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Regional Strategies for Environmental Stewardship:

Successfully Merging Environmental Protection with Regional Development

NATIONAL ASSOCIATION OF DEVELOPMENT ORGANIZATIONS (NADO) RESEARCH FOUNDATION



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The NADO Research Foundation identifies, studies and promotes regional solutions and approaches to improving local prosperity and services through the nationwide network of regional development organizations.

The Research Foundation shares best practices and offers professional development training, analyzes the impact of federal policies and programs on regional development organizations, and examines the latest developments and trends in small metropolitan and rural America. Most importantly, the Research Foundation is helping bridge the communications gap among practitioners, researchers and policy makers.

The Research Foundation's current portfolio of educational programs and research projects covers issues such as community and economic development, rural transportation planning, homeland security and emergency preparedness, brownfields redevelopment, environmental stewardship and small business development finance. Visit NADO.org to learn more about the NADO Research Foundation.

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Photos by Cumberland Plateau Planning District Commission

Regional Development Organizations as Stewards of the Environment: A Scan of Effective Strategies

In 2006, the National Association of Development Organizations (NADO) Research Foundation scanned its members and other regional development organizations (RDOs) to determine how they promote economic development and environmental sustainability in their regions. The informal nationwide scan yielded rich information for this report. The NADO Research Foundation used Internet research to determine the nature and scope of RDOs' sustainable development projects. In addition, telephone interviews were conducted to gather project details. During the scan, 58 individuals at 50 organizations were contacted. The NADO Research Foundation thanks the executive directors, environmental planners, economic development directors, GIS specialists and other RDO staff who participated in this assessment.

As communities grow, they encounter new challenges. Environmental problems like air and water pollution are not limited to large cities or industrial centers; even rural areas and small cities often experience degraded natural resources. But with regional cooperation and long-range comprehensive planning for environmental protection and innovative development projects, communities can mitigate the impacts of future growth, improve conditions affected by previous development and enhance their residents' quality of life.

Although projects that relate directly to renewable energy, land use, water quality and air quality can have major positive impacts on a region's sustainable development, regional development organizations are implementing a variety of other environmental stewardship strategies. Many RDOs are protecting lives, property and resources by managing the risks posed by natural hazards. Others are preventing solid waste from contaminating the environment and compromising public health through recycling, hazardous waste collection and litter prevention. By practicing and providing support for environmentally-friendly business protocols, regional organizations improve their regions' economic and environmental health.

RDOs fill an ideal position for engaging in economic development and environmental planning strategies because cities and towns are linked to each other. Natural resource boundaries, such as watersheds and airsheds, often cross political borders, linking rural and urban areas. In addition, employers may draw their workforce from an entire region, and residents frequently travel from rural towns to urban centers to purchase goods and services. RDO leadership can help individual jurisdictions form partnerships to react to specific local situations or to plan for vibrant, sustainable, long-term growth.

Regional development organizations vary in the size of the regions they serve and the size of their staff, but most have the expertise to assist their members with identifying and securing federal, state and other funding for community development and environmental projects. Based on NADO's 2003 Membership Survey, the average RDO has a regional population of 220,650 living within a 4,151 square mile area. RDOs typically serve about six counties and 31 cities or towns. Staff members often provide technical assistance to member cities and counties with planning and implementing environmental projects and developing local ordinances. Of the 271 RDOs that responded to the 2002 NADO Salary Survey, 58 organizations employed an environmental director. Other RDO staff, such as executive directors, development specialists, land use planners, GIS professionals and solid waste managers also provide beneficial experience to their regions' sustainable development projects.

Regional development organizations are taking on a variety of actions to creatively tackle natural resource challenges. Many RDOs address four major areas of environmental management: renewable energy and energy conservation, land use, water quality and air quality. These areas comprise four sections of this report, with an additional section documenting projects that fall outside these categories, such as natural hazard mitigation, solid waste management and sustainable business practices. Each section serves as a starting point for exploring innovative projects from regional organizations across the United States.



From Wind Turbines to Methane Digesters: Regional Renewable Energy Makes Economic Sense

Regions that seek to minimize their ecological impact often take steps to use renewable sources of energy or decrease their energy consumption. Energy-related projects provide significant economic benefits to their communities. They diversify the regions' economic, employment and local investment opportunities. In addition, these projects can manage solid waste and bio-waste issues by turning garbage, by-products or livestock manure into valuable energy sources.

Regional energy conservation plans can save communities and their residents money. Conservation has the added benefits of slowing the consumption of non-renewable resources, reducing the nation's reliance on imported energy supplies and reducing the amount of pollutants entering the environment. As demonstrated by the RDO-projects in this section, energy efficient practices involve a range of planning and alignment with economic development activities.

Earth, Wind and Chicken Manure: Formidable Forces of Power

The Southwest Regional Development Commission in Minnesota encourages the development of renewable energy by facilitating and providing staff for the Rural Minnesota Energy Board, a joint powers board of the nine counties in the southwest region and six additional counties. SRDC Executive Director Jay Trusty describes, "The interest in renewable energy in our region began with a geographic feature called Buffalo Ridge. Here on the eastern edge of the prairie, the wind blows all the time. With wind turbines placed on the ridge, there is enough wind to make them cost effective and produce a lot of renewable energy."

Annette Bair, Southwest's Physical Development Director, estimated in 2004 there were over 800 turbines either developed or in the planning process, which could produce 778 megawatts of wind power. The region's renewable energy movement has been so successful in making enough wind-generated electricity available that southwest Minnesota has become a net-exporter of energy. And the movement has not stopped there. Throughout the region, developers are constructing energy-independent buildings, which run on wind or solar energy without needing to connect to the main power grid. They are also pursuing bio-fuel development from the region's agricultural assets.



Any time you can diversify, it makes your economy stronger. And when you have people in the region owning all or even a part of the turbines, the local investment in power enhances economic viability of the area. It also makes our region and the nation less dependent on foreign energy sources."
**says SRDC Physical Development Director
Annette Bair.**

The Rural Minnesota Energy Board also supports biodiesel and ethanol production, using locally grown soybeans and corn to produce the renewable fuels. Minnesota is one of a handful of states that mandates the use of renewable fuels, so that all drivers use a fuel containing ten percent ethanol or two percent biodiesel. Using bio-fuels benefits grain producers in the Southwest area. Trusty explains, "I've read one study that said that having a soy biodiesel facility in this region raised the price of soybeans about a nickel a bushel, which is a significant increase in the price that farmers are getting. The farmers are really the economic drivers in our economy."

Bair adds, "Because our region is very rural, our economy is agriculture-based. But we also have value-added production for agricultural commodities in the two ethanol and five biodiesel plants. There is also constant growth in wind-based electricity. Any time you can diversify, it makes your economy stronger. And when you have people in the region owning all or even a part of the turbines, the local investment in power enhances economic viability of the area. It also makes our region and the nation less dependent on foreign energy sources."

Expanding the production of renewable energy also diversifies the economic base and provides for a variety of job opportunities. “We suffer from a lot of out-migration because there just aren’t many jobs available in the region. But renewable energy creates manufacturing jobs in biodiesel and ethanol production, and a company just broke ground on a facility to make wind turbines. It also requires an educated workforce, so now there are more chemistry, chemical engineering and metallurgy jobs coming back to the region,” Trusty says.

East River Electric Power Cooperative, which serves 20 cooperatives in eastern South Dakota and Minnesota, has invested in renewable energy and provided economic benefits to its local jurisdictions for the past years. Scott Parsley, the Assistant General Manager of Member Services, says, “We surveyed our customers, and they strongly encouraged us to move toward renewable sources of energy, and particularly wind.”

To serve the consumers’ interest, East River and the regional Basin Electric Cooperative, of which East River is a member, have installed or contracted for about 136 megawatts of wind-generated electricity, or eight percent of its supply. In addition to being a clean source of power, constructing the turbines is beneficial to landowners and local governments. “Landowners receive a payment for having the turbines on their property. If you have three or four wind turbines, you can do fairly well. You can still graze or farm right around the turbine, so you’re not losing the use of much land. Wind farms are good for the counties, too. One of the counties with a wind farm used to have a total tax revenue of under \$1 million. Now they’ve added about another quarter of a million to their tax revenue with just one wind farm,” says Parsley.

East River is developing other sources of energy in eastern South Dakota. One methane digester is nearly constructed at a local dairy operation, with plans for more at other dairy farms and at a closed landfill in Sioux Falls. Odors resulting from livestock operations can be unpleasant, and managing manure produced at confined animal feeding operations is an environmental challenge. However, methane digesters can effectively turn waste into an energy resource.



Photo by East River Electric Cooperative

Manure collects in an upright metal container or a covered, concrete lagoon and is eaten by an enzyme injected into the sludge. The process creates a gas, which after being scrubbed to remove corrosive particulate matter, enters a generator and is heated to produce electricity. A value-added benefit: the solid by-product from the digestion process can be used as a high-quality bedding product for the dairy cows.

Like wind turbines, methane digesters add economic benefit to the region. Agricultural operations that use digesters can sell power to the cooperative’s grid as well as use their own methane-generated power, reducing their farms’ operating costs.

Earth Resources, Inc. is redefining recycling for the Georgia Mountains Region. Earth Resources invested \$1.13 million to build a model plant in Franklin County that converts chicken manure into a renewable energy source. They also have plans to construct a full-scale energy plant that will employ 35 people.

The **Georgia Mountains Regional Development Center** provided assistance to Earth Resources in securing funding, including a U.S. Department of Agriculture and Department of Energy joint biomass research and development grant to fund a three-year study on chicken manure-energy conversion. Georgia Mountains RDC’s Economic Development Director

David Sargent explains, “The plant uses a heated oven to cause pressure on the chicken litter. This extreme pressure releases gases in air and separates it from the solid component. At the same time, the gases ignite and create steam, which turns a turbine and generates electricity.”

The model plant contracts with local electric cooperatives to market its energy. It is capable of converting three tons of manure each day into enough power for 25 homes, while the full-scale plant should provide electricity for about 6,000 homes.

Managing chicken litter is a serious concern for the region’s environmental quality as well. Georgia is a leader in U.S. poultry production, and the industry produces 1.5 million tons of manure each year. By heating the chicken manure to create electricity, it also reduces the manure to ash, and the process burns cleanly, emitting few gases. The solid by-product loses its phosphates and nitrates, which contribute to water pollution and algal blooms when unprocessed manure is applied to land as a fertilizer.

Sargent says, “In Georgia and elsewhere, there is too much phosphate going into the water source. So when the chicken litter is turned into a material that can be used as a fertilizer for fields or lawns, we ultimately address runoff problems that harm our water sources.”

Reversing the Laws of Supply and Demand

Rather than just focusing their efforts on energy supply, several regions across the country are also working to increase demand for renewable sources of energy. The **South Florida Regional Planning Council** and the **Centralina Council of Governments** in North Carolina are encouraging their member communities to use alternative fuels.

For the past decade, the South Florida RPC has promoted the development of the local counties’ alternative fuel programs. Robert Daniels, Assistant Director of Planning and Policy, explains, “We’re trying to promote the use of biodiesel for all the fleet vehicles in this region, including city and county fleets and postal service trucks. With the islands that make up the Florida Keys stretching out from the coast about a



With a local supplier of soy-based biodiesel available, the City of Monroe has saved money by switching fuels, sees reduced maintenance needs due to the lubricating and cleaning properties of biodiesel, and provides economic support for the local agricultural community.

hundred miles, the water taxi service is also important for transportation. The water taxis have been very receptive to using alternative fuels. Many of them are operating on hybrid engines that use biodiesel (2-20) as well as electricity.” and have reduced fares.”

The **Centralina Council of Governments (COG)** took a regional approach to increasing alternative fuel demand. They formed the Centralina Clean Fuels Coalition (CCFC), made up of cities, counties, state organizations, interest groups, businesses and other stakeholders. The CCFC receives support from the N.C. Department of Energy and the U.S. Department of Energy’s National Clean Cities Program, which promote the use of alternative fuels to improve air quality and reduce the nation’s dependence on petroleum. Local cities like Monroe, North Carolina recognize the benefits of using biodiesel and other fuels. In 2004, Monroe began using a 20 percent biodiesel blend in its entire fleet of diesel vehicles. With a local supplier of soy-based biodiesel available, the City of Monroe has saved money by switching fuels, sees reduced maintenance needs due to the lubricating and cleaning properties of biodiesel, and provides economic support for the local agricultural community.



Photos by Mark Twain Regional Council of Governments

The COG replaced its fleet with ethanol (E85) ready cars and a Ford Escape Hybrid and is developing a network of fuel stations in the region that offer alternative fuels. CCFC has also partnered with the Gaston County School District in the production of biodiesel fuel from used cooking oil. Production began in the fall of 2005 using oil from the school food services department and several local restaurants. Initial production is planned for 12,000 gallons of biodiesel fuel this year, for a savings valued at \$30,000. They plan to expand production over the next two years with a goal of 60,000 gallons per year.

Going Green Saves Green

Some regional development organizations are serving as leaders in their communities by demonstrating a commitment to energy efficiency. The **Mark Twain Regional Council of Governments** in northern Missouri led with the “Council Goes Green” project, which constructed an environmentally friendly office that it shares with the local rural development corporation. The office building features concrete with high insulation ratings, shingles made of recycled asphalt and fiberglass and carpet crafted from recycled plastic bottles. These characteristics improve energy efficiency and reduce the amount of new materials used in construction.

Mark Twain RCOG received \$40,000 from the Mark Twain Solid Waste Management District, and the total construction cost was approximately \$90,000. The average monthly electric bill is only \$100, which is about one-third the average monthly electric cost for less efficient non-green buildings of comparable size. Since about 65 percent of electric consumption in the U.S. occurs in buildings, the Mark Twain RCOG office building can radically reduce electric demand. The

organization’s building has already proved an effective demonstration project, inspiring some regional residents to build green homes.

Assistant Director Robin Fitzgerald says, “The entire process of green building was quite interesting and more than worthwhile when you consider the environmental and efficiency benefits. It is somewhat difficult to locate building materials made from recycled products in rural areas. They can be found in other areas of the U.S., but become quite expensive when items must be shipped from around the U.S. I would truly encourage anyone who is considering constructing, whether it be residential or commercial, to consider green building. It has great rewards!”

In Pennsylvania, the **SEDA Council of Governments** (SEDA-COG) has a certified green building in the planning stages that will serve as an extension of their current office space. The new building will use recycled materials to improve insulation, similar to the Mark Twain Regional COG’s office, and it will also use strategically placed windows that allow ambient sunlight inside, decreasing the amount of energy needed to light the office during working hours.

The new green building will serve as an Energy Resource Center, housing about three of SEDA-COG’s programs. One of these will be the weatherization program. Since 1976, the Council has provided information to homeowners on decreasing their energy use. The program entails an energy audit to assess inefficiencies primarily related to heating, as well as materials and labor for home improvements at no cost to low-income households in seven of SEDA-COG’s 11 member counties. With enhanced energy efficiency, these families are better able to afford to heat their homes. According to the Department of Energy, in



Photo by Centralina Council of Governments.

2002 weatherization practices saved low-income households an average of \$215 for the year.

In addition to the Resource Center's energy-related performance, SEDA-COG will develop a storm water management system for the new building, using a grant from Pennsylvania's Growing Greener program. This system will make use of low impact development land use principles, including a green roof, porous paved parking and native plants in bioswales on the property. These features allow for rainwater absorption. Such improvements prevent storm water runoff from contributing to erosion and water pollution when new impervious surfaces, such as roofs and parking lots, are constructed.

Public Information Manager Steve Kusheloff emphasizes SEDA-COG's outreach mission: "In addition to housing efficiency programs like the weatherization program, part of the Energy Resource Center's purpose is to work with local contractors and builders, or any type of organization, to demonstrate the green building operations used in the Center that they could use too."

In California, the **Sonoma County Economic Development Board's** Business Environmental Alliance (BEA) acts as an environmental best-practices information clearinghouse for local businesses. The BEA is different from other green business organizations because its primary focus is to promote the financial incentive of implementing resource saving practices. The BEA promotes its message through its Web site, a quarterly newsletter and various reports and conferences. Via this creation of easy access to information, businesses can improve their bottom line by identifying environmentally friendly and conservation-savvy practices that save them money.



Photo by Sonoma county Economic Development Board.

Many of the conservation practices that the BEA promotes relate to water conservation and solid waste reduction, but a major emphasis is energy efficiency. The BEA encourages businesses and business-support organizations in the area to take advantage of their free energy and water audit programs. The organization promotes product upgrades, like compact light bulbs and LED (light emitting diode) exit signs offered by the local electric company, as well as weather-activated irrigation controllers offered by the local water providers.

The BEA advocates for purchasing Energy Star equipment models, which use low amounts of electricity. In addition, the BEA urges businesses to implement simple procedures such as unplugging idle devices, making efforts to turn off computers, monitors and printers when they are not in use and to install motion detectors in spaces that do not see constant use, such as break rooms.

Other BEA publications include "How-To Guides" and their quarterly newsletter, "The Bottom Line." The "How-To Guides" direct business leaders on establishing logical environmental policies that can help businesses to identify conservation goals and monitor progress. In "The Bottom Line," the BEA recognizes area businesses that are increasing their bottom line through sound environmental practices.



This Land is Our Land:

Innovative Land Use Planning for the Future

Land use planning activities can have a major impact on the sustainability of community growth. Such strategies protect natural resources, such as air and water quality. As communities grow, attracting new residents and new businesses, they can use planning and zoning activities to direct where and how that growth occurs. Innovative land use practices, including low-impact development, (LID) cluster development and multi-use districts, allow jurisdictions to grow in ways that minimize changes to the environment. They also promote the protection of natural drainage patterns, preserve open space and reduce community economic burdens, such as providing utility services to sprawled growth areas.

According to the U.S. Department of Agriculture's Natural Resources Conservation Service, 71 percent of land, or 1.4 billion acres, in the lower 48 states was rural and had non-federal land uses in 2002. With the majority of the nation's land being rural, residents in many regions of the U.S. may not see open space preservation as a key development issue. However, open spaces benefit local economies and their natural ecosystems. Managed forests, farms and ranches provide jobs and contribute to a local jurisdiction's tax base. Attractive communities with high quality natural resources can bolster tourism and attract new businesses. Corridors of open space provide wildlife habitat and can naturally filter water and air pollutants. Regional development organizations play a key role in guiding land use practices among the local jurisdictions they serve.

Land Use Planning Innovations

Land use planning efforts, like mixed-use development, can provide a variety of benefits to communities. Baxter Village in York County, South Carolina, and Afton Village in Cabarrus County, North Carolina are new developments that feature aspects of traditional town centers. As members of the **Centralina** and **Catawba Regional Councils of Governments**, these jurisdictions have signed the COGs' joint Sustainable Environment for Quality of Life (SEQL) resolution and have implemented environmental action plans. The resolution recognizes that the effects of resource degradation cross political boundaries and that environmental protection is essential for healthy communities and sustainable economical development. As a



Photo by Partners for a Livable Western New York

region, despite the state boundary, they recognize that intergovernmental cooperation is necessary for effective resource protection.

Baxter Village and Afton Village are both located in towns about 20 miles from Charlotte, North Carolina, and alongside interstates. With the transportation infrastructure connecting them to a larger city already in place, the "new village" developments are feeling pressure to grow.

Both developments mix residential and commercial uses, which would have been prohibited under strict zoning designations. Shops, restaurants and offices are within walking or biking distance for residents, as are amenities like elementary schools, public libraries, open village greens and wooded areas. Some of the buildings also combine types of use, with residential units available above commercial spaces. The neighborhoods accommodate population growth with diverse types of housing: single-family homes stand alongside two-family homes, row houses and apartment buildings.

Mixed-use neighborhoods give residents the chance to support locally owned and operated businesses that are close to their homes. In addition to assisting the local economy, mixed-use developments also demonstrate environmental benefits. Because the local jurisdictions permitted flexible zoning with smaller lot sizes, the developers could plan for the preservation of open space in and adjacent to the communities. The villages' compact sizes may often promote walking and

biking to work or leisure destinations and preserving high standards of air quality through auto travel reductions.

These two villages are examples of the increasing popularity among local jurisdictions who are planning for population growth and environmental sustainability. Although York and Cabarrus counties represent examples near a growing metropolitan center, the mixed-use principle is also being adopted by smaller cities and towns.

In 2005, for example, Carrollton, Kentucky (population 3,846) adopted an updated comprehensive plan with technical assistance from the **Northern Kentucky Area Development District**. The goal is to guide future zoning decisions that promote mixing residential, commercial and office space, filling in abandoned sites and avoiding the development of open spaces. The residents of Carrollton recognize a need to envision a sustainable future even though the city expects slow growth rates.

Low impact development (LID) is another land use principle that promotes sustainable development by minimizing the changes to vegetation, soils and drainage patterns. Local governments like Huntersville, North Carolina and regions such as the Puget Sound area in Washington serve as examples for integrating LID ordinances into planning and zoning decisions. These locations have been encouraged by their regional development organizations, the **Centralina Council of Governments** and the **Puget Sound Regional Council**, to promote sustainable development through sensible land use practices.

Low impact development practices involve land use decisions and also improve water quality by reducing sediment loads and controlling the volume and rate of storm water runoff. Just like clustered or mixed-use neighborhoods, LID neighborhoods typically feature compact development alongside open space. However, LID open spaces are naturally contoured areas where rainwater already flows, leaving drainage patterns relatively unaltered by new housing and commercial development. This practice decreases construction costs by minimizing the time and labor involved in clearing, grading and re-landscaping new development sites.

Photo from www.charneck.org/Departments/LUESA.



The Sustainable Environment for Quality of Life (SEQL) resolution, funded by the EPA, encompasses 15 counties, over 125 political jurisdictions and a population of 2.1 million. SEQL's goal is to improve environmental quality by implementing specific actions and creating a planning approach that integrates land use, transportation, energy use, air and water quality and economic reinvestment. Over the past three years, SEQL has recorded 732 sustainable actions taken by local jurisdictions.

Existing homes, commercial buildings and entire housing additions can also use LID practices to improve property drainage and restore natural patterns of water movement. These practices include creating open grass swales next to roads and driveways where runoff will be retained and filtered or using hardy and attractive native plants to establish rain gardens in low spots or near gutter downspouts. Businesses and public buildings can use pervious (porous) pavements for parking lots, driveways and sidewalks as a cost-effective way to allow rain to filter through the paved surface and into the soil, rather than flowing into storm sewers.

Using low impact development to guide land use decisions ensures continued quality of living for residents and wildlife by improving water quality and protecting drinking water sources. Undeveloped drainage corridors can serve as habitats for wildlife. In addition, open spaces and landscaping enhance a

neighborhood's attractiveness and allow towns to spend less money creating and maintaining storm sewer systems. While single jurisdictions can make a difference in protecting land and water quality by adopting LID ordinances, regional cooperation to develop uniform regulations can have an even larger positive impact on economic development coordination and resource conservation.

Conservation subdivision design has become a popular way to look at land use in Lake County, Florida. The **East Central Florida Regional Planning Council** has hosted five workshops to teach communities about protecting natural resources while planning for population growth.

"Conservation subdivision design is essentially the same approach to doing a golf course community design, but without the golf course," East Central Florida RPC Director Jeff Jones says. "First you identify the natural resources you want to protect, and you create primary and secondary resource lists. The primary resources are areas that are formally protected through some federal, state or local statutes that require permits, like wetlands. The secondary resources are those that support the primary resources, like upland buffers to wetland areas."

Residential or commercial development is planned around the protected areas. Lot sizes are reduced to increase density in the areas of the subdivision where building occurs. This prevents developers from losing money when they create conservation areas. It also allows for savings in providing infrastructure to the clustered neighborhood.

These types of communities are beneficial for residents as well. Jones explains, "Golf course communities have always proven to be attractive to residents—not as much to golfers as to people who like to have property next to the open space. But golf courses have proven not to be sustainable or economically feasible since the landowners get stuck with high operation and maintenance costs. The open space in conservation subdivisions provides an alternative to residents' desire to live next to a golf course."



In the past, we spent so much money and time planning one topic at a time. But now we're looking at how a new road will have an impact on the environment. If we're asking for a road to be widened, we also ask what land use decisions caused that road to need to be widened. says North Country Council Principal planner Stacey Doll.

This simplicity of the technique has added to its popularity. Jones says, "It's a pretty straightforward design approach. It makes sense. And it's not too technical, so it's easily understood by local leaders and community members."

Although development in northern New Hampshire has occurred slowly over the past several decades, the **North Country Council** is working with its member governments to prepare for potential future growth and consider long-term sustainability. In response to local planning boards' requests for information on new land use techniques, in 2004 Council staff developed *Managing Growth*, a handbook that outlines actions that local planning boards can take, such as encouraging cluster/open space development, planned mixed-use projects and protecting agricultural and other open spaces by selling the rights to develop them and transferring those rights to more dense planned growth areas.

Creating the handbook initiated a new community outreach project. North Country Council's Principal Planner Stacey Doll explains, "We're doing ongoing training for the local planning boards on how to make land use decisions. We also have a new lending library with resources such as the *Environmental Planning*



Handbook and other books from the American Planning Association (APA). Our members can use these guides to make growth decisions.” The outreach project is funded with a combination of several grants from the New Hampshire Office of Planning, the U.S. Department of Agriculture, the Department of Transportation and private foundations.

The outreach program has sparked interest from local communities in guiding economic growth and natural resource protection in tandem. Doll says, “Several of the planning board members are apprehensive of being overly strict if they don’t need to be, but the more information that we give them on innovative land use planning techniques, the more they seem to come back to us with specific questions on how to adopt them.” Towns in the North Country region are beginning to implement capital improvement programs to plan and budget for the maintenance and expansion of community facilities, as well as incorporating natural resource studies into the master planning process.

According to Doll, growth management solutions are becoming more commonly used because “these innovative techniques force you to do longer range, visioning. In the past, we spent so much money and time planning one topic at a time. But now we’re looking at how a new road will have an impact on the environment. If we’re asking for a road to be widened, we also ask what land use decisions caused that road to need to be widened. We don’t have the extent of development that has happened in the southern part of New England, but it’s slowly creeping into the North Country. We’re trying to help the local planning holistic boards make educated decisions on land use as needed, with holistic and long-term thinking.”

The “ecological footprint” concept analyzes human pressure on the environment by estimating how much productive land must be allocated to satisfy each individual’s resource consumption. The World Wildlife Foundation’s Living Planet Report 2000 estimates that the average U.S. resident requires over 24 acres. But worldwide, there are fewer than five productive acres per person available (<http://assets.panda.org/downloads/lpr2000.pdf>).

The **Genesee/Finger Lakes Regional Planning Council** (G/FLRPC) is working on multiple projects to coordinate land use planning with transportation planning in its nine-county region near Rochester, New York. Two of their initiatives, “Optimizing Transportation Infrastructure through Effective Land Use” and “Preparing Village Main Streets for Planning,” maximize benefits to local jurisdictions’ economic development and natural resource protection efforts.

The “Optimizing Transportation Infrastructure” project analyzes the relationship between land use regulations and public transit access and use. Often, land use decisions assume that automobiles are the only major source of transportation. Executive Director David Zorn says, “Transportation-oriented community design should encourage folks to live and work as close to transit corridors as possible. Communities often may not consider putting high-density residential zoning districts and commercial districts on those corridors, which forces residential and commercial areas away from the infrastructure. If people don’t live close by, then they’re probably not going to use public transportation.”



G/FLRPC has also worked for two years on studying the results of state, county and local metropolitan transportation planning organization (MPO) decisions to redo village Main Streets, which are often state or federal routes. Zorn explains, “The roads that come through the villages might be high traffic roads, but they also serve as each village’s center.” The RPC facilitates dialogue among stakeholders to establish a plan that serves the best interests of each community.

“We assist the municipalities with identifying the elements they should consider in the land use planning process, such as public infrastructure, building façades and other Main Street improvements that would produce positive results when authorities decide to restructure roadways,” Zorn continues. Two regional success stories have been Batavia and Geneva, which have fewer than 20,000 residents. These cities have successfully implemented economic growth plans while updating their Main Street corridors.

Re-orienting local jurisdictions’ land use rules to promote transit, sidewalks and greenways rather than automobile transportation provides several benefits. Traffic congestion can be reduced, causing a smaller impact on regional water and air quality and using fewer non-renewable fuel resources. In addition, residents may experience positive health effects from increased walking and biking to their destinations. Zorn suggests that such planning efforts have “the overall benefit of developing in the most effective and efficient manner. You can actually target transportation to existing or proposed development. For example, if you want to bring in certain types of industry, you have to make sure they have a rail spur, are close by an airport and have good road access.”

G/FLRPC uses a variety of funding sources to complete its transportation/land use projects. Much of the work is funded by the Genesee Transportation Council (the

local MPO) through its unified planning work program. The RPC also uses local municipal, state and federal funding sources.

Zorn says, “In doing land use and transportation planning, it is important to analyze whether roads and other transit modes are going in places that are the least likely to affect the natural environment, such as wetlands, streams and prime agricultural soils. We also need to consider whether the transportation is serving the land use, or if the land use is serving transportation. Whether we continue to build in support of new land development or infill development is a real transportation/land use connection.”

Land Use Projects Protect Our Natural Resources

Constructing homes and businesses on steeply sloped areas can have a major impact on the natural resources in the region. The results can be erosion, altered drainage patterns and waterway degradation. In order to limit such changes, the **Georgia Mountains Regional Development Center** has worked with its local jurisdictions to conserve their environmental resources as they update their comprehensive economic development plans.

Erosion often occurs when builders change the grade of individual lots or add a significant amount of impervious surfaces, such as roofs, roads and driveways. This can be a major problem. Property owners can lose land to severe erosion when the contours of the land and the drainage patterns are altered, and added sediment damages local waterways. Planning Director Tom O’Bryant says, “We’ve worked with the local governments to develop mountain protection ordinances, so development does not have such an impact on the slopes in our region, or on the scenic views.”

The Georgia Department of Community Affairs suggests that ordinances protect sloped lands above 2,200 feet, and many counties have adopted this elevation standard. In 2005, White County, Georgia, which is within the Georgia Mountains region, chose to regulate new construction on lots with large areas of 25 percent slope, regardless of elevation. To preserve the integrity of the natural resources, the ordinance restricts the percentage of trees on land lots that can be cleared to 50 percent, excluding those cleared to lay the footprint of the house. It also allows for only 30 percent of a new lot to be graded. The restriction also protects the natural beauty of the area by limiting major sources of lighting on the slopes, obliging homeowners to plant trees obscuring the view of their house and preventing the construction of homes over 40 feet tall.

Northern Minnesota's **Arrowhead Regional Development Council** (ARDC) created the Vermilion Lake Coastal Zone Management project in 2002 to engage local citizens in a natural resource protection effort. Funded by the Minnesota Department of Natural Resources (MDNR) and St. Louis County, the project used over 20 local volunteers to inventory aquatic vegetation and substrate for nearly 300 miles of the 1,200 miles of shoreline around Vermilion Lake.

The project developed out of a process in which ARDC analyzed new shoreland zoning regulations with the help of residents. The organization recruited many of these same people to participate in Vermilion Lake Coastal Zone Management project. Using methods developed by ARDC staff, volunteers received maps of the lake and added hand-drawn details of where various types of vegetation occurred along mainland shore and some of the islands in the lake. Since the volunteers lacked extensive training in identifying plants or creating geographic information system (GIS) maps, there were some inconsistencies in the amount of detail and accuracy of the information collected. However, using volunteers allowed for a more extensive project because labor costs were significantly reduced. ARDC staff were able to invest more time in analyzing the data with GIS software.

Senior GIS Specialist David Yapel explains the importance of the project to the Arrowhead Region: "There are a lot of former wilderness areas on these lakes now being developed. Preserving the wilderness character of the lake needs to be bridged in the face of new development."

He continues, "Through appropriate land use decisions we are able to accomplish more to protect the lakes environment. In the past, land use and zoning weren't carefully regulated, and as a result there are inconsistent types of buildings. Some sewage systems aren't even monitored, and road networks often are spider webs of fragmented systems."

The MDNR and Forest Service have already used the data collected in the Vermilion Lake project for enhancing fish spawning and other natural resource protections. Although the shoreland zoning process is complete for now, the data could be used to guide future land use decisions. The project had the added benefit of increasing local interest in land use planning, shore and lake conservation and work completed by the DNR. In addition, several local government groups have expressed interest in learning how to engage volunteers in similar projects.

In 2002, the **Northeast Michigan Council of Governments** (NEMCOG) received a \$53,000 grant from the EPA Great Lakes National Protection Office to develop the Misery Bay Initiative, A Plan to Protect the Coastal Ecosystems. This project grew out of the 1998 designation of Misery Bay as one of 20 Biodiversity Investment Areas on the Great Lakes at the State of the Lakes Ecosystem Conference, a bi-annual event organized as part of the Great Lakes Water Quality Agreement between the U.S. and Canada.

The Misery Bay planning area is located in Alpena County in the Northeastern Lower Peninsula of Michigan, covering parts of Alpena Township and a small area in the City of Alpena (population 11,000). Although located adjacent to a community that has seen considerable residential and industrial development over the last century, the ecosystems are in relatively pristine condition. Misery Bay remains a



Photo by Don Bern, Northeast Michigan Council of Governments.

habitat for rare plant and animal species like the dwarf lake iris (Michigan's official wildflower), Lake Huron tansy, pitcher's thistle and common and Caspian terns. Furthermore, the forests and marshes around Misery Bay are critical stopover sites for migrating neotropical birds.

The plan was developed in partnership with the Misery Bay Initiative Steering Committee, comprising local jurisdictions, agencies, landowners, businesses and environmental groups. The committee's goal was to preserve the region's wildlands character and ecological treasures while respecting the rights of property owners. The plan identifies significant and fragile natural resources, making recommendations for conservation planning and educating landowners on best practices.

Alpena Township was concurrently updating its master plan. Information compiled through the Misery Bay Initiative influenced the township to expand resource conservation in future land use planning areas, a first step toward protecting fragile coastal ecosystems. The township secured grant funding to purchase 132 acres of undeveloped shoreland. The Nature Conservancy and Headwaters Land Conservancy are working toward purchasing other priority lands.

The Misery Bay Initiative represents a success for the region in coordinating environmental protections with land use planning efforts. However, challenges to reconcile the two perspectives still remain. Rick Deuell, Deputy Director and Senior Planner, explains, "When you've lived next to these rare plants and animals your whole life, you may not realize how valuable and important they are until somebody points it out to you."

Some planning challenges are specific to rural areas. Deuell says, "The growth in Northeast Michigan tends to be a scattered kind of rural sprawl. It's not subdivisions, but 40-acre parcels cut into five- or 10-acre parcels, taking prime forestland and farmland out of production."

He continues, "When I talk to the townships about open space preservation or cluster development, and 50-60 percent of their township is public land, they say, 'We've got too much open space.' But I always remind them of the benefits of open space and the importance of planning for their green infrastructure. There are critical resource areas on private lands that should be protected that you can't get it back once it's developed."



Tapping Into Strategies that Assure Water Quality for Today and Tomorrow

According to the EPA, Americans consume more than one billion glasses of tap water each day. And the World Water Council ranked the U.S. last out of 147 countries in efficiency (National Council for Science and the Environment 2004). With such a high demand for water and infrastructure challenges, access to a clean and secure supply is essential for the health of every region.

Contaminants often create problems for local water users and the environment. In rural and small metropolitan areas, private wells and small water systems may be common. Private systems are not federally regulated, and their owners may not know how to recognize and mitigate water quality risks. Where public water utilities are in place, treating degraded water can be a major expense for cities and counties. In response regional development organizations are demonstrating how efforts to improve water and wastewater infrastructure, to clean-up sources of pollution and to encourage residents to become environmental stewards can improve regional water quality, protect community health, and be cost efficient.

Modern Infrastructure is the Pipeline for Clean Water

Failing septic systems and straight pipes, which connect home wastewater to rivers and streams without treating the water, contribute to much of the water pollution in Kentucky. Having a sanitary wastewater system is required by state and federal laws, but inputting sewer systems is impossible in some parts of the region due to hilly terrain. In addition, many households cannot afford to upgrade their systems on their own. Eastern Kentucky PRIDE (Personal Responsibility in a Desirable Environment) Executive Director Rich Thomas says, "When we first started PRIDE about eight years ago, the Area Development Districts in this part of Kentucky did a survey to see how many straight pipes and failing septs there were. They came up with an estimate of about 36,000. I think that number may be low since these systems are hidden from view."

PRIDE's Homeowner Septic System Grant Program offers grants to low-income homeowners in the state's Appalachian counties to pay 100 percent of the cost of replacing straight pipes and failing septic systems with fully functional septs or sewer hook-ups where they



Photo by Kentucky PRIDE

are available. "Every time someone flushes a toilet that connects to a straight pipe or to a failing septic, it leaches into one of the streams. Then it gets into the major rivers and it affects all the people who are downstream," Thomas says.

Since the southeastern Kentucky area is large and contains 38 counties, PRIDE uses the **Kentucky Area Development Districts** to reach out to residents and communities with its wastewater improvement programs. Seven ADDs have at least one county in the PRIDE region, and each district has a PRIDE coordinator to distribute information and assist residents with the Homeowner Septic System Grant Program applications.

This program has made a significant impact on decreasing the amount of raw sewage that enters Kentucky's waterways. PRIDE, which is funded by the National Oceanic and Atmospheric Administration, has devoted over \$20 million to providing adequate wastewater treatment for nearly 6,500 homes. In addition, PRIDE accepts applications from cities, counties and utilities to provide sewer systems to

“We used to spend about \$2,500 each month on electricity with the mechanized plant, but now we probably spend about \$1,000.”
says Elk City Wastewater Superintendent
Mike McFall

residents and to encourage the development of innovative wastewater treatment techniques.

Thomas emphasizes the importance of regional participation in cleaning up Kentucky’s waters: “The technology is there to purify water, but it’s getting more expensive every day. The more polluted your water is, the more expensive it will be to treat it. So it’s important to prevent waste from entering the waterways.”

Another way to avoid the high cost of treating water is to reuse gray water. Gray water systems can be developed at the household level, re-using fairly clean water from washing clothes or bathing to irrigating a family’s lawn. On a larger scale, cities can also make use of gray water systems. **Elk City, Oklahoma**, a member of the **Southwest Oklahoma Development Authority**, overhauled its sewage treatment system two years ago to achieve cost savings and promote energy efficiency.

According to Wastewater Superintendent Mike McFall, “a mechanized sewage treatment plant is really expensive to operate. Previously, when we had a mechanized plant, we had four aerators and three clarifiers. Each one had a motor that ran almost all the time. That really adds to the cost. Mechanized plants can treat a large volume of water, but the same amount has to go out that comes in. The discharge goes into the creek. When you release the water into the creek, you have to take several daily tests to make sure the water falls within state and federal standards. That gets expensive. “We used to spend about \$2,500 each month on electricity with the mechanized plant, but now we probably spend about \$1,000.”

In contrast, Elk City now uses a series of 19 lagoons to treat its domestic sewage. McFall explains, “The flow of gravity brings the sewage to the plant. We have one lift station to pump the wastewater to the primary lagoons, but the water movement through the lagoon system is all gravity-driven from that point. To me, it’s a much better system than a mechanized plant because it mimics nature.”



Photos by Kentucky PRIDE.

The lagoons have a 500-million gallon capacity, and with the appropriate weather patterns it can retain all the wastewater until it evaporates. However, summer rains can cause an excess level of water. The excess is drawn from the final lagoons and used for irrigating a local golf course, as well as irrigating the sewage treatment plant’s lawn and alfalfa fields. In addition, one farmer has begun using the gray water to irrigate his crops, and McFall expects that more agricultural users will join the first. He says, “There was a little bit of hesitation from local farmers at first. They were worried about any odor that might come from the lagoon water. But we’re pulling out the water several lagoons down the line. There is plenty of time for water to be treated, and there isn’t an odor. Area residents have accepted the idea. Gray water now gets pretty heavy use throughout the summer, drawing as much as 300,000 gallons each day.”

Keeping Water Pollutant-Free

With Potato Creek in Georgia being listed as an impaired body of water by the EPA, its local communities needed to develop Total Maximum Daily Load (TMDL) plans, or EPA-approved budgets for the amount of pollutants detected in the water each day.



Image by Planning and Development District III.

Because the creek's condition affected four cities and two counties, the **McIntosh Trail Regional Development Center** took a major role in the process.

With an EPA grant and matching funds from the local jurisdictions, McIntosh Trail RDC coordinated regional cooperation and expertise from the University of Georgia in an innovative program to monitor and track the bacterial sources. Executive Director Lanier Boatwright says, "The foremost microbiologist in the region figured out how to take samples of water and to determine if the fecal coliform bacteria are from humans or from certain animals. Each type of animal has a different type of bacteria associated with it."

By testing samples throughout Potato Creek and its tributaries for two years during a range of weather patterns, the research team was able to determine three problem areas. "Most of the problems can be fixed with little cost to the local governments," Boatwright explains. "In one case, the problem came from cattle grazing in and around the creek. The county can create an ordinance to require a setback so that cattle, and their manure, stay out of the creek." In another section of Potato Creek, human coliform bacteria were detected in the water and were traced to a cracked sewer line.

According to Boatwright, another case involved large amounts of pet waste that contaminated the water. This might be resolved by cities enacting an ordinance restricting the number of pets residents could own. Local groups have also started an information cam-

paign to raise the public's consciousness about pet waste and water quality.

The RDC will continue monitoring the water to make sure the McIntosh Trail region stays below the safe level for coliform bacteria. The TMDL project has been a good example of a regional approach. Eventually the water from the region flows into the Flint river and major rivers in the state, so the water quality affects everyone downstream and the region's water supply. Boatwright points out, "Everybody realizes that if they didn't deal with it now, their water supply would have to come from another source, which would be more costly and a far greater problem."

Using Technology for Clean Water

Planning and Development District III in Yankton, South Dakota is leading the region by facilitating a forum for economic development alongside the Missouri River in South Dakota and Nebraska. The goals of the Missouri River Corridor forum are to emphasize cooperation among groups, enhance natural and cultural resources, increase tourism, foster community relationships and generate increases in regional employment and investment. Groups participating in the forum include local cities, state agencies, tribal groups, water districts, local economic development corporations, chambers of commerce and local residents.

As part of this effort, PDD III used GIS technology to map the locations of abandoned automobiles and dump sites for appliances, batteries, metal, concrete blocks



Photos by Bay-Lake RPC.

and other materials. Executive Director Greg Henderson explains, “We identified over 160 abandoned junk cars on the banks of the river. Using our GIS map, the city of Yankton, the state and other private organizations are beginning to pull those cars out. It was a problem that everybody knew existed, but until we mapped it, it did not seem real to most people unless they were floating by it on the river. That map is a powerful tool; it has helped to move the clean-up at a faster pace.”

South Dakotans and Nebraskans in the region hope that fixing this environmental problem will spark economic development as well as improving the natural resources. Henderson says, “Tourism is a big part of our economy here. Extending south from Yankton is one of the few natural areas left on the Missouri River. With the Lewis and Clark Bicenten-

nial [2003 to 2006] drawing tourists here, it’s an embarrassment for our area to have visitors seeing the river in that condition.”

Local groups are working with District III to clean up the Missouri River. The improved natural feature may help attract new development. For example, Yankton is hoping to be selected as the permanent home for a Lewis and Clark exhibit that has traveled across the nation since 2001. During the tour, 1.5 million people have viewed the exhibit, and Yankton sees the potential for generating tourist interest if chosen as the location. One possible site for the museum would be on top of the historic, two-level Meridian Bridge spanning the Missouri River.

The **Bay-Lake Regional Planning Commission** (BLRPC) began the Environmental Corridor Mapping project in 1997 with funding from the Wisconsin Department of Natural Resources and the Wisconsin Coastal Management Program. In 2005, the RPC completed the project with publications for each of the region’s eight counties and a regional report. Although the major motivation for mapping has been to protect water quality, the maps have also been useful for land use decisions.

In each county, BLRPC formed a group of citizens and natural resource professionals to determine which types of resources were significant for their area. These local decisions guided how the corridors were defined in each county report.

Environmental corridors connect a variety of significant natural resource areas. For most of the counties involved, these resources include wetlands and buffers, lakes, ponds, rivers, intermittent streams, 100-year floodplains and recreation areas. Historical, archaeological and scientific sites are also present. Large swathes of natural habitat allow for safe wildlife movement and promote good storm water management and pollution filtration.

The mapping project takes on great significance considering the increasing development pressure on areas of coastal wetlands, waterways and wildlife habitat. Water quality is an especially critical issue because all eight of the region’s counties border Lake Michigan or Green Bay. In addition, the environmen-

tal corridor project identified over 600,000 acres of wetlands, 1,314 lakes with an area of about 38,000 acres and over 300 major waterway systems.

Angela Pierce, Natural Resources Planner II, describes the success of the project: "All the counties quickly took ownership of the mapping project. We've found that when we go into communities to assist with their comprehensive planning, they immediately pull out their environmental corridor map to include that information in the plans."

Using information from the project, communities are making long-term plans that impact their economies and can mitigate some development-related expenses, such as re-building structures in floodplains. It also allows counties and towns to recognize the contribution that a healthy natural environment makes to quality of life through viewsheds, recreation and good health from clean air and water.

In addition, Pierce says, "Some counties are looking more toward nature-based tourism as a growing area of their economy. In particular, Door County, which consists of a peninsula in Lake Michigan, has plant and animal resources that are found nowhere else. Door County residents value their unique natural resources." The mapping project assists communities with improving their economies while protecting the resources on which the tourist industry relies.

Using GIS applications can make it easier for communities to plan land use while keeping water quality in mind. The **East Central Florida Regional Planning Council** is working to develop a GIS software application to assist its member governments in planning within the Wekiva River Basin. RPC Director Jeff Jones explains, "The Wekiva River is spring-fed, with several other spring-fed runs that merge into it. The river has become a natural resource jewel for the Orlando area. So far, development has moved around the river basin area. As a result, there's a lot of interest in trying to ensure that the functions of that system and its ecological structure are preserved."

The project began when the most urbanized county in the river basin area asked the RPC for a study to assist them in making decisions about a few proposals for large-scale developments. Jones says, We needed a tool

to get a better handle on what the impacts would be and how to address them, and how development in our jurisdiction can affect other jurisdictions in meeting their goals, as well."

The East Central Florida RPC has used funding from member counties, the Florida water management districts and the Florida Department of Transportation to begin developing this application. "It's something that could be easily replicated in other regions, as long as you have the basic data," Jones says.

The ecological modeling software is still a work in progress. The RPC has an initial model up and running, but so far it is primarily accessible to seasoned GIS users. Jones says, "Our original idea was to have a very straightforward application that non-GIS people could use at their desks, and we're working to achieve that."

Managing Watersheds to Assure Safe and Clean Water Supplies

The Catskill Watershed Corporation (CWC) in New York State has a two-part mission—to preserve the quality of the water destined for New York City and its suburbs, and to preserve the viability of communities in the City's upstate watershed. In the Catskill region, about 72,000 individuals live year-round or seasonally in small towns. Geographically, it is mountainous with river valleys where six giant reservoirs collect most of the water bound for the taps of nine million people—half the state's population.

The CWC, which receives the bulk of its funding from New York City under a landmark partnership agreement signed in 1997, helps residents replace failed septic systems, provides funds for storm water controls and assists hamlets in developing community wastewater treatment solutions. Some parcels of land adjacent to water cannot support conventional septic systems, so the CWC is researching innovative systems like those using aerobic treatment, peat filters and sand filters. Storage facilities for road de-icing materials such as sand and salt were constructed in 36 towns under another CWC program. A new program provides area communities with grants to develop comprehensive planning, zoning, highway maintenance, open space requirements and other environmental protection measures.

As part of the 1997 agreement in which New York City was given a waiver to avoid building a filtering system for its Catskill-Delaware water supply, the City has purchased thousands of acres of land which will remain forever vacant. To mitigate the economic and tax impact of those purchases, and of stricter land use regulations imposed on the Watershed by New York City, the CWC also provides loans to environmentally responsible businesses and supports regional tourism initiatives. Since 1998, \$20 million has been loaned to create or retain hundreds of local jobs.

Nearly \$1 million in Watershed Education grants have also been awarded to schools and organizations in the Catskill-Delaware Watershed and in New York City. “These projects are teaching the next generation of stewards and consumers about this critical resource and how to protect and conserve it,” explained CWC Executive Director Alan Rosa.



Photo by Catskill Watershed Corporation.

The **Top of Alabama Regional Council of Governments** (TARCOG) worked with local interest groups to complete the West Fork Little River Sub-Watershed Study in 2005, and will continue the study further downstream in 2006. Funding comes from the Alabama Department of Environmental Management. The sub-watershed crosses several jurisdictions, originating in Georgia, flowing into Alabama through state park and national preserve lands and bordering the small city of Fort Payne (population 13,000).

The study discovered several issues having an impact on the region’s water quality, including sedimentation and contamination from failing septic systems. Using the results of the study, TARCOG developed several recommendations including controlling erosion and sediment through land conservation and the creation of buffer zones around the West Fork of the Little River. Creating a greenway adjacent to the water may be one way to introduce a buffer zone into the area.

Buffers can be adopted into city or county ordinances by specifying a setback, or a distance from rivers or streams where development cannot occur. Establishing buffer zones might protect a natural mature forested area from encroachment or provide local groups with an opportunity to develop swales of native plants that retain green space in an urbanizing corridor. By providing a space through which water is filtered before it enters a waterway, pollution and sediment that degrade water quality can be minimized.

Citizen Participation is Critical Component of Environmental Preservation

Informing citizens and engaging them in clean-up and educational activities can have an impact on influencing individual and community behaviors and be an effective pollution prevention tool for regions. Since its foundation, Kentucky PRIDE has reached out to 156,000 volunteers that have participated in almost 500,000 hours of cleaning up local waterways and doing environmental education activities.

PRIDE hosts a variety of opportunities for citizens to become involved in their work. The organization has developed an outreach network that includes at least one PRIDE coordinator in each of southeast Kentucky’s 38 counties. These coordinators make contacts with schools, churches and other organizations in their county to increase awareness of environmental concerns and PRIDE activities.

The events that attract the greatest volume of volunteers are the Spring Clean-up activities that take place across the region every April. Executive Director Rich Thomas says, “For the Spring Clean-up, we provide rubber gloves and trash bags to everyone who participates. We do a lot of advertising to get as many volunteers as possible. We also try to get our Congress-

men to attend.” Residents participating in the Spring Clean-up and other PRIDE activities have cleared 101,000 tons of trash removed from illegal dumps, waterways and roadsides.

Other major PRIDE activities entail training young Kentucky residents to respect their environments. Thomas explains, “For the Clean Streams Initiative, we get experts from the University of Kentucky and other agencies to train teachers to teach children about water sampling. We provide them with basic kits and supplies.”

PRIDE has disbursed \$2.8 million in educational grants since 1997, which fund a range of activities, including school clubs initiating recycling programs, building nature trails and other hands-on projects.

The **Berkeley-Charleston-Dorchester Council of Governments** (BCDCOG) in South Carolina provides education about water quality to local decision makers through a program initiated by Sea Grant Extension at the University of Connecticut called the National Network for Nonpoint Education for Municipal Officials (NEMO). Nonpoint source pollution occurs when runoff from rain, snow or irrigation systems picks up contaminants. The most common contaminants are sediment and nutrients, such as phosphates and nitrates. Chemicals, oil, bacteria and heavy metals also contribute to water quality degradation.

The NEMO program introduces local elected and appointed officials to key management techniques and concepts for understanding and controlling nonpoint source pollution. BCDCOG teaches the concepts using a three-tiered approach: focusing on planning for development and natural resource conservation together, minimizing environmental impacts through site design and mitigating unavoidable impacts through best management practices.

Because nonpoint source pollution comes from a variety of source points, it is difficult to trace pollutants to a single origin. As a result, focusing on education and outreach through programs like NEMO, rather than regulation, can be effective in restoring water quality, preventing adverse economic impacts of beach and shellfish bed closures and reducing the need to treat communities’ water supply.



Photo by Upper Savannah Council of Governments.

In 2004, **Upper Savannah Council of Governments** (COG) in South Carolina began the Senior Environmental Corps (SEC) project to encourage retired individuals to take part in environmental stewardship. The COG developed the project in cooperation with the South Carolina Department of Health and Environmental Control, which provided the initial funding. The COG is currently seeking new funding sources for future SEC projects.

SEC’s major activity so far has been to raise local awareness of water quality issues. Students from Lander University in Greenwood (population 22,000) joined the senior volunteers to locate and mark storm drains in the city. The pre-printed tags and stenciled messages placed near drains warn residents not to pour anything down storm drains because they lead directly into rivers and streams. Dumping substances into drains affects the drinking water supply, swimming and recreation areas and wildlife further downstream.

The students and seniors also left water quality packets on the residents’ doors. Director of Government Services Rick Green explains, “With the information from the packets, homeowners have learned what they can do at home to improve water quality. Some of the issues include fertilizing lawns or washing cars close to storm drains.”

Green says that while the direct impact of the project is difficult to measure, the COG has noticed more interest in the project and in environmental quality from seniors and other residents. The project is significant to regional environmental stewardship outreach. In fact a study by the state Department of Health and Environmental Control’s Bureau of Water indicated that many South Carolinians still have little understanding of the impact that runoff pollution has on water quality.



Breathing Life into Regional Clean Air Strategies

A region's air quality has a strong connection to its public health, environmental well-being and economic vitality. Particulate matter (known as PM10 or PM2.5, depending on particle size), liquid droplets and harmful gases constitute some of the major types of air pollutants. These particles may come from specific locations such as factories or power plants, but mobile sources, including cars, trucks, buses or airplanes, and even wildfires and other natural sources contribute significantly to the composition of air pollution.

PM10 and PM2.5 and ground-level ozone are among the contaminants that have an impact on public health, aggravating allergies or asthma and contribute to cancer, birth defects and injury to the brain and nerves. For this reason, particulate matter and ozone are federally regulated. If local jurisdictions exceed the air quality standards set by the EPA, they may lose economic development opportunities. Agricultural and forestry products also may lose value if they suffer from degraded resources, and the general health of local eco-systems is compromised. Since airsheds cross political boundaries, regional development organizations are effective in developing action plans to mitigate and prevent future air quality problems. RDOs are also capable of educating residents about actions they can take to improve their air resources.

Regional Partnerships Promote Pollution Prevention

When five counties in Northeast Texas nearly faced environmental sanctions for exceeding EPA ozone standards in 1996, the **East Texas Council of Governments** (ETCOG) responded by partnering with local government and industry leaders to form the Northeast Texas Air Care Association (NETAC). Now NETAC has become proactive in improving regional air quality by implementing its Clean Air Action Plan. The ETCOG receives and administers grants from the Texas legislature for air monitoring, implementing reduction measures, training and administering educational programs.

NETAC is making use of innovative monitoring procedures to better understand air quality issues in the region. During the summer months of 2003 and 2005, the association sponsored an aircraft study, in which

data on weather conditions, ozone and other pollutants like nitric oxide and sulfur dioxide were collected during flights. From this information, NETAC and partner organizations analyze ozone plumes to identify local sources of pollution and determine how it travels through the atmosphere.

In addition, local volunteers are working with NETAC to collect data from home weather stations that describe wind patterns near Lake Cherokee, an area with consistently higher maximum ozone levels than other places in the region. The suspected cause is re-circulation of pollutants past the same monitors. By using volunteers, the cost of the study is kept to a minimum and the results will improve reduction measure accuracy. Another benefit is having knowledge of local weather and pollution patterns.

One pilot program that NETAC used to reduce emissions is retrofitting gas compressor engines used in natural gas production. In 2002, an outside study estimated that compressor engines in Northeast Texas account for 12,000 tons of emissions per year, or about 22 percent of the region's total. In response, NETAC conducted an emission-reducing pilot study in 2005 of compressors retrofitted with a solar panel and battery and the integration of an air/fuel ratio control valve. The converted gas compressors decreased emissions an average of 97 percent and were very cost effective. The region will now look at retrofitting additional gas compressor engines to reduce emissions and allow the economic function of producing gas in the region to continue.

In 2002, the **Roanoke Valley-Alleghany Regional Commission** (RVARC) in Virginia formed an Early Action Compact with five local governments to develop an air quality plan and prevent the imminent threat of becoming an EPA-designated non-attainment area.

Residents in the areas saw the benefits of avoiding that designation in keeping local control over air quality and promoting development. A group of about 70 people representing local governments, state agencies and environmental, health and recreation groups met regularly throughout 2003 to establish strategies for decreasing emissions from mobile sources like heavy duty diesel equipment and lawn and garden equipment. These plans included public education through air-



quality action days and developing resources for alternative transportation, such as ridesharing, biking, walking and using public transportation.

Staying within attainment status is a significant achievement for economic development in the region. Wayne Strickland, Executive Director, of RVARC explains, “While other places in Virginia have a strong service industry, our region is strong in manufacturing. Becoming a non-attainment region would have restricted our ability to attract new industry.” New or expanding businesses that might become new sources of pollution would have to go through a permitting process. The permit would not allow new pollution to affect a region’s ability to meet the EPA’s National Ambient Air Quality Standards. If companies failed to meet the conditions of their permit, they could face penalties and enforcement actions.

Senior Planner Mark McCaskill of RVARC adds, “In addition to industry, this area tries to market itself for outdoor recreation and tourism. Being in the traditional non-attainment process instead of the early action process would have much more of a stigma for attracting that type of investment.”

A large percentage of the air pollution in the Roanoke region originates in other areas of the country, forcing the region to rely partially on state and federal initiatives that will improve air quality both upwind of the region and locally. But RVARC’s programs, along with these larger programs and beneficial weather patterns, have resulted in the region meeting new 8-hour ozone standards every day for the past two years, setting a positive trend as they move closer to EPA’s Early Action Plan attainment deadline of 2007.

Civic Participation for Clean Air

The **Miami Valley Regional Planning Commission (MVRPC)** in western Ohio has led public involvement to improve air quality since 1994. After being advised by the EPA Region 5 office that air quality standards were scheduled to be raised, MVRPC realized that not meeting the new guidelines could have a negative impact on residents’ health and could jeopardize the region’s transportation funding. As a result, the RPC developed the Miami Valley Air Quality Program to educate the public on ozone and particulate matter issues.

Local residents participate in a variety of RPC-sponsored outreach and incentive programs. Internet users can sign up for EnviroFlash alerts for local air quality information and view time-sequenced maps of daily ozone and particulate matter pollution levels on the Miami Valley Air Web site. MVRPC created a school air quality mascot called Smoginator, who is featured in educational videos and comic books for elementary-aged children.



Photo by Miami Valley Regional Planning Commission.



Photos by Miami Valley Regional Planning Commission.

Miami Valley RPC's incentive programs include giving away prizes like battery-powered lawn equipment and a hybrid automobile. The popular RideShare Program matches people who live and work near each other and provides free parking in downtown Dayton for participants. Residents can also have their gas caps assessed and replaced for free if the caps do not seal appropriately. Old or leaking gas cans can be traded in for new spill-proof cans provided by the EPA. Since gas-powered lawnmowers and other equipment can contribute to ground-level ozone formation, residents can trade in their yard equipment to receive a discounted price on battery-operated mowers and other tools.

Miami Valley RPC's efforts at public outreach have made a significant impact on citizen awareness. Laura Loges, Manager of Marketing and Public Affairs, says, "As more stories are in the media, people have become much more aware of our air quality issues, and what they can do about it."

She continues, "According to the market research that we conduct every year, awareness of our region's air quality challenges is really high, with 80 percent of those surveyed knowing about air pollution issues. About 85 percent of respondents reported that they modify their actions on Air Pollution Advisory Days."

The **Indian Nations Council of Governments** (INCOG) in Oklahoma is another RDO that aims to clear up issues surrounding air quality and pollution. With funding from the Department of Energy, administered through the Oklahoma Department of Commerce State Energy Program, INCOG compiled the Tulsa Outdoor Air Quality Curriculum from various existing air quality curricula. The lessons help children

understand the atmosphere, how the weather works and the Tulsa region's major air pollution issues. This project is one of several air quality programs that support the EPA Tulsa Area Early Action Compact for mobile air pollution sources.

The materials allow for flexible use by teachers, with a variety of lessons and hands-on activities, as well as teaching aids such as vocabulary lists and fact sheets. Lessons can be used alone when teachers integrate messages about air quality into occasional class sessions, or instructors can use the full range of materials to develop longer-term study units in the science curriculum.

Elementary, junior high and high school educators can choose lessons and associated reading materials appropriate to each age group. Younger students learn what air is and how it moves, with object lessons such as races between items like marbles and leaves that the children blow across a table. Older students learn more complex concepts, such as what air quality standards are and how they are measured. These activities help children to become aware of air pollution, its health effects and what they can do to prevent degradation of air quality at a young age so that they can engage in environmentally-conscious behavior throughout their lives.



Photo by Center for Hazards Research & Policy Development University of Louisville.

Mitigating Environmental Degradation Caused by Natural Disasters

Natural disasters pose a threat to people's lives, can cause extensive damage to property and can degrade a region's environmental quality.

The **Buffalo Trace Area Development District** in Kentucky is taking steps to mitigate damage created by environmental hazards like floods, tornadoes and thunderstorms. Kevin Cornette of Buffalo Trace ADD coordinates pre-disaster mitigation planning with Kentucky Emergency Management. According to Cornette, the process can be different for rural areas than for urban areas, even though they face the same potential disasters. "The vulnerabilities are different for urban areas because you have to plan for more buildings and more people being affected by that hazard. It can be more difficult for rural regions because there is often a lack of detailed information about the location of people and structures."

In Kentucky, the 15 **Area Development Districts** (ADDs) contract with the state Division of Emergency Management to collect geographic data about their regions and to research the natural hazards that can occur locally. The ADDs then analyze this information using software applications developed by FEMA, which provide a profile of each hazard. The mitigation plans are based on assessments of each local jurisdiction's vulnerabilities, and planners use GIS software to manage details like parcel data, residential structure GPS (global positioning system) points from 9-1-1 systems and road center lines. The public provides feedback throughout this process via committees, boards and open hearings.

Communities can take several different mitigation action measures as they develop their hazard plans. Some strategies entail structural projects, such as building levees, floodwalls, storm sewers or detention basins. Emergency service planning includes providing adequate warning systems and establishing protocol where evacuations may need to take place. Communities can also prevent loss of life, property and environmental quality by establishing outreach campaigns to inform the public of where potentially hazardous areas are located and what steps they can take to plan for natural disasters.

Prevention strategies entail using planning and zoning ordinances to guide development away from hazard-prone areas like floodplains or wildfire risk areas. Property protection entails structurally modifying

buildings to withstand natural hazards like gale-force winds, relocating residences or moving businesses out of floodplain or elevating structures to diminish flood damage. In turn, natural resources can be protected by preventing future development in areas with fragile resources, such as floodplains or wetlands.

Disbursing funds for dry fire hydrants from the **Sycamore Trails Resource Conservation and Development Council** since 2005 has improved safety and protection for residents, their property and natural resources in a rural nine-county region in western Indiana.

Dry hydrants are non-pressurized systems that connect to ponds, lakes, cisterns or other bodies of water. They provide firefighters with access to water to combat emergencies that occur outside of areas served by municipal or rural water lines. They also can supplement the water supply in areas that have water lines but suffer from low pressure. Installing dry hydrants in known locations can save time and fuel by preventing the need for rural firefighters to travel to municipal hydrants to fill and re-fill their tanks or to search for a pump-ready water source. Having a predictable water supply at a fire scene improves the protection of lives and property.

The dry hydrant system uses strainers and filters to prevent damage to animals and plants in the water source and to maintain a steady supply of water without clogging the line. Another benefit of the system is that it does not use treated water, reducing the load on local treatment systems.

Supported by funds from the U.S. Forest Service, the Sycamore Trails RC&D Council has already worked with counties and fire departments to install hydrants in about half its region, and is continuing the project to improve fire protection for the rest of the rural area. The grants cover half the cost of installing the hydrants, and local governments can cost-share using in-kind resources, such as labor and equipment.



Photo by Sycamore Trails Resource Conservation and Development Council.



Photo by
Meramec
Regional
Planning
Commission

Recycling and Solid Waste Management Programs Promote Clean Environment

The Meramec Regional Planning Commission is resolving local solid waste issues with its Illegal Dump Clean-up and Adopt-A-Dump Program. The RPC addresses water quality protection in eight central Missouri counties through educational programming for residents about illegal dumping and mobilizing volunteers and other local organizations to clean up dumpsites.

The state of Missouri is known for its numerous waterways and karst topography, featuring limestone bedrock with sinkholes, springs and over 5,000 known caves. Sinkholes, caves and streams are favorite places for dumping grounds and are susceptible to contamination due to their geographical composition.

To combat this problem, the RPC identified dumpsites using GIS technology, coordinating its efforts with county commissioners and road crews, the U.S. Forest Service, the Missouri Department of Conservation and the Missouri Department of Natural Resources. Of the 70 identified sites, 17 dumps have been cleaned by 400 local volunteers since 2004. These individuals removed 367 tons of trash, including 1,280 tires and 34 tons of metal to be recycled. "This program has generated more public participation than anything we've done in the last several years," said Richard Cavender, MRPC's executive director.

In addition, the RPC established an Adopt-A-Dump program. People who frequent the area of known dumpsites have volunteered to monitor the area for new waste that is illegally deposited. Volunteers can alert local authorities and remove the items soon after they are dumped, minimizing the damage to the local water supply. The Dump Clean-up and Adopt-A-Dump programs are funded by USDA Rural Development and the Ozark Rivers Solid Waste Management District.

In 1989, the Virginia legislature passed a mandate that all local jurisdictions recycle 25 percent of their solid waste by 1995. However, some counties have not met that requirement to date, incurring fines that could be avoided if they increased their recycling rate. In response, the **Cumberland Plateau Planning District Commission** (CPPDC) created the Regional Litter Prevention and Recycling Pilot Program for three southwest Virginia counties in 2004.

The Planning District Commission used regional cooperation to develop and implement the program, partnering with state and federal agencies, county supervisory boards, litter control and recycling departments, soil and water conservation districts, private sector entities, local schools and citizen groups. With funding from the Appalachian Regional Commission and Russell, Dickenson and Buchanan counties, CPPDC created programs to increase recycling participation. The programs include training county officials to accurately record recycling rates, education campaigns in schools, collecting printer cartridges and re-using abandoned cars for scrap metal.

In addition, an e-recycling campaign collected 15 tons of computers and other electronics. Three, no-cost county-wide document destruction and recycling promotions encouraged about 40 businesses to recycle office paper. In just one year, the regional recycling rate jumped from about eight percent to 20 percent. The region expects to meet the 25 percent mandate within another year and to introduce paper and aluminum recycling in local schools.

The region has also adopted an Assign-A-Highway program. Litter Recycling Coordinator Toby Edwards explains, "When judges assign individuals to probation, we designate a two-mile stretch of highway that teams of about 10 probationers are required to clean up weekly. As a result, the amount of roadside litter has visibly declined." The Assign-A-Highway program, which has removed over 500 tons of litter from the three-county region, has been praised statewide as a model.

Using volunteers and probationers, the region also identified over 600 dumpsites and cleaned up 84 of them. This regional clean-up and recycling effort is significant to the region not only for removing environmental threats, but also "because businesses don't want to move into an area that's dirty, and tourists who see littered roadsides aren't going to want to come back," Edwards says.

Beautifying the region will assist with tourism promotion and diversifying the region's coal-based economy. The Crooked Road Music Trail runs through the Cumberland Plateau region and throughout Southwest Virginia giving prominence to venues from folk,

country and bluegrass music history. The Trail attracts visitors from all over the country and internationally. Edwards says, "Recently, a group from Ireland mentioned to the Trail director that some of the other counties they traveled through had litter by the roadside. The more pristine it looks the better experience they'll have."

With funding from the Maine State Planning Office, **Androscoggin Valley Council of Governments (AVCOG)** partnered with the City of Lewiston and Environmental Projects, Inc. to develop a permanent household hazardous waste facility in Lewiston. The facility opened its doors to residents of the three-county region in September 2005. The facility collects harsh cleaners, oil-based paints and stains, pesticides, automotive fluids, swimming pool chemicals and many other substances that pose a fire hazard or a chemical threat to public health and the environment.

Having a permanent facility open on a regular basis each year provides convenient access for residents to dispose of hazardous waste products. Towns in the region can dispense vouchers allowing households to dispose of five gallons of liquid waste or 20 pounds of dry waste, plus five fluorescent light bulbs for free. Maine residents from outside the region can also use the facility by paying a \$25 fee. In addition, special one-day collections will be held throughout region for residents who live outside of Lewiston.

AVCOG also supports a clean environment by encouraging residents to choose non-hazardous alternatives. The COG implemented an information campaign with additional State Planning Office funding. Campaign materials include brochures about purchasing or making safer alternatives to hazardous products, like mixing white vinegar with baking soda to clear clogged drains rather than using a chemical product.

The **Northwest Regional Planning Commission** in Wisconsin established the Northwest Cleansweep Program in 1995 to safely offset agricultural hazardous waste disposal costs. The program collects hazardous waste for free from farmers and households, while agriculture-related businesses like tree, vegetable and cranberry operations and other businesses that generate small quantities of hazardous waste receive a 50 percent discount on disposal costs.



Photo by Meramec Regional Planning Commission

The Cleansweep Program provides an important service to the region with the free or low-cost service. Hazardous Waste Program Director Bill Welter says, "Without the program, a lot of the waste would go into landfills or ditches. There's also a lot of county-owned land in the area. Unfortunately that's a place that people tend to dump things if they don't have other options available." The Cleansweep Program fills the service gap as a free option for residents and an affordable one for business owners.

The hazardous waste collection is funded by levies from the region's counties and the Wisconsin Department of Agriculture, Trade and Consumer Protection grants. The remainder of the budget comes from user fees from businesses and contracts with outside counties. This system is an improvement over the previous one, in which the 10 counties each contracted out their hazardous waste collection at a high cost. The partnership formed through the Northwest Regional Planning Commission decreases the businesses' and the region's disposal cost while it mitigates natural resource degradation.

The program has been effective in the region. Welter says, "When we started the program in 1995, we collected about 50,000 pounds, and it's only increased. The last two years we've been running over 200,000 pounds." In addition, about 70 percent of the collected waste is recycled into new uses, including fuel re-blending.



Photo by Sierra Economic Development District.

Sustainable Business Practices Increase Community Awareness of Environmental Stewardship

The Northwest Michigan Council of Governments established the Sustainable Business Forum in 2005. The Forum provides information for local businesses through a series of free workshops and resources on their Web site. An online discussion board will connect individuals in a network for sharing green business practices and locating potential users of industrial operations' waste.

The workshops are conducted early in the morning so business owners can attend them before going to work. The presentation topics have included tips and tax incentives for energy conservation and resources for waste reduction and purchasing recycled materials. Future meetings will highlight best practices in the hospitality industry, water conservation and heating and cooling efficiency.

Interest in the Forum has grown significantly. Sustainable Business Forum Coordinator Patty O'Donnell says, "I started the email list with about 45 people, and it has now grown to about 145. We have a variety of businesses that participate, including a scrapbooking store, hospitality businesses, banks, a realtor, a building reuse business and an office equipment operation. At one workshop, the office supply business brought a chair they've developed that is made of 30 percent recycled material."

The Sustainable Business Forum will continue its outreach mission by providing information about the economic incentives for practicing conservation principles to business owners. O'Donnell says, "It's easy to take the resources around you for granted. Almost all the counties in our region border Lake Michigan, so it's important that we develop a bridge between business and environmental stewardship."

Since passing a resolution in July 2001, the **Land-of-Sky Regional Council** in western North Carolina has promoted environmentally preferable purchasing through its own office and with an educational campaign in its four-county region. This initiative was supported with funding from the state Division of Pollution Prevention and Environmental Assistance.

As part of its policy, the council purchases paper products that are chlorine-free and/or contain at least



30 percent post-consumer content. Land-of-Sky Council is willing to pay slightly more for environmentally preferable materials than for products using virgin materials. A five-percent price preference policy has been authorized. The policy also includes purchasing recycled computer disks, re-manufactured toner cartridges, products that do not contain rainforest or tropical wood and energy efficient lighting and electronic equipment.

Ron Townley, Solid Waste/Brownfields Team Leader, explains, "The environmentally preferable purchasing policy tries to take into account more than just recycled content. It also looks at factors like manufacturing methodologies. For example, if you have a choice between recycled paper that is bleached and recycled paper that is unbleached, you should choose the unbleached paper."

Product performance was also evaluated. Staff members conducted informal tests, such as running recycled paper through printers and copiers, comparing the functionality and comfort of pens and pencils and evaluating recycled content manila and plain envelopes. From the tests, they concluded that recycled products were equal or superior in quality to products made from virgin materials.

Overall, the purchasing policy matches the council's overall philosophy in conducting community planning and economic development work. Land-of-Sky

Council administers a variety of environmental projects, like promoting water quality through storm water education and straight pipe elimination and clean air campaigns.

Staff members developed outreach materials to educate local government planning departments, solid waste authorities and school districts on opportunities to work with their purchasing agents on buying recycled content and other environmentally conscious materials.

Sierra Economic Development District (SEDD), serving four counties in the Tahoe Basin region of California, has promoted economic development and natural resource protection through its support for sustainable wood business for the past 12 years. SEDD recognizes the potential for economic development and job creation related to woody biomass utilization, as well as the benefit for public health and safety.

Leaving small diameter trees, low brush and dead wood in place can provide fuel for wildfires that severely damage property, cause human and wildlife injury or death and degrade air and water quality. In addition, fires can impair or destroy agricultural and timber assets and recreational spaces.

SEDD's Executive Director Betty Riley says, "Sawmills have closed across our region, and we don't have the infrastructure capacity to utilize the wood materials that are available. Our intent is to avoid catastrophic fires by establishing market-driven responses to wood utilization. Collaboratively, county supervisors have identified biomass utilization as the key strategy in accomplishing this."

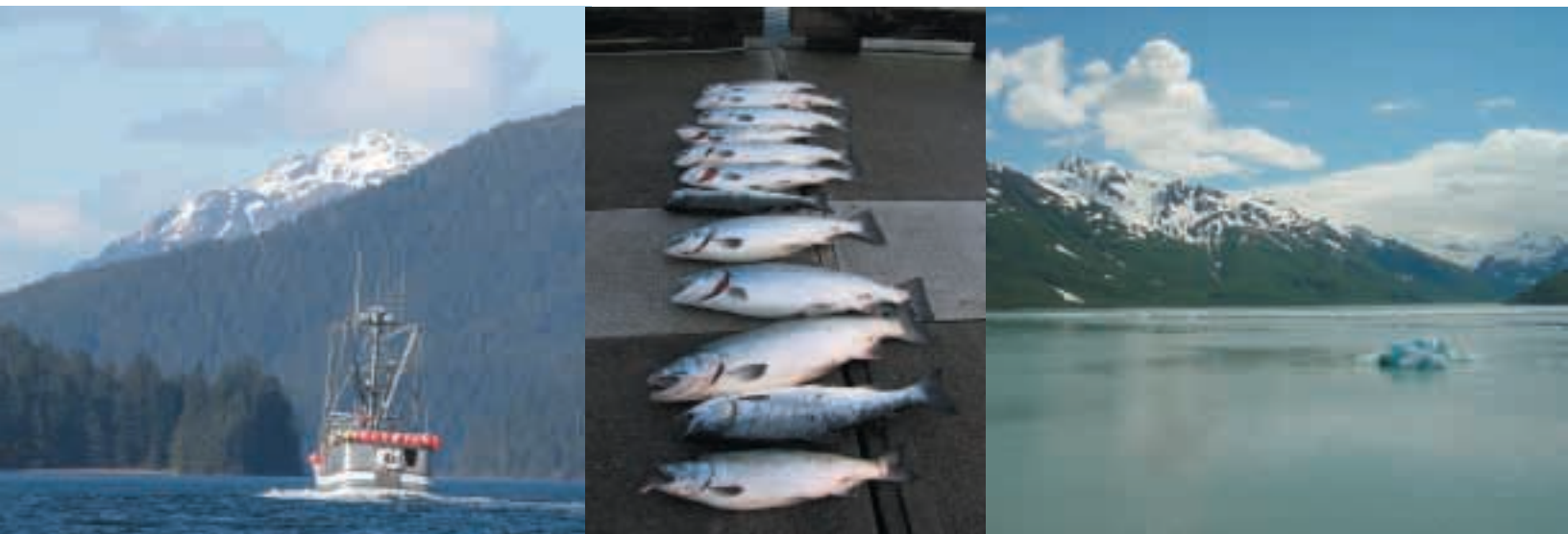
Using about 20 percent of the organization's annual budget, SEDD has several initiatives promoting biomass utilization as a solution to having excess woody materials. SEDD is partnering with the California Department of Forestry and the U.S. Forest Service Region 5 on a working group to identify and overcome of barriers associated with market-driven projects. The organization is planning a forum in Fall 2006 to bring together various players and potential investors to discuss local biomass strategies. The region may develop a business incubation site and is looking into research and development related to biomass as renewable energy.



Riley says, "We're trying to recreate the sustainable wood utilization economy, which is a challenge. There are difficulties related to dealing with regulations, preserving air quality, where to site different types of technologies, how to move the material from one place to another and how to stimulate private investment. In addition, there is a 'not in my backyard' mindset—people don't always want mills located in their community."

She continues, "But the potential for jobs is real, so we're trying to demonstrate that the region is capable of developing a variety of industries," such as biomass electricity generation, ethanol production and organics for pharmaceuticals or fragrances.

SEDD's work has had an impact on its region's business development. Riley says that much of the business creation has been by small entrepreneurs who employ four or five people, with a noticeable increase in the number of timber and landscaping operations doing fire fuels reduction for property owners. That kind of economic impact is significant, but difficult to measure. More quantifiable is the success the region has seen in a decrease of fire events, probably due in part to the work of the community-based fire safe councils SEDD



created. The councils educate landowners about fire safety and use grant money to clear private ground.

Promoting sustainable business on a regional level is an important part of SEDD's work. Riley explains, "We have to be conscious and work from the perspective that what's good for the economy can also be good for the environment. These issues are bigger than any one entity can manage on their own. By working regionally, we see a balance between keeping jobs local and the larger-scale need to protect our forests."

The **Juneau Economic Development Council (JEDC)** supports sustainable economic development in the city of Juneau and the Southeast Alaska region by administering the revolving loan fund and providing business counseling services. In addition, JEDC began the Alaska Salmon Byproduct Utilization Project in 2003 with \$175,000 in funding from the Alaska Department of Fish and Game and private sector sources. The Council partnered with the Alaska Department of Environmental Conservation to research ways to minimize salmon waste volume.

As the EPA implemented the 1996 Magnuson-Stevens Act, which required fisheries to use more of what they caught, it restricted the amount of offal that processors could dispose. In Alaska, the annual salmon catch averages about 67 million fish or 311 million pounds, which was valued at about \$84 million in 2003. Only about half of each salmon enters the market destined for human consumption. The other half of the fish, including the head, bones and innards, is considered waste. In the past, much of the waste has been ground and dumped into the ocean. With restricted discharge permits, the industry had to find new uses of the

salmon by-product to avoid low quality salmon being used in canned or frozen products sold to consumers.

With over 150 million pounds of salmon waste produced each year, opportunities for using salmon offal abound. JEDC has worked with local partners to develop operations producing fishmeal, fish oil for fuel and composted offal/sawdust mixtures used to improve soil characteristics. One of JEDC's client companies is Alaska Protein Recovery, which is in its fourth year of operation. The Development Council is also looking into new possibilities, such as feed for livestock and aquaculture, fertilizer, cosmetics and nutritional supplements.

Improving opportunities to use offal is important to the economy in Southeast Alaska because the salmon industry directly employs about 2,000 individuals and is a prime industry for the region. With decreasing values of salmon catches and increasingly strict disposal guidelines, JEDC's work to develop the new opportunities within the salmon industry has a major impact on the livelihood of regional residents and improved environmental quality.

Organizations Profiled

Alabama

Top of Alabama Regional Council of Governments
Huntsville, Alabama
256.830.0818
www.alarc.org/tarcog

Alaska

Juneau Economic Development Council
Juneau, Alaska
907.463.3662
www.jedc.org

California

Sierra Economic Development District
Auburn, California
530.823.4703
www.sedd.org

Sonoma County Economic Development Board
Santa Rosa, California
707.565.7170
www.sonoma-county.org/edb/index.htm

Florida

East Central Florida Regional Planning Council
Maitland, Florida
407.623.1075
www.ecfrpc.org/Main/Main.asp

South Florida Regional Planning Council
Hollywood, Florida
954-985-4416
www.sfrpc.com

Georgia

Georgia Mountains Regional Development Center
Gainesville, Georgia
770.538.2626
www.gmrdc.org

McIntosh Trail Regional Development Center
Griffin, Georgia
770.227.6300
www.mtrdc.org

Indiana

Sycamore Trails Resource Conservation & Development Council, Inc.
Greencastle, Indiana
765.653.9785
www.sycamoretrails.org

Kentucky

Buffalo Trace Area Development District
Maysville, Kentucky
606.564.6894
www.btadd.com/articles/home.asp

Northern Kentucky Area Development District
Florence, Kentucky
859.283.1885
www.nkadd.org

Kentucky PRIDE
Somerset, Kentucky
606.677.6150
www.kypride.org

Maine

Androscoggin Valley Council of Governments
Auburn, Maine
207.783.9186
www.avcog.org

Michigan

Northeast Michigan Council of Governments
Gaylord, Michigan
989.732.3551
www.nemcog.org

Northwest Michigan Council of Governments
Traverse City, Michigan
231.929.5000
www.nwm.cog.mi.us
www.nwmsbf.org

Minnesota

Arrowhead Regional Development Commission

Duluth, Minnesota

218.722.5545

www.ardc.org

Southwest Regional Development Commission

Slayton, Minnesota

507.836.8547

www.swrdc.org

Missouri

Mark Twain Regional Council of Governments

Perry, Missouri

573.565.2203

www.marktwaincog.com

Meramec Regional Planning Commission

St. James, Missouri

573.265.2993

www.missourimeramecregion.org/mrpc

New Hampshire

North Country Council, Inc.

Bethlehem, New Hampshire

603.444.6303

www.nccouncil.org

New York

Catskill Watershed Corporation

Margaretville, New York

845.586.1400

www.cwconline.org

Genesee/Finger Lakes Regional Planning Council

Rochester, New York

585.454.0190

www.gflrpc.org

North Carolina

Centralina Council of Governments

Charlotte, North Carolina

704.372.2416

www.centralina.org

Land-of-Sky Regional Council

Asheville, North Carolina

828.251.6622

www.landofsky.org

Ohio

Miami Valley Regional Planning Commission

Dayton, Ohio

937.223.6323

www.miamivalleyair.org

www.mvrpc.org

Oklahoma

City of Elk City, Oklahoma

580.225.7561

www.elkcity.com

Indian Nations Council of Governments

Tulsa, Oklahoma

918.584.7526

www.incog.org

Pennsylvania

SEDA Council of Governments

Lewisburg, Pennsylvania

570.524.4491

www.seda-cog.org

South Carolina

Berkeley-Charleston-Dorchester Council of Governments

North Charleston, South Carolina
843.529.0400
www.bcdcog.com

Catawba Regional Council of Governments

Rock Hill, South Carolina
803.327.9041
www.state.sc.us/cogs/catawba

Upper Savannah Council of Governments

Greenwood, South Carolina
864.941.8050
www.uppersavannah.com/index4.html

South Dakota

East River Electric Power Cooperative

Madison, South Dakota
605.256.8015
www.eastriver.coop

Planning and Development District III

Yankton, South Dakota
605.665.4408
www.districtiii.org

Texas

East Texas Council of Governments

Kilgore, Texas
903.984.8641
www.etcog.org

Virginia

Cumberland Plateau Planning District Commission

Lebanon, Virginia
276.889.1778
www.cppdc.org/index.htm
www.assignahighway.com

Roanoke Valley-Alleghany Regional Commission

Roanoke, Virginia
540.343.4417
www.rvarc.org

Washington

Puget Sound Regional Council

Seattle, Washington
206.464.7090
www.psrc.org

Wisconsin

Bay-Lake Regional Planning Commission

Green Bay, Wisconsin
920.448.2820
www.baylakerpc.org

Northwest Regional Planning Commission

Spooner, Wisconsin
715.635.2197
www.nwrpc.com



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