, 20 percent of the solid waste is organic material that can be composted. Eight percent is glass, which is totally recyclable, and 10-11 percent is cardboard, which has good markets. Although the newspaper market is glutted, good

According to the U.S. Environmental Protection Agency, a 17-acre landfill with an annual infiltration of 10 inches of water can produce 4.6 million gallons each year for 50-100 years. Landfill leachate poses a severe threat to groundwater and surface water. The U.S. Geological Survey's National Water Summary 1986 reported groundwater contamination from landfills in all 51 states and territories surveyed. Recycling is one of the most effective ways in which individuals can help reduce landfill size and the amount of leachate produced. Recycling is a major step we can take in our own homes to protect the quality of our water resources.

markets continue for office and computer paper, Katzen says. "One of the best ways for citizens to help improve the markets is to request and buy recyclable materials," she points out.

"Recycling is a good idea if the markets are there," says Tom Taylor, executive director of the Mount Rogers Planning District Commission. "However, the state government should have done a marketing analysis before issuing regulations." Taylor is one of many local officials who believe that the 25 percent recycling goal may be unattainable under current market conditions. Aluminum and used oil have good markets, but plastics, metals, and paper do not, Taylor contends. He notes that studies have shown that up to 50 percent of landfill space is taken by paper. "To make a dent in a goal of reduction of 25 percent of the municipal waste stream, a great deal of recycling would have to be in paper," he says. Taylor believes the state should deal with solid waste management and recycling on a case-by-case basis instead of on a statewide basis.

"Although most of us won't make money from recycling itself, we will all save by avoiding landfill costs."

Under proposed DWM regulations, local governments are scheduled to submit solid waste management plans to the department by July 1, 1991. After July 1, 1992, permits for new landfills will not be issued to localities without management and recycling plans approved by the DWM. Although recycling schedules are part of the regulations, the department realizes that the availability of markets

may have an impact on recycling rates, says Cheryl Cashman, DWM legislative liaison. "We want the regulations to be workable, achievable, and manageable," Cashman notes.

"To help reduce waste, federal and state governments should pass legislation regulating industry's packaging methods," says Taylor. "We need to reduce the sources of waste." Katzen agrees that source reduction is necessary for reducing the volume of solid waste. "We have to stop thinking only of convenience," she says. "Do we really need all of the packaging we now use? We pay a high cost to dispose of it. Keep America Beautiful estimates that the average cost of a new 100-acre landfill is about \$65 million."

"The only way that local governments can succeed at recycling is to make it as easy as possible for people," says Lynn Croy, a consultant for Draper Aden Associates, an engineering firm in Blacksburg. Croy has been helping several county governments in Virginia start recycling and solid waste management programs. "Developing good markets is the key recycling issue statewide," Croy notes, "but rural counties will have a major problem with collection." Curbside recycling works well in cities and towns, she says, but is not feasible in rural areas. Counties must develop methods suited to their particular situations. For example, rural Washington County instituted



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manned drop-off centers for solid waste management several years ago and is considering using the centers for recycling, Croy explains, because unmanned collection centers for recyclables are often vandalized. Rural counties need to put collection boxes in strategic places such as schools and shopping districts, says Croy. Counties should also take advantage of local sources of help. In Washington County, Croy found student interns at Emory and Henry University who are working with the local government to establish a recycling program.

"The solid waste problem in the U.S. is an educational problem."

Most localities in Virginia will have to encourage composting of yard waste, such as grass clippings and leaves, in order to meet the 25 percent recycling goal, notes Croy. Nationwide, yard waste takes up an average of 18 percent of landfill space. However, she adds, even by composting Virginia localities will not meet the 25 percent goal without finding good markets for inorganic materials. Only the newspaper market is glutted and good markets exist for other recyclables. In fact, companies that recycle plastics need more than they can currently obtain, Croy says. "Private enterprise is responding to consumers' concerns about throwing away plastics," she comments. Industry has developed methods for turning plastic bottles into polyester fibers, which have a variety of uses, and plastic milk jugs are now being converted into synthetic wood for construction of items such as playground equipment. Plastic containers will probably be labeled in the near future so that people will know how to separate them for recycling, Croy says.

All businesses that sell motor oil must post signs from the Virginia Department of Mines, Minerals, and Energy noting locations of local used-oil collection sites. The National Oil Recyclers Association estimates that 4.4 million gallons of used motor oil are illegally dumped in Virginia each year. Used oil taken to collection centers is recycled for use by industry in asphalt and other products. For more information about the state collection program, telephone (800)552-3831.

To develop good markets, local governments will need to regionalize and hire marketing representatives, notes Croy. "Philadelphia and New York City hire recycling brokers," she says. However,

many rural counties in Virginia cannot afford to pay for this type of service. "Rural counties should make an effort to bring in industry that uses recyclables," Croy says. "These counties will have to count on the private sector to help establish markets."

According to the Virginia Department of Waste Management (DWM), about 25,000 tons of municipal solid waste are generated daily in Virginia for disposal in the state's 214 public and 133 private landfills, many of which are running out of space. The 1989 General Assembly directed the DWM to establish statewide regulations for solid waste management and recycling goals of 10 percent by 1991, 15 percent by 1993, and 25 percent by 1995.

Some Virginians are finding their own ways to build profitable recycling businesses. David E. Hammond, owner of Central Recycling Inc. in Radford, is developing a "one stop" recycling center. "If you take most recyclables and pay a decent price, then more people will start recycling," Hammond says. He began his business recycling for a railroad company nine years ago, taking spikes and cross ties and other reusable items and selling them to landscaping companies. Early in 1989, he began taking glass to raise money for the Juvenile Diabetes Foundation. Hammond pays \$40 per ton for glass and sells it for \$75 per ton to a beer bottling plant in North Carolina. "There's no money in glass recycling right now, because it's cheaper to make new glass," Hammond says. "It costs me the \$35 per ton difference to break the glass up and ship it out of state. I absorb these costs and donate the difference to the foundation." This also provides Hammond with a tax break, which is important in getting a recycling business started, he says.

In eight months, Central Recycling has collected and recycled 200 tons of glass, aluminum, steel, brass, copper, tin, and used car batteries. It took time to develop a satisfactory market for aluminum cans because of local competition from Reynolds Aluminum, Hammond says, but he has found a good market in Alcoa, Tennessee. Hammond pays 44 cents a pound for the cans and sells them to Alcoa for 56 cents per pound. Since Central Recycling has started taking aluminum cans, Hammond says, the price Reynolds pays in Radford has increased from 38 cents to 42 cents. "I'd like to see Reynolds and other companies pay competitive prices all over the country to help get

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people more interested in recycling," Hammond says. "The government needs to step in and ensure that cans are 100 percent aluminum industry-wide." Croy agrees that mandating recycling for industries that can reuse materials would improve the markets.

Hammond ships the copper and brass he collects out of state. The used car batteries are collected by a company in Tennessee that grinds them up and sells them to Japan and Taiwan. Battery recycling is closely regulated by federal, state, and local agencies, he notes, to ensure that batteries are properly handled to prevent leaks.

Although newspaper and cardboard recycling are not lucrative, Central Recycling has begun collecting these items "because they take up a great deal of landfill space," Hammond says. He is also beginning to take plastics as part of his "one

Keep Fauquier Clean, under the direction of its founder and director Patricia Katzen, recycles an average of 16,710 pounds of paper and 4,214 pounds of glass each month. During the first 20 months of the program, 209 tons were diverted from the landfill. This earned \$3,282 in sales of recyclables and saved an estimated \$4,000 in landfill costs.

stop" approach to recycling. Good markets exist for plastics, he says, but little money can be made from recycling them because of the expense of shredding and shipping. "The government should require a deposit on recyclable plastic containers," Hammond says. "Industry could make use of all recycled plastics."

Collecting the whole range of recyclables and paying good prices, even for items that aren't profitable, gives Hammond a small profit spread per ton. However, he points out, in the long run he will make more money with a large-volume, small-spread recycling business than he would with a small volume and a large spread. Hammond's next major project will be aluminum smelting, for which he has obtained approval from the Virginia Water Control Board, the Air Pollution Control Board, and Radford City Council. The smelting process, used for large aluminum items such as doors and lawn chairs, separates metals from aluminum and turns out aluminum "bricks,"

which Hammond will sell directly to the government of Taiwan.

"Mandates have swamped the system for newspaper recycling," says John Joseph, assistant to the president of Garden State Paper Company in Richmond. "The glut will diminish in time, however." Industry demands for recycled newspapers will probably increase in two or three years, Joseph notes, if more paper mills and newsprint plants can be sited and if technology keeps improving ways of converting recycled papers to pulp.

"Foreign markets are crying out for our recycled materials," Hammond says. The EPA and state agencies in charge of solid waste need to help people who want to get into the recycling business, he believes, and local governments should help non-profit organizations start recycling businesses. "It costs an average of \$30 per ton to put garbage in a municipal landfill," Hammond says. "Why not pay a recycler \$10 per ton and save money and landfill space?" Croy comments that, in order to ensure the success of recycling statewide, the General Assembly "needs to get some money together and help develop markets." The 1989 General Assembly did form a joint subcommittee to study recycling residues and tax incentives to encourage recycling businesses.



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Industries are moving ahead with plastics recycling. *Plastics Again*, opened in 1989 by Mobil Chemical Co. and Genpak Corp., is the first plant in the nation to turn polystyrene into pellets for use in making products such as insulation and packing materials. Seven companies that produce polystyrene have teamed up to establish recycling centers for the product nationwide. Du Pont and Waste Management Inc. have announced plans to build the nation's largest recycling and processing operation for plastic containers. Du Pont has been working on a process for turning plastic containers into products such as park benches.

Katzen's recycling program received a litter control grant in 1988 from the DWM for \$6,000, which was matched by Fauquier County. Businesses and individuals donated about \$11,000 to the program, and local newspapers and schools helped with publicity. A survey conducted by the Fauquier Chamber of Commerce found that 80 percent of the county businesses were recycling or would begin to if collection centers were accessible throughout the county, Katzan says.

The Fauquier recycling program earns \$120-\$150 per month for paper and glass collected at the original site Katzen opened in 1987. Katzen's organization also recycles aluminum cans, which they sell to Reynolds for 30-33 cents per pound; corrugated steel, sold to the Chesapeake Corp. for \$25-\$60 per ton; inoperable vehicles, for which the DWM reimburses the county \$50 per vehicle; and used tires, which the program pays the Virginia Recycling Company to haul off at \$550 per trailerload. Altogether, the Fauquier program recycles 40-50 tons per month of these items. Katzen would like to recycle plastics, but "we would have to have large collection centers because plastics are big-volume items," she says.

If you'd like to recycle but don't know where to start, call the Virginia Department of Waste Management's Recycling Hotline — (800)KEEP-ITT — for recycling center locations and other information.

An average of 177 tons of garbage goes to the county landfill each day, Katzen notes, and the landfill is expected to be full in about two years. A consulting firm has estimated that landfill costs in Fauquier will rise from \$7.50 per ton to \$40 per ton when a new landfill goes into operation. Landfill costs statewide are on the rise, Croy says,

and many local governments figure landfill avoidance costs as part of their basic plans for solid waste management and recycling. Local governments in some areas of the country are levying fines against people who don't recycle and are considering charging garbage rates by the number of bags collected, Croy notes. "Getting the majority of people to recycle depends on two things—the increasing costs of garbage disposal and public education," says Croy.

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"Education is the only way we're going to succeed in recycling and waste reduction," says Katzen, who has enlisted the help of several local organizations such as the Lioness Club for Fauquier's recycling program. "Buy-back programs alone won't work," Croy emphasizes. "The solid waste problem in the U.S. is an educational problem."

Tom Taylor, who is concerned that mandatory recycling will actually increase waste disposal costs in many localities, advocates a regional approach to recycling and waste management. "Given the nature of the DWM's proposed regulations and estimated costs, a regional approach is the most cost-effective method," Taylor notes. "It's not difficult to get local governments to cooperate when they see cost effectiveness."

Virginia's first multi-material curbside recycling program, organized by Roanoke County and the Clean Valley Council, diverted about 110 tons of newspapers, 1.7 tons of aluminum, and 31 tons of glass from county landfills during 1988. The total revenue was \$4,375. The county estimated that the program, which served only 1,000 homes during its first year, saved \$1,585 in landfill costs. The program has received a 1989 grant of \$22,584 from the Virginia Environmental Endowment "to develop and demonstrate model projects for reduction and recycling of solid wastes by commercial firms in the Roanoke Valley."

Croy recommends some basic steps local governments in Virginia should take in starting recycling programs. First of all, they should contact the national Peer-Match Program sponsored by the EPA, the National Recycling Coalition, and the Government Refuse Collection and Disposal Association (GRCD). This program offers technical advice,



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Tom Powers, George Abbott, Joyce Abbott, and Ann Powers (l. to r.) after loading up a week's collection of glass. In a year, their Community Recycling program has recycled 26,000 pounds of glass.

It's hard work, but worth it . . .

"We started this recycling program because our county was having so much trouble with its landfill," said Ann Powers, who coordinates the Community Recycling program in Pulaski County. "We should have started it years ago." Ann and her husband, Tom, had just finished hauling a truckload of glass about 20 miles from Pulaski to Central Recycling Inc. in Radford, where the program receives 2 cents per pound for glass. The Powers and their friends, Joyce and George Abbott and Alice Lovern, have hauled 26,000 pounds of glass and 1,600 pounds of aluminum cans to recycling businesses since August 1988.

The First Presbyterian Church allotted space in one of its buildings for glass and can collection. Ann, who had helped found a lunch program for the needy at the church, started the recycling program as a way to raise money for other charities as well as a method of saving landfill space. Pulaski County's landfill ran out of space at the end of 1988 and the county has been using a temporary landfill in Radford ever since. A permanent county landfill has not been sited yet.

The Powers and the Abbotts met on a Tuesday morning and began loading bags and boxes of glass from the collection center into a pickup truck. They first had to make sure the glass was separated by color—green, brown, and clear. The couples loaded up and delivered 1,200 pounds of glass to Central Recycling. The money they receive goes to a Presbyterian Church fund for the needy; to CADRE, an anti-drug program; SADD, Students Against Drunk Driving; and to fill baskets at Christmas for needy families.

The Powers said the program doesn't make much money from glass recycling. "At glass recycling prices now, you couldn't hire anyone to do the work," said Tom. "Recycling will have to be made profitable, or most people aren't going to do it." The Powers and their friends recycle glass for two reasons, Tom noted—"to keep it out of the ground and because otherwise we're going to run out of raw materials in the future." The Powers think that federal and state governments should make industry use a certain percentage of recyclables.

"By recycling, we can give a little bit of money back to the community instead of putting it into the landfill."

The next Monday, Ann Powers and Alice Lovern filled the pickup truck with aluminum cans and drove to Radford. The profits from recycling the cans—at a current rate of 44 cents per pound—make up the majority of their contributions to local charities. However, recycling in southwest Virginia is not as profitable as in certain other parts of the country. "In Boston," says Ann, who has relatives there, "they pay five cents per aluminum can." Before Ann loads up the cans, she checks to make sure that they are all 100 percent aluminum. She has learned to spot doubtful cans and checks those with a magnet. Despite the hard work and small profits involved in operating the recycling center, Ann feels it is worth the effort. "By recycling, we can give a little bit of money back to the community instead of putting it into the landfill," she says.

Recycling experts agree that curbside collection programs are usually successful in cities and towns. In Virginia, curbside programs are operating in Alexandria, Fairfax, Falls Church, Herndon, Newport News, Vienna, Virginia Beach, Warrenton, Williamsburg, and the counties of Culpeper, Fairfax, and Roanoke. The Southeastern Public Service Authority operates a regional curbside program in Hampton Roads. For information about starting curbside programs, contact coordinators Kelly Whitney of Roanoke at (703)345-5523 or Judith Kator of Williamsburg at (804)229-0714.

information dissemination, and other services for recycling programs. Contact the GRCD, Attn: Peer-Match Program, P.O. Box 7219, Silver Spring, MD 20910; telephone (800)456-GRCD. Local governments should also join the National Recycling Coalition, Croy says, and should work with area governments to form regional recycling and solid waste management programs. Those that can afford it should consider hiring consultants or marketing representatives to help establish programs.

"The U.S. simply has not perceived the need for recycling," Katzen says, adding that Japan and West Germany recycle about 50 percent of their solid waste. "People need to understand that, although most of us won't make money from recycling itself, we will all save money by avoiding landfill costs," Katzen emphasizes.

"Citizens have their best opportunity now to effect change in solid waste management policies," says Harry Gregori, director of the DWM's Office of Policy and Planning. Gregori hopes that the mandated 25 percent recycling goal won't cause Virginians to lose sight of the need to recycle as much solid waste as possible. "Just because the law is there doesn't mean it's going to work," Gregori points out.

Some useful publications for recyclers:

Directory of Recycling Collection Centers and a **Guide to Household Recycling**— Virginia Division of Litter Control and Recycling, 1215 Washington Bldg., Richmond, VA 23219; telephone (804)786-8679.

Recycling Markets Update (newsletter)— Virginia Department of Waste Management, 11th Floor, Monroe Bldg., 101 North 14th St., Richmond, VA 23219; telephone (804)255-2667.

MidAtlantic Glass Recycling Program (newsletter)— 1800 Diagonal Rd., Suite 600, Alexandria, VA 22314; telephone (703)684-4421.

Beyond 25 Percent: Material Recovery Comes of Age— the Institute for Local Self-Reliance, 2425 18th St., NW, Washington, D.C. 20009; telephone (202)232-4108.

Source Separation/Curbside Collection Pilot Project— Clean Valley Council, P.O. Box 3320, Roanoke, VA 24015; telephone (703)345-5523.

Printed on recycled paper.



A publication of the Virginia Water Resources Research Center (VWRRC), Virginia Polytechnic Institute and State University, William R. Walker, director. Additional copies of this publication are available for free to Virginia residents and for \$6 to those out of state from Publications Services, VWRRC, 617 N. Main St., Blacksburg, VA 24060-3397; telephone (703)231-8036. Virginia Tech is an Equal Opportunity/Affirmative Action employer.

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Virginia Polytechnic Institute and State University
617 North Main Street
Blacksburg, Virginia 24060-3397

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David Hammond, owner of Central Recycling Inc. in Radford, and a customer unload her collection of aluminum cans for weighing. The General Assembly has set statewide recycling goals to help reduce the need for landfills, but it is a combination of individual efforts, volunteerism, and free enterprise that will make recycling successful.