

# RESOURCE CONSERVATION CHALLENGE

## A Year of Progress

Annual Report 2002 - 2003



Printed with Vegetable Oil Based Inks on 100% Postconsumer, Process Chlorine Free Paper

# The Resource Conservation Challenge: Preserving Tomorrow with Today's Solutions

It has been an exciting, productive year for the Resource Conservation Challenge (RCC). The RCC expanded throughout the nation as more and more private sector partners accepted the challenge, and throughout the Environmental Protection Agency (EPA) as it was incorporated into other media programs.

The RCC is built on the idea of partnership. Partnership allows those who work day-to-day with products and processes to sit down with government and the public to forge solutions to everyday issues. Many times, discussions between partners lead to innovative and flexible solutions to otherwise difficult and complicated environmental problems. Over the past year, our partners made invaluable contributions to resource conservation and energy savings—identifying environmentally beneficial solutions to specific problems and then implementing them. Existing partnerships grew, new ones were formed, and many more are on the horizon. One existing partnership, WasteWise, grew to over 1,300 members, and new ones—like the National Waste Minimization Partnership Program, the Coal Combustion Products Partnership (C2P2), Plug-In to eCycling, and the GreenScapes Alliance—grew from the ground up.

Resource conservation provides a number of benefits beyond minimizing the use of virgin resources. RCC partnerships save energy, reduce greenhouse gases, create jobs, and grow the economy, all resulting in better protection of human health and the environment. Data show that waste trends are headed in the right direction: down for generation, and up for recycling, reuse, and recovery, but they need a continual “push.” The RCC provides this incentive by setting a direction, bringing together partners, and rewarding progress. Whether our yardstick is reducing priority chemical releases by an additional 10 percent, for example, or recycling 85 percent of our scrap tires by 2008, the RCC is keeping America moving in a positive direction. The RCC is changing the nation's strategic thinking about waste management from disposal options to beneficial reuses.

By the year 2020, I believe our nation will embrace and value resource and energy conservation much more than today. Reusing waste products will become the norm, and the demand for virgin natural resources will be reduced dramatically. This transition from disposal to resource recovery will be driven, in part, by what we are learning today in the RCC.

Over the past year, RCC partnerships—both large and small—led to significant environmental benefits. But we can do more, so I urge everyone to participate. What we reuse today will help preserve our environment tomorrow.

Marianne Horinko  
Assistant Administrator  
Office of Solid Waste and Emergency Response



# RESOURCE CONSERVATION **CHALLENGE**

**A Year of Progress**





# Contents

A Forward-Looking Solution .....	1
A Proactive Approach to Materials Management .....	5
First-Year Accomplishments .....	9
The Next Year .....	21
RCC Resources .....	23



# A Forward-Looking Solution

## Today's Resource Concerns

Nearly everything we do leaves behind some type of waste. Small actions, like drinking a can of soda, and large ones, like manufacturing automobiles, all produce waste. In 2001, 288 million Americans produced almost 230 million tons of municipal solid waste. Each of us, through our actions, generated about 4.4 pounds of trash each day. Beyond what we generated individually, industrial, commercial, and manufacturing processes produced around 7.6 billion tons of waste. As Congress pointed out in the Resource Conservation and Recovery Act (RCRA), "millions of tons of recoverable material which could be used are needlessly buried each year."

At the same time, technological advances are rapidly making once cutting-edge products obsolete and creating new kinds of waste. In the electronics industry alone, an estimated 33 million personal computers were replaced by businesses and households in 2002. The majority of these were relegated to storage. Most of the others were disposed of in landfills or incinerated. Less than 6 percent were recycled. What's more, predictions indicate that more than 70 million personal computers will be retired in 2005.

Buildings also have wide-ranging impacts on human health and the environment because they:

- Use approximately 65 percent of all electricity.
- Account for 60 percent of raw material consumption.
- Annually generate 136 million tons of construction and demolition debris, such as wood, concrete, steel, and drywall.

Through better design, construction, use, operation, maintenance, and removal, buildings can be built greener using complete life-cycle approaches. New "green" or sustainable buildings increase efficiency in energy, water, and materials use, as well as reduce impacts on the environment.

Industrial waste also is, and will continue to be, a part of our everyday lives. Many industrial wastes contain hazardous chemicals. Exposure to waste that contains hazardous chemicals presents obvious risks to people and the environment. In 2001, more than 41 million tons of hazardous waste was generated, the majority of which was produced by 18,000 large quantity



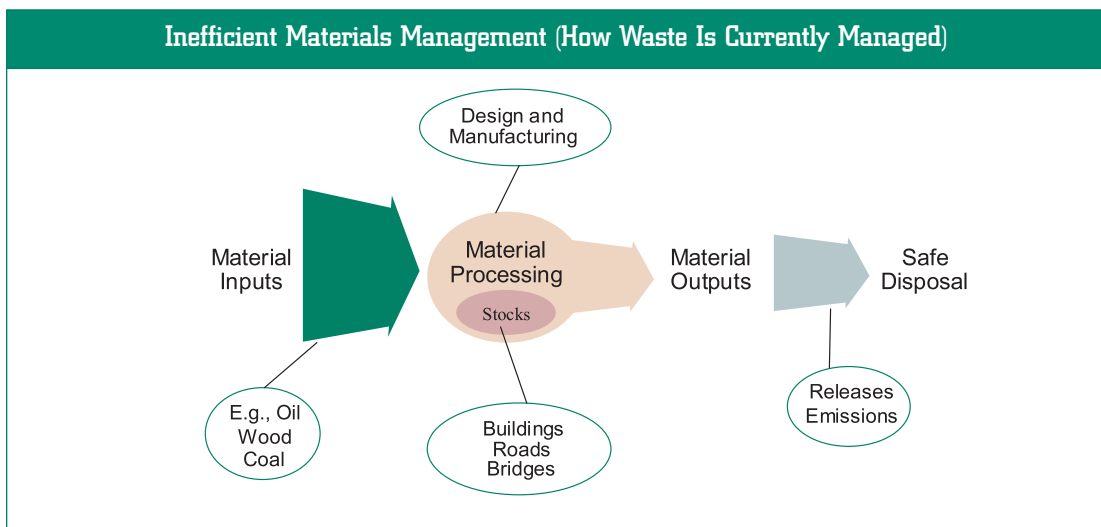
generators. EPA identified particular chemicals of concern in the waste stream. These chemicals persist in the environment, and when released, bioaccumulate in the food chain and ecosystems. Even small amounts of these priority chemicals can be difficult to remove from the environment and often result in very costly clean-up efforts.

## Current Waste Management

Currently, America uses a pollution management system that focuses on waste and emission outputs and their safe disposal and control. As illustrated by the diagram below, large amounts of raw materials are processed to make products. Due to inefficiencies in the current system, large volumes of wastes and emissions are also produced. This system is known as a cradle-to-grave approach to waste management. The cradle is the generation of

waste and the grave is the ultimate safe disposal of waste. This system was designed to control waste for safe disposal, not to manage waste as a valuable resource.

In their mission to protect public health and the environment, EPA and the states have developed and are implementing a regulatory system for hazardous and municipal waste. This system, which focuses on threats to our health and environment and works to prevent new exposures through end-of-pipe controls, has been very successful for hazardous wastes, especially in preventing releases of toxic chemicals into the environment. However, the current system has not focused sufficiently on minimizing wastes and reducing the release of toxic chemicals through product design, recycling, and reuse. This system also requires increasing new material inputs to meet growing population and other demands.





## Efficient Materials Management—A Better System

Increasing pressures on natural resources, the impact of new technologies on resource use, and the need for more sustainable approaches represent major new challenges. To effectively meet these challenges, the RCC is championing a system of efficient materials management. By re-examining the current approaches to waste management, waste that can be safely recycled and reused as material inputs can be identified. The RCC also is examining inputs to processes that create waste in an effort to eliminate inefficiencies and toxic materials altogether.

This overall approach to efficient materials management is an integral piece of the cradle-to-cradle framework as described in the book

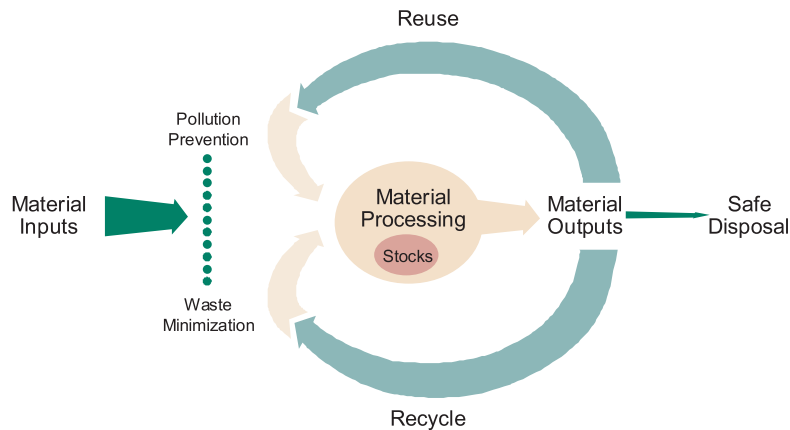
*Cradle-to-Cradle* (2002)  
by William McDonough  
and Michael Braungart.

The cradle-to-cradle design is a system that creates cyclical material flows (rather than cradle-to-grave) that eliminate the concept of waste. Each material in a product is designed to be safe and effective and provides high quality resources for subsequent generations of products. For the RCC, efficient materials

management is a critical step in the evolution of a cradle-to-cradle system.



### Efficient Materials Management (The RCC Vision of the System Needed)



## Transforming Waste Management

Efficient materials management focuses on pollution prevention, also known as source reduction and waste minimization, to produce fewer wastes and less toxic chemicals. It also diverts material from going to waste through recycling, composting, and energy recovery. Wastes become a valuable input, not a lost

resource. To implement this system, our perspective must shift from “cradle-to-grave” inefficiencies towards “cradle-to-cradle” sustainability. The RCC is beginning to apply this new perspective in a materials flow framework that considers the quantities and types of materials, how materials are being used, and the processes that transform materials into products.



# A Proactive Approach to Materials Management

## The RCC—A Major National Effort

In late 2002, EPA created the RCC as a major national effort to find flexible, yet protective, ways to conserve our national resources. It challenges all Americans to:

- Prevent pollution and promote recycling and reuse of materials.
- Reduce the use of toxic chemicals.
- Conserve energy and materials.

To achieve these goals, the RCC has enlisted many partners and is always looking for more. The RCC is comprised of voluntary programs and projects with a materials management and resource conservation focus that produce results. The solutions being advanced by the RCC may include regulatory approaches, especially innovative approaches, to allow material recycling and reuse while still protecting human health and the environment. In addition, through education and outreach, the RCC asks Americans to make smarter purchasing and disposal decisions that conserve our natural resources, save energy, and preserve the environment for our children and future generations.

Integral to its materials management solution, the RCC champions and supports six program elements:

- Product stewardship.
- Priority chemical reduction.
- “Greening” the government.
- Beneficial use of materials.
- Energy conservation.
- Environmentally friendly design.

These program elements reflect the RCC’s life-cycle, multimedia approach to improving our environment. The six program elements express the RCC’s goals and serve as a framework for the many Agency partnerships and projects that RCC encompasses.



## Key to the RCC–Partnerships and Collaboration

RCC partnerships address its six program elements. Partnerships include states, tribes, industry, academic institutions, other federal government agencies, and local entities, which collaborate to break down barriers and find solutions to specific national environmental problems. Through partnerships, the RCC aims to affect decisions on processes, products, business practices, and consumer choices that

promote environmental protection. The RCC encourages its partners to be ambitious in the problems they tackle, and in the solutions they develop. RCC also aims to test whether a concept can be elevated to a particular national focus, and whether a business practice can

be transferred to an entire industry sector. Some RCC partnerships, such as the Coal

Combustion Products Partnership (C2P2), have already become national forums.

Some RCC partnerships are formed around beneficial use and recycling projects that seek to use waste currently sent to land disposal facilities. Coal combustion products, electronic equipment, and used tires are some examples of these partnerships. Other partnerships focus on changes to industrial or commercial processes that eliminate or reduce waste generation in the first place.

Different types of RCC partnerships exist between private entities and the government. Some are purely voluntary while others present opportunities for private parties to participate in partnerships as an alternative to regulatory control. The RCC works across the spectrum of these possible arrangements.

Some partnerships may be dynamic and seek continual growth. The WasteWise partnerships and the National Waste Minimization Partnership Program are two prominent examples of dynamic groups. Some partnerships may revolve around key members, such as states, trade associations, or businesses, that work together on solutions to common environmental problems.

### Benefits of RCC Partnerships

- **Coordination and alignment to meet challenges.**
- **Management attention to specific challenges.**
- **Assistance in reducing costs and environmental impacts.**
- **Recognition for activities that result in resource conservation.**

### The Organization of RCC Partnerships

Some RCC partnerships are organized around specific focus areas, such as electronics, tires, green buildings, hospitals, industrial waste, construction and demolition debris, paper, schools, targeted chemicals, composting/organics, and industrial design.

## Agreeing on Solutions and Measurable Results

The RCC emphasizes performance and environmental results. Partners agree on the specific activities they undertake to meet their self-chosen challenge. They commit to specific milestones tied to their objectives.

Because many federal regulations are developed at the national level, they must provide protection for all possible situations.

### **Measurable Goals Are Integral to the RCC**

The RCC Tires Partnership has set goals. By 2008, it is committed to:

- **Diverting 85 percent of newly generated scrap tires to reuse, recycling, or energy recovery.**
- **Reducing the number of tires in existing stockpiles by 55 percent.**

regulatory approaches are: (1) the comparable fuels rule that conditionally exempts specific hazardous waste from regulation when the waste contains no more toxic constituents than gasoline or fuel oil; and (2) a proposal to promote more computer monitor recycling that will also reduce the release of toxic chemicals, such as mercury, into the environment.

Innovations and tailored solutions are not readily available. The RCC may be a vehicle to explore new regulatory approaches, especially innovative ones, to allow material recycling and reuse. Two examples of innovative

## Multimedia Approach Looks At the Bigger Picture

The RCC relies on cross-media support for source reduction, reuse, and recycling programs. Consequently, it brings together various EPA offices to support multimedia materials management solutions. The Multimedia Pollution Prevention Forum (M2P2) manages the RCC. M2P2 consists of senior officials from the Agency's programs. M2P2 also includes state and tribal representatives to ensure a broad approach that improves environmental awareness and anticipates the future.

## Promoting Environmental Understanding through Education and Outreach

Although governments develop policies, programs, and procedures, their success depends on the public's acceptance and endorsement. Education and outreach to individuals making critical choices is an essential element of the RCC. The RCC reiterates positive environmental messages and supports partners who educate the public about the benefits of resource conservation.

RCC launched the "Make a Difference" campaign at a youth environmental symposium in San Diego, California. Four hundred junior and senior high school students participated in the symposium, which was co-sponsored by the RCC and the City of San Diego Environmental Services Department. Reducing, reusing,

and recycling waste, and environmental stewardship were the focus of the workshops. The “Make a Difference” materials and the Planet Protectors Club kit are examples of how the RCC helps American youth understand their relationship to the environment. These materials explain that personal choices in purchasing and disposal are critical to the environmental, social, and economic health of the United States.

The RCC also targets communities to deliver resource conservation and environmental stewardship messages. The bilingual materials in the RCC “You Dump It, You Drink It,” campaign



focus on promoting recycling and proper management of used motor oil among Hispanic consumers and owners, operators, and employees in the automotive service industry.

Additionally, the RCC developed several public service announcements (PSAs) for urban African American

communities in an effort to strengthen neighborhood support for recycling and sound waste management. The gospel group, Mighty Clouds of Joy, and Shauntay Hinton, Miss USA of 2002, recorded the PSAs, which were aired on 100 radio stations across the country.

## Tools To Achieve Results

The RCC offers tools that have the potential to help partners achieve RCC goals and conserve resources. Some tools include technical and compliance assistance through a variety of voluntary programs and through EPA's compliance assistance centers. Other tools include information on pollution prevention techniques, the availability of emissions trading, and help with establishing environmental monitoring systems. RCC partners decide which tools can be of greatest assistance in achieving their goals. Generally, all program aspects of the RCC are expected to establish performance measures and environmental indicators.

One important RCC tool is the Environmental Management System (EMS). An EMS is a management system that promotes a continual cycle of planning, implementing, and reviewing actions to be sure they meet business and environmental goals. Several of the RCC partnerships, such as hospitals, schools, and electronics, use EMS to achieve desired results. “Lean manufacturing” is similar to EMS in that it is a business practice that focuses on the systemic identification and elimination of waste in the manufacturing process. Both EMS and lean manufacturing are tools that emphasize continuous improvement.

# First-Year Accomplishments

## Moving from Projects to Programs

When initially introduced, the RCC featured many projects. The main challenge over the past year was to organize these projects—along with other key activities—around the six key RCC program elements.

Most of the projects pilot new ideas, gather new information, educate or train a specific population, or focus on tangible results in a particular industry. Some of these projects are regulatory, but most are voluntary. Others form the basis for full national efforts, and some are now ready to move to the next higher level.

## RCC Program Highlights

All RCC projects and partnerships are noteworthy. Only a limited subset of the projects and partnerships are highlighted because they illustrate one or more of the RCC goals, have achieved results this year, or hold promise for future development.

## Product Stewardship

One of the RCC's goals is for American businesses and society to shift their orientation away from waste management processes towards product stewardship. This goal can be accomplished by using strategies to help develop new markets for recycled, reused, and beneficially

reusable products by encouraging environmentally beneficial product designs that produce less waste and fewer chemicals and by supporting greater environmental sustainability. Product stewardship is an approach to resource conservation that calls on everyone involved in a product's life cycle—manufacturers, retailers, users, and disposers—to share responsibility for reducing the environmental impacts of products. The RCC has a number of projects and partnerships that are working to increase manufacturer, retailer, and consumer awareness of, and responsibility for, product stewardship.

## Plug-In to eCycling

The electronics partnership's Plug-In to eCycling project takes a two-pronged approach to increase the safe recycling of electronics. Some partners are committed to advertising and promoting the recycling of used electronic equipment and to providing increased opportunities for people to recycle



## Six Key RCC Elements

- **Product Stewardship.**
- **Priority Chemical Reduction.**
- **“Greening” the Government.**
- **Beneficial Use of Materials.**
- **Energy Conservation.**
- **Environmentally Friendly Design.**

these products. A number of partners joined forces in this effort. These partners include electronics manufacturers and retailers and local governments in several states.

Alternatively, some Plug-In partners are piloting various options for safely recycling old electronics. One approach is to share responsibility for collecting, transporting, and recycling old consumer electronics among manufacturers, retailers, government agencies, recyclers, and non-governmental partners. The first of these pilots was launched at the consumer electronics show in Las Vegas, Nevada, on January 10, 2004. Partners include Staples, The Product Stewardship Institute, Apple, Brother, Dell, Epson, Intel, Lexmark, Panasonic, Sharp, and Sony, as well as the recycler Envirocycle. Staples will take back old electronics in 26 retail stores in New England and will also collect these materials from customers when they deliver new products to them. Manufacturers

will pay for the recycling of their products that Staples takes back. Envirocycle will recycle the collected materials. By working together, the partners will further product stewardship of electronics.



### **Electronic Partnership on the Road to Recycling Success**

The Plug-In to eCycling partners were responsible for safely recycling 26.4 million pounds of used electronic equipment in 2003. This equipment was collected through different events and programs throughout the United States. These partners made outstanding contributions in collecting and recycling used electronics equipment during the last year:

**AT&T Wireless**

**Best Buy**

**Dell, Inc.**

**Envirocycle**

**Intel**

**JVC**

**Lexmark**

**Nxtcycle**

**Panasonic**

**Recycle America  
Alliance**

**Sharp**

**Sony**

**Staples**

### **Federal Electronics Challenge**

The General Services Administration, the Department of Defense, the Federal Network for Sustainability, the Office of the Federal Environmental Executive (OFEE), and EPA jointly launched the Federal Electronics Challenge. This program encourages federal agencies to buy "green" products; to use them more efficiently; and to manage them better at the end of their useful lives. In addition, this partnership created a cohesive national strategy to increase the demand for "greener" electronic products, and address their end-of-life management issues.





## Electronic Product Environmental Assessment Tool

The Electronic Product Environmental Assessment Tool (EPEAT) is developing a national, independently facilitated label or rating mechanism to ease identification and purchasing of more environmentally friendly electronics. The rating system will be designed for use by large institutional purchasers of electronics, including government, private industry, and universities. The tool is being developed by an independently facilitated team of industry, government, and nonprofit stakeholders and is expected to be complete by the end of 2004.

## Priority Chemical Reduction

EPA, through its M2P2 Forum, has identified a core group of priority chemicals as being of particular concern. The RCC set a goal to reduce by 50 percent the presence of waste minimization priority chemicals in hazardous waste by 2005. Using a baseline that was set in 1991, this goal was met in 2001, when EPA achieved a 53 percent reduction. For 2008, the RCC is not only developing a new goal that will seek to further reduce priority chemicals in hazardous waste, but also expanding the goal to all solid waste and releases to the environment.



The targeted chemicals partnership will focus primarily on lead, dioxins, mercury, and naphthalene. The group will work to gain commitments from users to reduce these and other priority chemicals in the environment.

## National Waste Minimization Partnership Program (NWMPP)



The targeted chemicals group was successful in reducing priority chemicals in the waste stream through the NWMPP.

This voluntary partnership works with industrial organizations, government agencies, and local communities to find ways to help companies reduce the amount of waste they generate, particularly waste that contains one or more priority chemicals. This program encourages results by publicly recognizing and showcasing the source reduction, recycling, and advanced manufacturing accomplishments of partners who commit to reducing priority chemical waste.

In 2003, 17 facilities became Waste Minimization partners, with many more pending. Each partner committed to reducing different types and amounts of chemicals, and each established its own time line for reaching its self-established goals.

### National Waste Minimization Partnership Program (NWMPP)

An NWMPP partner, the South Houston Site of BP Products of North America, joined the NWMPP in July 2003. Using new, patented technology, it set a goal to reduce polycyclic aromatic hydrocarbons (PAHs) in tank bottom wastes by 32,000 pounds, and benzene by 70,000 pounds. More information on NWMPP is available at: [www.epa.gov/epaoswer/hazwaste/minimize/](http://www.epa.gov/epaoswer/hazwaste/minimize/).

## Collaborative Partnership To Improve Environmental Performance at Healthcare Facilities

The American Hospitals Association (AHA) and EPA have a long-standing agreement to reduce the healthcare sector's large and diverse waste streams. Progress in achieving the established goals has been made with implementation assistance from Hospitals for a Healthy Environment (H2E). Consequently, it was only natural that an RCC partnership would evolve from this agreement. Achieving additional reductions in hospital waste is a pilot RCC project. The RCC hospital partnership is exploring ways to incorporate waste reduction goals into the Joint Commission on Accreditation of Healthcare Organization (JCAHO) standards. Multiple healthcare and regulatory organizations are working with JCAHO to improve environmental performance of healthcare facilities. Through collaboration with



hospitals and JCAHO, the RCC pilot expects to achieve continuous environmental improvement, waste minimization, and elimination of mercury—one of the priority chemicals.

## Recycling Bullets at Firing Ranges

Lead exposure can pose serious health risks. Lead from lead shot or bullets can contaminate the environment by migrating lead into soil, surface water, and ground water. Across the United States, about 9,000 shooting ranges deposit over 100 million pounds of lead into the environment annually.

An RCC partnership of shooting range organizations, states, and other interested organizations is leading a national program for enhancing the recovery and recycling of lead from outdoor shooting ranges. After creating a Best Management Practices (BMP) manual with partners and conducting outreach and technical assistance, RCC recognizes ranges that implement acceptable Environmental Stewardship Plans. The BMP for Lead at Outdoor Ranges is available on the Web at: <[www.epa.gov/region2/waste/leadshot](http://www.epa.gov/region2/waste/leadshot)>. The Association of European Manufacturers of Sporting Ammunition followed this model for its BMP manual, stating, "The United States serves as a model for the world."

From the outreach efforts of this partnership, 20 Environmental Stewardship Plans have been received from shooting ranges around the United States. An Environmental Stewardship Plan is a document that explains how lead shot and bullets will be managed, reclaimed, and recycled at individual ranges. Ranges

committing to these plans receive RCC Certificates of Recognition. Based on commitments in these plans, approximately 50,000 pounds of lead will be properly managed and reclaimed. Outreach and technical assistance activities continue to encourage new partners to submit the plans.

In 2003, these RCC partners as a whole agreed to address 105 ranges depositing over 100,000 pounds of lead into the environment annually.

## **"Greening" the Government**

This RCC program element seeks to promote the purchase of green products, through both environmentally preferable purchasing (EPP) and comprehensive procurement guidelines (CPG). The RCC looks to reduce solid and hazardous waste, proactively analyze environmental impacts, and promote environmental stewardship on federal lands.

### **Green Purchasing**

Environmentally preferable purchasing is a government-wide program that encourages and assists federal agencies in the purchase of environmentally preferable products and services. Through EPP purchases, agencies can prevent waste and pollution by considering environmental impacts along with price, performance, and other traditional factors when deciding what products to buy.

Under RCC, the EPP program serves as a clearinghouse of information and provides tools to

facilitate the purchase of environmentally preferable products and services not only for the federal government, but also for state and local governments, industry, and small businesses. The federal EPP program was established by EPA in response to Executive Order 13101: Greening the Government through Waste Prevention, Recycling, and Federal Acquisition.

The federal government's buy-recycled program is another part of the RCC government-wide waste reduction effort. Its purpose is to use federal purchasing power to enhance markets for recovered and recycled materials. EPA designates items that are made from recovered materials, which the federal government and its contractors can purchase. It also recommends practices for obtaining the recycled products. The CPG program has designated 54 products made with recovered materials.

During 2003, the CPG program proposed to add fertilizers made from recovered organic materials and to revise the compost designation to include manure and biosolids as recovered materials. The CPG program also issued a Recovered Materials Advisory Notice, which provides recommendations to federal agencies about buying these products.



## Helping National Parks Become Role Models

To protect our National Parks—some of the most valuable natural areas in the country—the RCC partnered with the National Park Service's Intermountain Region to reduce hazardous and solid waste in 89 parks. Through national tools, training, and other assistance, 25 percent of the parks completed integrated solid waste management plans; 20 percent are hazardous waste free because of green purchasing programs; and 74 percent of recommendations in the parks' pollution prevention plans were implemented.

In addition, each park is developing an EMS and has completed an evaluation highlighting future needs for the partnership. This year, for example, Yellowstone National Park began working to develop sustainability goals. Zero waste by 2005 and the reduction of petroleum use in the park are two anticipated goals. These goals will form a cornerstone of the EMS. More information about the Parks Role Model is available at: <[www.epa.gov/region8/conservation\\_recycling/natlpk.html](http://www.epa.gov/region8/conservation_recycling/natlpk.html)>.

## GreenScapes Alliance

This RCC partnership aims to preserve natural resources and prevent waste by encouraging government agencies, businesses, and others to make more holistic decisions about waste generation and disposal and about the use of land, water, pesticides, and energy in large-scale landscaping projects. The Alliance unites government and industry into a powerful influence that can prevent pollution and

achieve waste reduction in large-scale land use activities. The activities include 4 million miles of road-side landscaping, Brownfields land revitalization, and the beautification and maintenance of office complexes, golf courses, and parks.

The Alliance provides information about the cost savings that can be achieved from reducing material use and waste, resource conservation, and on the performance and durability of environmentally preferable products, such as recycled-content and biobased products. Another prime objective is to educate land managers that environmentally beneficial landscaping efforts yield water and energy savings, conserve landfill space, and reduce greenhouse gas emissions. Organizations can participate in GreenScapes as Partners or Allies. Partners commit to undertake a minimum of two GreenScapes activities, and Allies work to promote greater use of GreenScapes practices. Since its inception, 15 Partners and Allies, from small and large organizations, have joined GreenScapes. To learn more about the Alliance, visit the Web at: <[www.epa.gov/greenscapes](http://www.epa.gov/greenscapes)>.



## Beneficial Use of Materials

Efficient materials management is a principle RCC goal. It seeks to have the entities that produce the waste manage it in such a way so as to reduce it at its source. It also promotes recycling of the waste and its beneficial reuse in an environmentally sound manner.

### Industrial Waste Partnership and Coal Combustion Products Partnership



The industrial waste partnership is a very important effort to achieve the RCC goal of

beneficial reuse of waste. It has a broad focus that includes beneficial reuse of both hazardous and nonhazardous waste. Primarily, this partnership has concentrated on coal combustion products, but it is looking at other waste byproducts for the future.

A notable partnership that has evolved from this RCC focus area is the Coal Combustion Products Partnership (C2P2). The American Coal Ash Association (ACAA), the Utility Solid Waste Activities Group (USWAG), the Department of Energy, and EPA sponsor this RCC "Challenge Program." C2P2 encourages generators and users of coal combustion products to increase the use of coal ash in highway and building construction products. Businesses, states, and professional and industrial associations that voluntarily commit to using these products receive recognition. During the past year, over 100 companies signed up for the C2P2 Challenge Program.

Industry set two goals for increasing the use of coal combustion products (CCPs):

- To increase the environmentally safe use of coal in concrete from 14 million metric tons in 2001 to 20 million metric tons by 2010—a 43 percent increase.
- To increase the environmentally safe beneficial use of CCPs to 45 percent by 2008—about a 30 percent increase.

Not only can the use of coal ash reduce the amount disposed of in landfills, but also can reduce the amount of carbon emitted in the manufacturing process, when used in lieu of Portland cement. Roughly 0.89 tons of carbon emissions are reduced for every ton of coal ash used as a replacement for Portland cement in concrete. More information on C2P2 is on the Internet at: <[www.epa.gov/epaoswer/osw/conserves/c2p2](http://www.epa.gov/epaoswer/osw/conserves/c2p2)>.

### Keeping Jobs Close to Home

The California Department of Commerce, the Alameda County Source Reduction and Recycling Board, and EPA partnered to support the Recycling Marketplace Project in Alameda County, California. This RCC partnership encourages recycling companies to locate near Alameda County's materials recovery facility. Local markets for the area's recyclables, such as organics, paper, construction and demolition debris, and tires, are dramatically expanding. This expansion is reducing the amount of waste exported from Alameda County, cutting transportation costs and creating more regional jobs. Major strides were made in reducing scrap tires and other waste, creating nine

recycling businesses, 60 jobs, and diverting more than 37,000 tons of waste per year from landfills.

## Energy Conservation

Saving energy is a major goal of the RCC. Using natural resources more efficiently and reusing waste more beneficially conserves and produces energy and prevents waste.

## WasteWise

The WasteWise program is an RCC partnership that achieves, among other things, energy conservation, as well as effective materials man-



agement, waste prevention, and recycling. WasteWise partners conserve energy by using fewer raw materials to make new products, and they recycle materials in

their manufacturing processes. These combined efforts not only reduce the amount of energy businesses use, but also the amount of greenhouse gases they generate.

WasteWise solicits organizations; businesses; institutions; nonprofit organizations; and state, local, and tribal governments to commit to eliminate or reduce their municipal solid waste

streams, such as paper, computers, and food waste. The program allows partners to design their own waste reduction program, using source reduction, recycling, and reuse techniques. WasteWise programs consist of four activities: Waste Assessment, Employee Education, Measurement and Reporting, and Program Maintenance.

Now in its ninth year, over 1,300 WasteWise partners have committed to reducing their solid waste through waste prevention and recycling. Nearly 200 endorsers committed to promoting the program. In 2003, WasteWise welcomed more than 100 new partners and 69 new endorsers. Since WasteWise began in 1994, partners collectively reduced their waste streams by tens of millions of tons. WasteWise partners are recognized annually through an awards program and through the use of the WasteWise logo in partners' advertising and newspaper articles, among others. More information on WasteWise is available online at: <[www.epa.gov/wastewise](http://www.epa.gov/wastewise)>.

### **WasteWise Partners Reduce Waste and Greenhouse Gas Emissions**

**In 2002, WasteWise partners identified 3.5 million tons of their waste reduction efforts as directly attributable to their WasteWise membership. This level of waste reduction translates into a reduction of greenhouse gas emissions by 2.4 million tons of carbon equivalent.**

## Tires Partnership

The RCC created a unique and diverse partnership to address used tire waste. The partnership established five groups:

- The Goals Group
- Tire-Derived Fuel Group
- Rubber-Modified Asphalt Group
- The Civil Engineering Applications Group
- Ground Rubber Group

The groups are developing recommendations that will be used as a framework for implementation options. By 2008, the Goals Group is committed to:

- Diverting 85 percent of newly generated scrap tires to reuse, recycling, and energy recovery.

- Reducing the number of existing tire stockpiles by 55 percent.

The Philadelphia Tire Round Up Program is one example of federal and local governments working together to clean up tires and produce energy. Under the auspices of the RCC, the Philadelphia Streets Department and EPA teamed up with 20 neighborhood block captains and 17 community and civic groups to collect illegally dumped tires. The Round Up collected over 10,000 tires and sent them to the American Ref-Fuel plant in Chester, Pennsylvania, where they were burned for electricity. Subject to limits, the neighborhood groups were reimbursed one dollar for every two tires collected. This partnership is using lessons learned from the Round Up to develop programs to reduce the number of scrap tires that are disposed of nationally.



### Using Landfill Gases for Energy

A new and innovative RCC effort out of Rutgers University's New Jersey Eco-Complex proves that energy can be produced from landfill gases. Methane gas is captured from landfills and used as a fuel source in closed loop aquaponic fish and plant production.

Specifically, the methane is used to power micro-turbines that provide energy for a light source for tomato plants and pumps for the fish farm. The waste heat from the micro-turbines is also recovered and run through a desalinization unit to produce potable water for the greenhouse. One BTU of methane not flared at the landfill was used to produce two high-profit crops—tomatoes and tilapia. This low maintenance, easily replicated system produced high quality fish and vegetables without the pollution associated with using diesel fuel. The use of pesticides and antibiotics also is almost completely eliminated by the closed loop process.

### Environmentally Friendly Design

Designing buildings and products so that they use and produce fewer chemicals, are more energy efficient, and more sustainable is another aspect of the RCC. Through concerted efforts, the federal government promotes the application of green building standards. The RCC green buildings partnership is developing a baseline that promotes and measures the results from use of the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Green Building Rating System (see <[www.usgbc.org](http://www.usgbc.org)>

for more information). LEED currently captures more than 5 percent of all commercial and public building space, and is being used by many federal, state, and local governments, as well as private businesses to promote high standards for multimedia green building issues. It includes detailed requirements in the areas of:

- Sustainable sites.
- Energy and atmosphere.
- Materials and resources.
- Indoor environmental quality.
- Innovation and design process.

The partnership identified over 70 ongoing RCC green building related projects, and is working on more. Following are highlights.

### EPA's Green Buildings Lead by Example

To serve as models of healthy workplaces that minimize environmental impacts, EPA strives to make its buildings as energy-efficient and sustainable as possible. In doing so, EPA simultaneously promotes the RCC's key element of "greening" the government and environmentally friendly design. The Agency opened two state-of-the-art laboratories in 2003, both



EPA Science and Technology Center  
Kansas City, Kansas



of which received a LEED Gold Rating from the U.S. Green Building Council:

- The Science and Technology Center in Kansas City, Kansas (<[www.epa.gov/oaintrnt/facilities/kansascity-lab.htm](http://www.epa.gov/oaintrnt/facilities/kansascity-lab.htm)>)
- The New England Regional Laboratory in Chelmsford, Massachusetts (<[www.epa.gov/oaintrnt/facilities/chelmsford.htm](http://www.epa.gov/oaintrnt/facilities/chelmsford.htm)>)

### Green Buildings in Public Trust

The San Francisco Bay Area Rapid Transit (BART) District partnered with RCC to develop a sustainability project that piloted lighting control power reduction technology. The pilot saved 97,090 kilowatts per hour per year with payback in less than 2 years. BART is one of the largest parking lot owners in California, and plans to require the use of this technology in all of its garages. The estimated environmental result from the pilot garage alone is a 130,198 pound reduction in carbon dioxide emissions annually. More information is available at: <[www.bart.gov](http://www.bart.gov)>.

### Construction and Demolition (C&D) Program

The construction and demolition program recently completed an Innovation Pilot on building deconstruction and reuse, adopting a unique approach to reuse called “grave-to-cradle.” The project demonstrates how to overcome barriers to deconstruction through an integrated process. The process links the deconstruction of old building materials to

new building construction and renovation projects.

An RCC program at the University of Florida planned and executed the deconstruction of an old house—the Wesley House—on a local utility’s property. A planned expansion of a local facility for at-risk youth—the Reichert House—used 8,000 pounds of materials salvaged from the deconstructed Wesley House. These materials were reused in numerous ways. They were either reused for their original purpose, such as beadboard or flooring, or for creative, new purposes, such as siding from baseboard trim and wainscoting from bricks. The project demonstrated an innovative and rewarding way to give back to the community. It soundly illustrates the environmental benefits of reusing materials from deconstruction rather than losing the resources by demolition.



### Pollution Prevention Partnerships

The RCC is working with EPA's Office of Pollution and Prevention and Toxics' (OPPT) Design for the Environment (DfE) program on two partnerships. One is investigating lead-free alternatives for solder used in electronic equipment. The other is identifying opportunities for greening the manufacture of flat screen and cathode ray tube computer monitors. The RCC also is partnering with the Green Blue Institute to challenge electronics manufacturers to develop greener electronic products. This eDesign Challenge promotes cradle-to-cradle design of sustainable electronics and end-of-life management systems. Awards for eDesign will be announced this year.

### Industrial Design Partnership

The Industrial Design Partnership works with the DfE and Green Chemistry programs. The Industrial Designers Society of America and the RCC are working to make commercial products use greener materials that are more easily disassembled for recycling and reuse. Industrial designers drive choices for product materials, finishes, colors, functions, and assembly. These choices in turn drive demand for chemicals that

end up in the waste stream. About 15,000 small businesses and industrial designers create products marketed by large businesses. The partnership's goal is to educate commercial product designers about the risks associated with the chemicals and materials they design, and to educate and train designers to use environmental information in product design decisions. This RCC partnership rewards individuals within the Industrial Designers Society of America who design high-volume products that are environmentally friendly.



# The Next Year

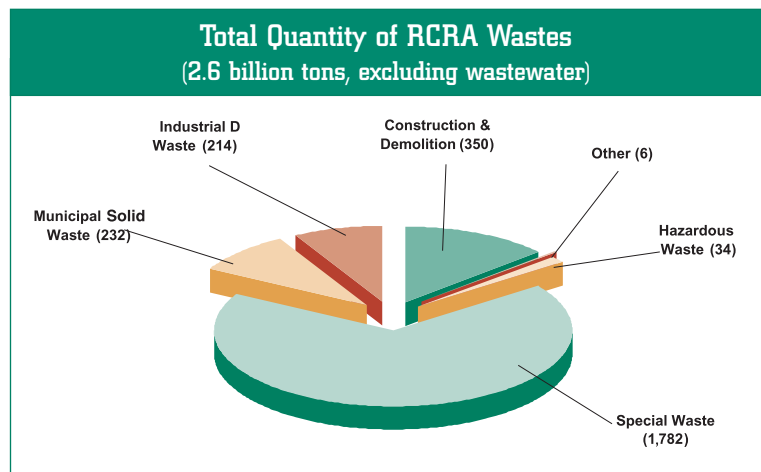
## More Key Partnerships, Solid Environmental Benefits

The RCC will continue to work with existing partners as well as new ones. Environmental goals will be further refined; progress will be documented; and successes will be rewarded. Environmental benefits resulting from RCC partnerships will be announced as they are achieved. Specific RCC targets will be selected for inclusion in EPA's 2005 strategic plan. We will continue to respond to requests for RCC partnerships.

By studying the types of waste the United States produces, the RCC will work to identify important areas on which to focus next. From this collection of government, industry, and public data, RCC will share information with our partners and others, and discuss areas where efforts can make the biggest contributions toward resource conservation. Areas of greatest risk that need to be addressed also will be identified. As illustrated by the waste graphic at right, the RCC uses broad categories of information that typically are based on legal definitions. The RCC will make an effort to dig deeper to better understand the opportunities that each part of the graph provides.

Through the M2P2 Forum, the RCC will continue to work across EPA to ensure that RCC partnerships and programs receive senior management attention. The RCC will use Agency expertise, tools, and resources to analyze and respond to critical issues.

The RCC will continue to communicate with the public, providing education and information on vital programs. We will continue to promote the RCC's key elements through outreach at conferences and other avenues. Finally, we will continue to better inform Americans about the impact of their purchasing decisions on the environment. By working together in the RCC, materials and resource conservation will be the norm, rather than the exception.



WHAT CAN YOU  
SAVE **TODAY?**

S M T W T F S



RESOURCE CONSERVATION  
**CHALLENGE**

## RCC Contact Information:

For questions about this report or the RCC, please contact:

David Hockey  
Director, Resource Conservation Challenge  
phone: (703) 308-8846  
e-mail: hockey.david@epa.gov

## Resource Conservation Challenge

**Web site:** <[www.epa.gov/rcc](http://www.epa.gov/rcc)>

This resource contains all the information about the RCC, as well as links to partners' Web sites. The site features all RCC publications, fact sheets, news stories, press releases, meeting notes, and speeches about the RCC.

- **An Update: What Can You Save Today?**  
**EPA530-F-02-031**

This fact sheet updates the reader on businesses that have taken the RCC challenge, how the RCC has engaged consumers, and partnerships that have been formed to meet the RCC challenge.

- **Guide to a Resource Conservation Challenge Partnership**  
**EPA530-F-03-055**

This guide provides information to potential partners on the important elements of

forming a partnership; defining a challenge; developing solutions and measurements; establishing and reaching goals; and promoting successes.

## The National Waste Minimization Partnership Program and Priority Chemicals

### **EPA530-F-02-035**

The National Waste Minimization Partnership Program is a partnership within the RCC with the goal of reducing the use of toxic chemicals. This fact sheet explains the details of this partnership program. It is available at: <[www.epa.gov/wastemin](http://www.epa.gov/wastemin)>

## The Coal Combustion Products Partnership

The Coal Combustion Products Partnership (C2P2) Program is a cooperative effort of EPA and the coal combustion products (CCPs) industry to help promote the beneficial use of CCPs. This fact sheet explains the details of this new partnership program. It is available at: <[www.epa.gov/epaoswer/osw/conserve/c2p2/](http://www.epa.gov/epaoswer/osw/conserve/c2p2/)>.

### **Program Information: WasteWise**

WasteWise is a free, voluntary, EPA program through which organizations eliminate costly municipal solid waste, benefiting their bottom line and the environment. WasteWise is a flexible program that allows partners to design their own solid waste reduction programs tailored to their needs. Program information can be found on the Web at: [www.epa.gov/epaoswer/non-hw/reduce/wastewise/](http://www.epa.gov/epaoswer/non-hw/reduce/wastewise/).

### **Program Information: GreenScapes**

GreenScapes provides cost-efficient and environmentally friendly solutions for large-scale landscaping. Designed to help preserve natural resources and prevent waste and pollution, GreenScapes encourages government agencies, companies, and other entities to make more holistic decisions regarding waste generation and disposal and the associated impacts on land, water, air, and energy use. Program information can be found on the Web at: [www.epa.gov/greenscapes/](http://www.epa.gov/greenscapes/).

### **Program Information: Plug-In to eCycling**

EPA and partners have launched a campaign to get the word out about opportunities to reuse

and recycle old computers, TVs, and cell phones. For more information on the Plug-In to eCycling program, please visit the Web at: [www.epa.gov/epaoswer/osw/conserve/plugin/brochure.pdf](http://www.epa.gov/epaoswer/osw/conserve/plugin/brochure.pdf) or [www.plugintorecycling.org](http://www.plugintorecycling.org).

**RCC publications may be ordered online from the National Service Center for Environmental Publications (NSCEP). For quick and easy electronic ordering, please visit [www.epa.gov/ncepihom/ordering.htm](http://www.epa.gov/ncepihom/ordering.htm).**

**If ordering by mail, indicate the document title and number and mail your request to:**

**U.S. EPA/NSCEP  
P.O. Box 42419  
Cincinnati, OH 45242-0419**

**By Fax, dial (513) 489-8695  
By E-mail: [ncepimal@one.net](mailto:ncepimal@one.net)**

**By Phone: Call 1-800-490-9198 or (513) 489-8190. (Speak to an operator Monday through Friday, 7:30 AM - 5:30 PM, E.S.T.) Leave an order 24 hours a day.**



### **Limits on EPA and Partner Participation in the Resource Conservation Challenge**

**Please note that EPA does not endorse the purchase of products or services of any company or organization mentioned in this report.**

EPA is authorized to cooperate with private and public efforts to reduce the adverse effects of releasing solid wastes into the environment and to encourage recycling of industrial and commercial materials. The Resource Conservation Challenge (RCC) program is open to all companies and organizations that wish to join the Agency in this endeavor. Press releases and promotional materials may advise the public of the partners' participation in the RCC program and identify any recognition awards that EPA provides to the partner. However, EPA is prohibited from endorsing the purchase or sale of specific commercial products or services. Our partners cannot create advertising that expressly or implicitly violates this prohibition and remain a partner with EPA.

All commitments that EPA makes in this program are subject to the availability of appropriated funds. Neither the Agency nor its partners are under legally binding obligations to continue participation in the program.



Office of Solid Waste and Emergency  
Response  
1200 Pennsylvania Avenue, NW .  
(5305W)  
Washington, DC 20460

EPA530-R-04-001  
February 2004