

US EPA ARCHIVE DOCUMENT

Chapter 5. Waste Reduction, Buying Recycled, and Manufacturing with Recovered Materials

Incorporating waste reduction activities, buying products that contain recycled materials, and manufacturing your own products with recovered materials are all activities that can enhance your tribe's solid waste management program and offer substantial benefits in life quality and economics. These activities reduce the amount of waste requiring disposal and help conserve and protect natural resources.

This chapter will review tools that your tribe can use to start or expand residential and commercial waste reduction programs and businesses on the reservation. The case studies highlighted throughout this chapter illustrate both the challenges encountered by tribes in setting up these programs and the significant benefits that you can achieve. Complete reference and ordering information for all materials cited in this chapter are provided in the Resources section at the end of this chapter.

Why Tribes Set Up Waste Reduction Programs

Native American tribes and Alaskan Native villages have a long-held tradition of land and resource stewardship. The story of the Acoma Pueblo pot demonstrates the role

that recycling has played in this tribe's culture. Pueblo Indian women crafted pots out of clay, which lasted for years. When the pots eventually broke, they were not thrown away. Rather, the broken pots were crushed to a fine clay powder. Tribal members soaked the powder to soften it to a workable clay consistency and used the "recovered" clay to make new pots.

Source reduction, recycling, and composting all fit under the umbrella of "waste reduction" activities.



Tribes today have taken the simple concept of waste reduction and applied it in new ways. Many tribes are now running successful recycling programs on their reservations. Recycling and composting divert materials from the waste stream and reduce disposal costs. These potentially valuable materials also can supply your tribe with manufacturing feedstocks, which can lead to business development and job creation. Starting and expanding businesses on the reservation offers members enhanced flexibility for family and cultural activities, generates income, and contributes to the tribe or village's economic health and development. Source

reduction activities, including purchasing durable, long-lasting goods and seeking products and packaging that are as free of toxins as possible, can help your tribe or village reduce both the amount and toxicity of the waste it generates, so you save money through avoided purchasing and waste management costs.

Through recyclables collection programs, some tribes have gathered materials to make new products for the tribe or to sell to other communities. Through composting programs, tribes can make a soil amendment product they can use on farms and gardens to help plants grow and thrive. Through source reduction programs, tribes can protect health by using less toxic materials and save money by purchasing fewer products. You can focus on one aspect of waste reduction or combine elements from a variety of resource conservation programs. Numerous examples of tribal source reduction, reuse, recycling, purchasing, and recovered materials manufacturing programs are featured throughout this chapter.

Eastern Band of Cherokee Indians' recyclables management area.



Setting Up a Materials Collection Program

You can set up a variety of recyclable materials collection programs. Your tribe can design a residential recycling program to collect and process recovered materials generated by tribal residents and businesses and market these materials to end users.

Before you set up a tribal recycling program, you will want to determine:

- What materials are in your waste stream, and which of these should you recycle?
- What markets exist for collected materials?
- What type of collection program best suits the community?
- What will the program cost, and how will it be funded?
- Who will collect the materials, and where can you take the collected materials?
- Who will staff the recycling program?
- How can you encourage residents to participate in the recycling program?

What Materials in Your Waste Stream Should You Recycle?

When developing a waste reduction program, the first step is to determine what type of discards your tribe or village is generating and in what quantity. A waste characterization study will help you determine the waste stream composition by identifying waste types and volumes, existing waste management practices (e.g., reuse, recycling, disposal), and associated costs. It will help identify which portions of the waste stream you can effectively recycle, reduce, or eliminate all together.

For example, the Quechan Indian Tribe in Arizona monitored its waste stream composition and found that paper products made up the bulk of the waste discarded in landfills. Using these findings, the Quechan Tribe set waste reduction goals and priorities based on the specific materials that were being generated and thrown away. Once you have this information, you can identify the extent to which each element in the waste stream can be recovered and recycled. For more infor-

mation on conducting a solid waste stream analysis, refer to Chapter 2.

What Markets Exist for Collected Materials?

After your tribe has analyzed its waste stream, you can decide what materials to target for recycling. Typically, you will want to recycle materials that members generate in large quantities for which there also is a local market or some sort of end use. Of the paper products generated by the Quechan Tribe, office paper appeared to be the most marketable material because it was very clean, although the paper varied in color and quality. The Quechan Tribe contacted potential collectors and buyers, but found none were interested in the office paper. The tribe then pursued the idea of recycling the paper itself and established a papermaking business that would not only use the recycled office paper, but also create jobs and generate income for the tribe.

What Type of Collection Program Best Suits the Community?

Various types of collection programs you can consider include:

- Drop-off centers for recyclables
- Buy-back centers
- Curbside recycling programs
- Special collection events

Drop-off Centers for Recyclables

Drop-off facilities for recyclables work best when they are located in centralized areas that members of the tribe can access easily. They are often found in locations that tribal members frequent, such as grocery stores or shopping areas, tribe-sponsored sites, transfer stations, or residential areas. The Zuni Pueblo Tribe of New Mexico set up nine recyclables collection centers in areas fre-

quented by tribal residents and established a processing and marketing system for the materials it collected. At drop-off centers, you can use labeled bins or containers to collect a wide range of recovered materials, from newspapers and cardboard to glass, aluminum, and steel containers. The Zuni Pueblo takes the plastic, newsprint, aluminum, and glass the tribe collects to nearby processing centers. For widely dispersed populations, a drop-off center might be the most economically feasible option for collecting recyclable materials.

Buy-Back Centers

Buy-back centers are commercial operations that pay tribal members for recovered materials. They can include scrap metal dealers, aluminum can centers, or paper dealers. Generally, buy-back centers collect materials that have a high market value.

Although few tribes are currently making use of buy-back centers, they remain feasible options in some areas. For example, tribes located in one of the 10 states with a bottle bill container redemption program can receive a refund of 5 to 10 cents for aluminum beer and soda containers at a local buy-back center. The Shoshone-Paiute

The Eastern Band of Cherokee Indians bale its recyclables to reduce transportation costs and simplify handling.



Tribes of the Duck Valley Reservation in Idaho and Nevada, for example, pays residents for aluminum cans brought to its transfer station for recycling. Other tribes are looking toward establishing their own buy-back centers on their reservations.

Curbside Recycling Programs

Collecting recyclable materials at the curbside is most convenient for residents and thus can lead to higher recovery rates. Curbside collection also is a more expensive collection option, as the tribe has to pay workers to collect the materials and purchase and maintain trucks and other equipment to transport the materials to a recovery facility. In spite of these costs, some tribes have found curbside collection is worth the price. The Confederated Tribes of the Umatilla Indian Reservation, for example, collected nearly 40 tons of corrugated cardboard, paper, and steel for recycling in 2001 through its curbside collection program and centrally located collection bins. The relative ease of curbside collection for tribal members is helping the tribe work toward its 35 percent recycling goal.

Special Collection Events

To collect more recyclables, you also might institute special recycling events in conjunction with curbside or drop-off collection programs. These events can include special recovery days for large items or household hazardous waste. The Fort Peck Reservation in northern Montana holds an “Annual Spring Cleanup Week,” during which almost everyone on the reservation mobilizes to pick up litter, remove junk cars and furniture, and properly dispose of recyclables and waste. The tribes also use the cleanup, which prepares the reservation for tourist season, as an event to bring the community together.

When examining the various collection options, consider which system is likely to

work best in your area. Factors that might impact your collection option choice include your tribe’s population density, the availability and distance to markets for recovered materials, what transportation options are available, the volume of materials residents generate, how interested tribal residents are in recycling, and whether appropriate funding and staff are available to work on the recyclable collection program. For more information on tribal collection options, refer to Chapter 4, and for information on revenue from recycling, refer to Chapter 7.

What Will the Program Cost, and How Will It Be Funded?

Recycling programs, like waste collection and disposal programs, cost money to set up and run. The amount of funding your tribe has available will affect the type of collection program you implement. You might be limited by how much tribal members are willing to pay for recyclables collection services. In addition, if a tribe is located in a remote area or has a small population, the economic feasibility of the recycling program might be limited, especially given other tribal concerns. When weighing the costs and benefits of a recycling program, you might want to consider the extent to which you can build support for and encourage program participation.

The major costs of a tribal recycling program are capital costs to set up the program, and operation and maintenance costs to keep the program running, such as new equipment purchases and staff salaries. Money to pay for these expenses can come from user fees, tribal general funds, and some federal and state grants and loans.

Grants and loans are good tools to help a tribe get a recycling program off the ground. After receiving a grant from the Oregon Department of Environmental Quality and providing matching funds of their own, the

Confederated Tribes of the Warm Springs Reservation in Oregon started a recycling program on the reservation. Since receiving the funding, the tribes were able to expand from an aluminum can-only recycling system to recycling a greater variety of materials and reducing the amount of materials sent to the landfill. Many federal grants have limitations on how their money can be spent. Many grants, for example, can not be spent on program operation and maintenance. For this reason grants might be a good source of startup funding, but should not be relied upon for program maintenance. For more information on financing a recycling program, including sources of grants and funds, refer to Chapter 7.

Who Will Collect the Materials, and Where Can You Take the Collected Materials?

While developing the technical aspects of the recyclables collection system, you might want to evaluate the role your tribal government and private waste management companies play. Some tribal leaders might decide that tribal government should handle all aspects of recyclables collection, while others might advocate contracting with a private hauler. You might be able to obtain collection services at a lower cost by bidding out services to different private companies. The Fond du Lac Band of Lake Superior Chippewa in Minnesota hired several private waste haulers to collect waste for the tribe. The tribe also has studied the feasibility of tribally operated waste hauling services.

If your reservation is very large, you might issue separate contracts to private companies for different geographic regions. If any nearby tribal or non-tribal communities are interested in recyclables collection services, you can work with these communities to provide recyclables collection services on a regional basis. Regional collection systems are particularly cost-effective if several small tribal

communities located close to each other can use the same collection or disposal site.

How Can You Encourage Residents to Participate in the Recycling Program?

If the program is new for the tribe, then convincing tribal members to practice recycling habits might take time. The success of a recycling program will depend on early community involvement, followed by continuing educational efforts. Start by showing members how a recycling program can benefit the tribe. Gauge members' interest in recycling and their concerns about how a recycling program will work. Being responsive to members' input and providing clear information will go a long way toward ensuring a program's success.

One of the best ways to ensure strong participation in your tribal recycling program is by introducing recycling to schools. Not only can schools serve as focal points for collection, but they also can instill a recycling ethic in children. The children, in turn, will take the recycling message home, encouraging parents and other tribal elders to participate in tribal recycling events. When the Nez Perce Tribe of Idaho received a grant from USDA to fund a tribal recycling program, one of its first steps was to go to the schools. The Lapwai grade school was designated as a recyclables drop-off center. Educators worked with fifth and sixth graders to teach them about recycling and instituted a Saturday afternoon class covering various environmental issues for elementary schoolchildren. The tribe invited professionals from natural resources fields to teach the children about environmental conservation. Chapter 6 has more information about setting up a recycling educational program for tribal members.

Beyond Recycling: Source Reduction, Reuse, and Composting

Because recycling is now entrenched in many states and communities across the nation, it is often the first waste reduction effort considered by tribes. There are, however, many other ways for tribes and Alaskan Native villages to practice waste reduction. Many of these activities are simple to implement and do not require large amounts of funding or a complex infrastructure.

What You Can Do To Reduce Waste

- Use less toxic products.
- Call direct mailers to remove your name from their mailing lists.
- Make duplex copies and print on both sides of the paper.
- Reuse scrap paper as message pads or sketch pads for children.
- Use canvas bags in place of plastic or paper shopping bags.
- Reduce the use of chemical fertilizers on your plants.
- Join EPA's WasteWise Program for more ideas <www.epa.gov/wastewise>.

Source Reduction/Reuse Programs

Source reduction and reuse activities can help reduce your tribe's waste management expenses by avoiding the costs associated with collecting, transporting, processing, and disposing of discards. Source reduction and reuse programs, which include materials exchanges and backyard composting, also conserve resources, such as water and energy, and reduce pollution, including greenhouse gases that contribute to global climate change. Source reduction also can help reduce the toxicity of a tribe's waste stream by discouraging use of

products containing toxic materials, such as cleaning products and pesticides.

Source reduction activities are an important part of the Mohegan Tribe's waste management program. In 1997, the Connecticut-based tribe established an integrated waste management program for the Mohegan Sun Casino and the tribal government. The program emphasizes source reduction activities, along with recycling, over waste disposal options. The tribe practices water-conserving irrigation methods and uses native rather than ornamental plants in landscaping. Native plants are well adapted to their environment, which means they require less water, fertilizers, and pesticides for their maintenance. The tribe also has minimized its chemical use, switching to less toxic products where possible.

A number of resources are available to tribes that can help them in their source reduction efforts. Smith River Rancheria in California joined EPA's WasteWise Program in 2001 and began implementing source reduction activities immediately. The tribe's receptionist returns unwanted direct mail solicitations and calls or writes to companies requesting removal from mailing lists. Posters in the tribal office remind staff about the duplex printer feature, and tribal council members and office staff copy meeting minutes and other documents on both sides of the paper.

Reuse also can be a good alternative to disposal for those materials for which recycling markets are located far away. In the isolated village of Kotzebue, Alaska, several businesses and organizations collect scrap office paper. Every few weeks, the businesses deliver this paper to tribal schools, local daycare centers, and children's homes for reuse.

The severe weather conditions in Alaska also have led to creative source reduction and reuse activities. In Galena Village, Alaska, winds blew hundreds of white plastic shopping bags around the community, which

became entangled in nearby trees, clung to the frozen tundra, or choked and entangled local wildlife. The Tribal Council passed a resolution prohibiting the three local stores from using plastic shopping bags. At first, the store owners were apprehensive about the ordinance, wanting to know what alternatives would be available to them. The council worked with store owners to identify alternatives, such as brown paper and reusable canvas bags, and explained the environmental benefits. Once they found alternatives, local merchants accepted the change.

Source reduction and reuse practices can be easy for your tribe to adopt. Tribal members of the Blue Lake Rancheria Tribe in California also practice source reduction and reuse by using the double-sided copier function whenever possible and using the back side of once-used paper for drafts. These simple activities have helped the tribe save money by cutting down the amount of paper purchased.

Materials Exchange Programs

A materials exchange is a reuse program that offers a market for buying and selling reusable and recyclable commodities. Materials exchange programs help tribes redirect unwanted materials to potential users. Materials can be offered for free or for a price, typically below the market value of the goods or materials being offered. Tribal members that contribute materials for sale or donation save time and money by not having to dispose of the unwanted materials, and purchasers benefit by obtaining goods or materials at no cost or for a nominal fee.

Examples of materials exchanges that tribes use include:

- Reuse centers, secondhand stores, or flea markets where residents donate or sell unwanted goods to others.
- Physical warehouses that advertise available commodities through catalogs.

- Computer listings or Web sites that connect buyers and sellers.
- Informal word-of-mouth communications.

Many tribes schedule events or set up temporary or permanent reuse centers where tribal residents can donate products and materials that they no longer need. The collected materials are then made available to tribal schools, senior centers, or other tribal residents. Some tribes establish and run second-hand stores or swap meets, where residents can donate or sell their used materials instead of throwing them away.

The Pine Ridge Oglala Sioux Tribe holds regular “swap days.” Tribal members bring items they no longer want to a central location, where they swap or sell them to each other in a flea market-like setting. The Oneida Tribe of Indians in Wisconsin has found it beneficial to hold a week-long clothing and household item exchange. In one week, tribal members donated 770 pounds of clothing and 1,300 pounds of miscellaneous household items for reuse by other members of the tribe. At the end of the week, the tribe transported leftover items to other reservations in the state.

The Alaska Materials Exchange (AME) is an information clearinghouse to help Alaskan businesses reuse products and materials and find alternatives to throwing valuable materials into local landfills. Through quarterly catalogs, AME lists surplus and unwanted material from one company that others can use. The materials exchange is a service of the state Department of Environmental Conservation in cooperation with BP Exploration and ARCO Alaska, Inc. Since 1994, AME has saved Alaskan businesses more than \$1.4 million in disposal costs. Currently, AME has more than 100 listings and a subscriber list of 2,500 organizations.

Tribes where the majority of residents have access to computers also might want to set

up a computer network or brochure listing materials that tribal members or businesses no longer want that other members of the tribe could use. Materials listed can include manufacturing or construction materials, such as wood, textiles, or concrete. Tribal members also may choose to list appliances, office or home furnishings, or computers in their materials exchange.

Tribes do not need high-tech capabilities to put a materials exchange program in place. The Confederated Tribes of the Umatilla Indian Reservation in Oregon maintain a more informal materials exchange program. The tribal government operations manager e-mails tribal employees when residents bring in used items to exchange. The tribal employees then inform community members that items are available for reuse.

Composting Programs

Composting is the controlled decomposition of organic materials, such as leaves, grass, and food scraps, by microorganisms. The result of this decomposition process is compost: a crumbly, earthy-smelling, soil-like material. Your tribe can use compost material in its gardens and other land-

scaping applications or sell it to individuals or businesses outside the tribe for a profit. Two types of composting programs you can set up include:

- Residential backyard composting programs
- Community composting facilities

In a residential backyard composting program, tribal members leave cut grass clippings on their lawn and collect other yard trimmings and gather them into a backyard mulch pile. You can teach members how to

Eastern Band of Cherokee Indians' composting operations. Top: windrow turner aerates the piles to increase decomposition. Bottom: watering the piles helps maintain the proper moisture levels.



compost and can offer composting bins to residents to encourage the practice. The Oneida Tribe of Indians in Wisconsin sells backyard composting bins to residents to promote backyard composting among members and also teaches adult education classes on backyard composting. Through practicing backyard composting, residents will have less trash to dispose of and will gain a soil amendment product that will improve the consistency of the soil in their own gardens.

If your tribe chooses to establish a community composting facility, residents can leave yard trimmings at the curbside for collection or drop them off at a designated site. Factors you might consider when selecting a drop-off site are similar to those for choosing a recyclables drop-off site, including convenience for tribal members and low impact of odors, dust, or noise on tribal members. You will need to train and hire staff to run your facility. One factor that contributed to the success of the Eastern Band of Cherokee Indians' pilot casino composting program in North Carolina was integrating the composting process into employee training and routine procedures at the casino. The tribe also hired an additional employee to handle some of the composting responsibilities.

You can use the compost you produce for landscaping projects on your reservation. If you control and document the composition and nutrient content, then you can sell its compost to farms, nurseries, or greenhouses in the area and use the profits to fund other tribal activities.

Tribal and village businesses also can participate in composting programs, with the added benefit that they will contribute larger quantities of materials. Sitka Tribal Enterprises in Alaska designed a composting program to produce marketable products from organic wastes of Alaskan industries. Aerated, turned windrows produce high-quality, nutrient-rich, organic, soil-like compost from fish and



timber wastes. The result is certified organic products, such as potting soil and transplant mix, from Alaska's own land and water. The project has provided jobs for village residents and serves as a model for other Alaskan Native communities.

The Eastern Band of Cherokee Indians use a tub grinder to chop branches and brush for composting.

Buying Recycled Products and Manufacturing with Recovered Materials

Materials collected through recycling and composting programs need to be made into products in order for the recycling process to be considered "complete." More and more products are now available that have been made from recycled materials. Buying these products on an individual and tribal level can help support the demand for these materials in the marketplace and thereby enhance the viability of tribal recycling programs. Additionally, some tribes themselves have been successful in "closing the recycling loop" by establishing their own businesses to use the materials they collect. These businesses, in turn, provide both revenues and jobs for tribal members.

Buy-Recycled Programs

For most of the products that tribal employees and residents purchase, there probably is

Tribal Business Waste Reduction Programs: Targeting Hotels and Casinos

Approximately 400 hotels, motels, and resorts and 200 casinos and bingo halls are located in Indian country. These facilities generate a tremendous amount of solid waste, from food scraps, glass containers, and metal cans to plastics, paper, and cardboard. Tribal hotel and casino operators can prevent waste when purchasing supplies and food, serving customers, and cleaning guest rooms, and many have found these actions also have the economic benefit of reducing purchasing costs and disposal fees.

The Eastern Band of Cherokee Indians in western North Carolina started a pilot project to compost food scraps from its casino and three restaurants after they opened in 1997. The tribe collects more than 1,200 pounds of food scraps each day from the casino and restaurants for composting. The tribe sells the final compost product to landscapers, nurseries, and homes both on and off the reservation.

The Lac du Flambeau Band of Lake Superior Chippewa Indians developed a pilot waste reduction program for the Lake of the Torches Casino on its reservation in north-central Wisconsin. Initially, the tribe undertook a waste characterization study to determine its waste stream composition. The tribe found that cardboard made up 70 percent of the waste stream by weight, and food and paper was another 12 percent. The tribe has three goals: reduce the amount of waste generated; reuse rather than discard items; and recycle as much of the remaining waste stream as possible. The tribe met with several challenges while developing its waste reduction program. The casino struggled to reduce cardboard waste, since most of the cardboard came from packaging sent by outside suppliers, so it reused many of these boxes internally to avoid recycling or landfilling them. The casino worked with its hauler to collect and weigh recyclables regularly and document their destination. In addition, the casino instructed employees how to prepare and separate recyclables to the hauler's specifications. The tribe's waste reduction plan included purchasing supplies in bulk to reduce packaging waste; using washable rather than disposable dinnerware and utensils; and, replacing individually bottled cleaning supplies with a central housekeeping supply station stocked with nonhazardous cleaners purchased in bulk.

The Grand Traverse Band of Ottawa and Chippewa Indians in Michigan wanted to teach its hotel, casino, and restaurant managers how to recycle, prevent waste, and buy recycled-content products. Tribal environmental department staff worked with businesses to insert waste reduction education into new employee welcome packets. The tribe also reduced waste during hotel renovation projects by donating old furniture and fixtures to residents and local businesses.

a recycled-content alternative. Recycled-content products not only are typically of the same quality as products made from virgin materials, but they also can cost less money. Buying recycled sends a message to manufacturers that recycled products are in demand, which helps ensure that the materials the tribe is recovering are being put to good use. When tribal members buy recycled products, they help expand the markets for recovered materials. Tribal businesses that manufacture products from recovered materials can provide jobs for tribal members and revitalize local economies.

Setting Up a Buy-Recycled Program

Tribal governments purchase everything from office paper to construction materials. You can set a positive example for your members by instituting a buy-recycled program. Key elements to setting up a buy-recycled program can include:

- Setting purchasing specifications to include recycled content
- Establishing recycled-content standards
- Giving preference to recycled products

Set Purchasing Specifications To Include Recycled Content

Tribal purchasing officials can review product and service specifications or policies to identify and eliminate any provisions that require the use of virgin-content products or that exclude the use of recycled-content products. Smith River Rancheria in California, which purchases recycled-content copier paper, calendars, pencils, envelopes, and file folders, conducted a purchasing audit. This audit identifies the products the tribe is purchasing that are made from virgin materials and helps it find recycled-content alternatives.

Establish Recycled-Content Standards

Many government agencies have established voluntary or mandatory minimum recycled-content standards that apply to their own purchases of certain goods and materials. Your tribe can use these standards as a guide in developing your own standards. Guidelines can vary on the minimum percentage of recycled materials required in specific products. For instance, the recycling coordinator for the Confederated Tribes of the Umatilla Indian Reservation in Oregon asked the tribal purchasing department “to make every effort” to purchase recycled-content products where possible.

The purchasing department for the Confederated Tribes of the Umatilla seeks out vendors that sell recycled-content products. In 2001, for example, the tribe purchased one thousand 100-percent recycled content toner cartridges and other recycled content items including paper, boxes, pallets, drums for storing hazardous materials, and totes. “At first, [purchasers] were hesitant to buy recycled content products because they were concerned about quality,” said Teddi Bronson, recycling coordinator for the tribe. “But after purchasing recycled products, they realized they were as good as the products they purchased before.”

Closing the Loop

The recycling symbol has three chasing arrows. Each arrow represents one step in the recycling loop.



- The first arrow is the collection step. This is when you put your recyclable materials into your curbside recycling bin or take it to a local drop-off center. The collected materials then can be taken or sold to a manufacturing facility.
- The manufacturing process is the second arrow in the recycling symbol. The recyclable materials are converted into new products and shipped to stores.
- The third arrow represents the step where the consumer purchases products made with recycled content.

When you “buy recycled,” you close the recycling loop.

Give Preference to Recycled Products

With current technologies and scales of production, some recycled-content products cost more than their virgin competitors. Eventually, prices for recycled products might be competitive with prices of products made from virgin materials, but until then, recycling activities can be supported by price preferences for recycled-content products. A typical price preference can cost out recycled-content products at 5 to 10 percent lower cost than comparable virgin products.

Even without price preferences in place, tribal recycling coordinators are finding that businesses and residents are still buying recycled, once they are educated about it. “Our tribal members buy recycled because it protects the environment,” Bronson said. “That is the benefit they see to buying recycled.”

Your tribe also can establish buy-recycled cooperatives with other, neighboring tribes, local governments, or organizations. The Grand Traverse Band of Ottawa and Chippewa Indians, for instance, partnered with two neighboring tribes so that they could increase their purchasing power to encourage the production and sale of recy-

pled-content products. To set up such a cooperative, tribal leaders/purchasing agents can contact neighboring tribes, determine what purchases they have in common, and agree to purchase these products in recycled-content from a vendor that can supply the highest-quality recycled-content product at the best price.

Manufacturing with Recovered Materials

Some tribes, like the Hopi Tribe in Arizona, have found new business opportunities and helped create jobs for residents through manufacturing with recovered materials. The tribe's unemployment rate had often caused residents to seek jobs as far away as Phoenix, more than 200 miles from the reservation. The tribe received an Inter-Tribal Council of Arizona grant to fund solid waste management planning on the reservation.

Gentle Rain Designs, organized under the Hopi Foundation, a local organization with a mission to "foster self-reliance, self-sufficiency, and a sense of pride," in tribal members, received a \$16,000 startup grant from the Arizona Department of Commerce. Gentle Rain Designs creates and sells garments featuring cultural designs, made of fabric produced from recycled polyethylene terephthalate (PET) from 2-liter soda bottles. Tribal members expanded production to include fleece jackets and vests. Tribal members employed by this operation have the freedom to work out of their homes and set their own schedules. In addition, the Gentle Rain Designs workers generate products that not only serve to artistically preserve Hopi culture, but also, thanks to their recycled content, help to preserve the environment.

Gentle Rain Designs has successfully marketed its business in outdoor industry trade magazines and at Native American events, art shows, outdoor retailer shows, and other recycled products trade shows. In addition,

the company has expanded its partnerships, receiving support from the Grand Canyon Trust, the First Nations Development Institute, and Arizona Community Foundation. "When you demonstrate ability, organizations come looking for you," said Mike Puhuyesva, director of solid waste for the Hopi Tribe. "You no longer have to go out and seek money with grant proposals; it comes in."

Chapter Highlights

- Use waste assessment results to identify potential for recycling and opportunities for source reduction, or composting.
- Identify markets or end users for recyclables, compost, and other exchangeable materials.
- Use community outreach and education to educate and energize tribal members about your tribe or village's waste reduction programs and increase participation.
- Buy recycled-content products to close the recycling loop.
- Manufacture with recovered materials to stimulate markets for recyclables, create jobs, and generate revenue.

Resources

A variety of additional resources are available to help tribes reduce, recycle, compost, purchase recycled products or manufacture with recovered materials:

Publications

EPA's *Recycling Guide for Native American Nations* (EPA530-K-95-006), provides information for tribes developing recycling programs. Available on the Web at <www.epa.gov/epaoswer/non-hw/tribal/pdf/ntverecy.pdf> or by contacting the RCRA/Call Center at 800 424-9346.

EPA's *Waste Prevention, Recycling, and Composting Options: Lessons from 30 Communities* (EPA530-C-01-002) highlights the actual operating experience of 30 diverse communities. The report is available on the Collection of Solid Waste Resources CD free of charge from the National Service Center for Environmental Publications at 800 490-9189. Information for ordering by mail or fax is available at <www.epa.gov/epaoswer/osw/cdoswpub.htm>.

A Native American Agenda for Action: Solid Waste Management in the 1990s, published by EPA Region 6, describes the scope of the solid waste problem in Native American communities and offers solutions. To order a copy, contact EPA Region 6 at 214 665-6760.

EPA's *Source Reduction Program Potential Manual* (EPA530-R-97-002), describes six source reduction options (grasscycling, home composting, clothing reuse, office paper reduction, converting to multi-use pallets, and paper towel reduction) to help solid waste managers determine the potential impacts of source reduction on their solid waste program. Available on the Web at <www.epa.gov/epaoswer/non-hw/reduce/source.pdf> or by contacting the RCRA Call Center at 800 424-9346.

EPA's *Composting Yard Trimmings and Municipal Solid Waste* (EPA530-R-94-003), examines planning, siting, designing, and operating composting facilities. Available on the Web at <www.epa.gov/compost/cytmsw.pdf> or by contacting the RCRA Call Center at 800 424-9346.

EPA's *Waste Reduction Tips for Hotels and Casinos in Indian Country* (EPA530-F-00-007), shows how tribes can set up a waste reduction program on tribal casinos and highlights successful tribal programs. Available on the Web at <www.epa.gov/epaoswer/non-hw/tribal/pdfxt/casinotips.pdf> or by contacting the RCRA Call Center at 800 424-9346.

EPA's *Business Guide for Reducing Solid Waste* (EPA530-K-92-004), provides instructions for performing a waste audit — useful for businesses and governmental organizations establishing a waste reduction program. Available on the Web at <www.epa.gov/epaoswer/osw/publicat.htm> or by contacting the RCRA Call Center at 800 424-9346.

EPA's *Climate Change and Waste: Reducing Waste Can Make a Difference* (EPA530-E-03-002), explains how preventing waste and recycling can help reduce emissions of green house gases that cause climate change. Available on the Web at <yosemite.epa.gov/oar/globalwarming.nsf/content/actionswastefactsheets.html> or by contacting the RCRA Call Center at 800 424-9346.

Download the Alaska Materials Exchange Catalogue at <www.state.ak.us/local/akpages/ENV.CONSERV/pubs/ame.pdf>, or for more information contact the Compliance Assistance Office in Anchorage at 907 269-7586.

Periodicals

The following periodicals provide information on innovative and successful waste reduction practices and strategies.

- *BioCycle* — <www.biocycle.net> Phone: 610 967-4135 Mailing address: The JG Press, Inc., 419 State Avenue, Emmaus, PA 18049 E-mail: biocycle@jgpress.com
- *MSW Management* — <www.forester.net/msw.html> Phone: 805 682-1300 Fax: 805 682-0200 Mailing address: Forester Communications, Inc, P.O. Box 3100, Santa Barbara, CA 93130
- *Resource Recycling* — <www.resource-recycling.com> Phone: 503 233-1305 Fax: 503 233-1356 Mailing address: Resource Recycling, P.O. Box 42270, Portland, OR 97242-0270 E-mail: info@resource-recycling.com

- *Waste Age* — <www.wasteage.com>
Phone: 866 505-7173 Fax: 402 293-0741
Mailing address: Waste Age, 2104
Harvell Circle, Bellevue, NE 68005 E-
mail: wecs@pbsub.com
- *Waste News* — <www.wastenews.com/headlines.html> Phone: 800-678-9595
or 313-446-0450 Fax: 313-446-6777
Mailing address: Waste News, 1725
Merriman Road, Akron, Ohio 44313 E-
mail: subs@crain.com

Web Sites

Environmentally Preferable Purchasing:

<www.epa.gov/oppt/epp> EPA's

Environmentally Preferable Purchasing Web site has links to contracts that federal agencies have set up to purchase specific recycled-content products.

Energy Star: <www.energystar.gov> EPA's

EnergyStar Program promotes the use of energy-efficient products and services.

EnergyStar can help tribes, businesses, and consumers find energy-efficient solutions, including tools to help measure current energy performance and estimate potential for improvement.

EPA's Comprehensive Procurement

Guidelines (CPG): <www.epa.gov/cpg> The CPG Program promotes federal purchase of recycled-content products. The CPG Web site includes information on the CPG and EPA's Recovered Materials Advisory Notices (RMANs) that can recommend recycled-content levels for CPG items to tribes.

EPA's WasteWise Program: <www.epa.gov/wastewise> WasteWise is a free, voluntary,

EPA program through which tribes and Alaskan Native villages, communities, and organizations can work to eliminate waste, benefitting their bottom line and the environment. The WasteWise program can help partners design their own solid waste reduction programs tailored to their needs.

Department of Energy's Federal Energy Management Program (FEMP):

<www.eren.doe.gov/femp> FEMP works to reduce the cost and environmental impact of the federal government by advancing energy efficiency and water conservation, promoting the use of distributed and renewable energy, and improving utility management decisions at federal sites. Interested tribes can use this resource as well.

Resource Conservation Alliance (RCA):

<www.rca-info.org/gpp.html> RCA's mission is to protect natural forests and other ecologically important systems through market- and commodity-based conservation strategies, including reduced consumption and increased recycling, redesign, and resource diversification. The RCA list of Web links of EPP programs including federal, state, local, and green building programs that tribes can learn from.

50 Ways to Save the Environment:

<www.justgive.org/html/guide/50waysenvironment.html> This Web site covers activities that people can do in their home, car, and yard; at work; and when they are shopping to protect the environment.

Web sites that connect buyers and sellers of recovered materials:

- Recyclers' World: <www.recycle.net>
- Used Building Materials Exchange: <<http://build.recycle.net/exchange/>>
- Resource Exchange Network for Eliminating Waste (RENEW): <www.tnrcc.state.tx.us/exec/oppr/renew/renew.html>
- RecycleXchange: <www.recyclexchange.com>
- Washtenaw County Materials Exchange: <www.co.washtenaw.mi.us/depts/eis/eisex.htm>