

Activism

GARY A. O'DELL

Community Self-Help Activism in Water/Sewer Development: Case Studies from McDowell County, West Virginia, and Letcher County, Kentucky

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The Appalachian region, stretching from New York to Mississippi, has long been considered economically disadvantaged. Of the 410 counties in the region, 22 percent are so lacking in infrastructure and opportunity as to be characterized by the Appalachian Regional Commission (ARC) as "distressed." The majority of these distressed counties are located in the Central Appalachian region of Kentucky and West Virginia. For many of these counties, among the most critical of development issues for communities and the dispersed rural population are the lack of dependable, good quality water supplies and an effective means of wastewater treatment. By examining these problems in two distressed counties—McDowell County, West Virginia, and Letcher County, Kentucky—this article compares the conventional and innovative approaches being applied to address them.

In many rural neighborhoods, hundreds of families who have never had access to any public water supply system have traditionally obtained household supplies from wells, springs, and rainwater collection, or by purchase of transported water (O'Dell 1996). Water testing programs have shown that such untreated water sources are often health hazards, contaminated with sewage, pesticides, or heavy metals, or with undesirable aesthetic qualities of taste, color, or odor. Even where communities are served by public water systems,¹ many of these systems are characterized by undersized and aging lines and treatment facilities that are hard pressed to supply the existing population

cluster, let alone broaden coverage to the rural dispersed population. In many areas a declining customer base for water utilities, the result of emigration from Appalachia to areas of the nation with better economic opportunities, bars suppliers from sufficient revenues to upgrade or expand service.

Of equal importance is the problem of sewage disposal. Entire towns, excluding rural households, lack wastewater treatment systems and often discharge raw sewage directly into rivers and streams through open lines known as "straightpipes." On-site septic systems are often impractical due to lot size

limitations or ineffective due to conditions of the local soil or bedrock geology. The lack of proper sewage disposal promotes environmental degradation and potential health hazards, including contamination of drinking water sources.

The problems of water supply and sewage disposal are inextricably linked. Per capita water usage rates in self-supplied households are far less than for households connected to public water systems.² Providing public water system service to self-supplied households without sewer connections greatly increases domestic water use and, therefore, production of untreated wastewater, thus further degrading surface and groundwater quality. Clearly, the issues of water supply and sewage disposal must be addressed simultaneously.

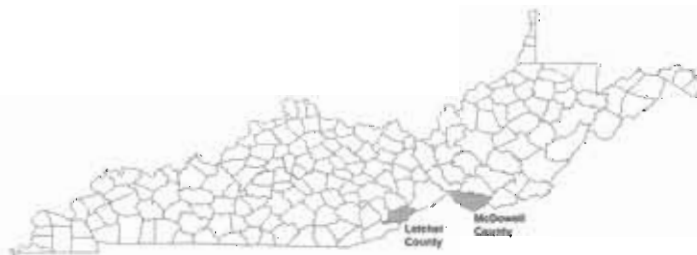
The greatest obstacle to providing water and sewer services is financial. Water and sewer projects are enormously expensive, particularly in Appalachia where additional obstacles are rugged terrain and limited funding sources. The high costs of connection to water and sewer lines, and the high monthly charges necessary for debt servicing, are often prohibitive in the economically distressed Appalachian counties where per capita incomes are among the lowest in the nation.

Limited funding for water and sewer infrastructure development in the Appalachian region has been available through both federal and state programs.

Typically, federal programs provide the funds, and state agencies determine project priorities.



The Appalachian Region, as defined by the Appalachian Regional Commission. Source: ARC



Location of Letcher and McDowell counties, by any measure among the most distressed areas in the United States

The principal federal agencies involved are the Appalachian Regional Commission (ARC), the Department of Agriculture's Rural Utilities Services (RUS), the Department of Housing and Urban Development (HUD), and the Environmental Protection Agency (EPA). Although the ARC's annual appropriation for water/wastewater projects (generally less than \$50 million) is by far the least of any of these agencies, these funds are exclusively targeted to the Appalachian region. In contrast, the RUS has a substantially larger appropriation for water and sewer grants and loans, averaging \$1.4 billion per year over the last ten years, but applied to small community projects nationwide (Maras 2004).

From HUD, Community Development Block Grants (CDBGs) for water and sewer facility construction in small communities are available through a "non-entitlement" grant program (USHUD 2004). During fiscal year 2003, non-entitlement CDBGs for water and sewer projects amounted to \$422.2 million, or 32 percent of the total \$1.3 billion in state-administered HUD disbursements (Duncan 2004). The EPA is authorized to make grants to states to capitalize revolving fund loans to public water and wastewater systems, requiring a 20 percent match by the state. Drinking Water State Revolving Fund (SRF) investment for 2003 totaled \$812.5 million, of which the federal contribution was \$627 million (USEPA 2004a). Wastewater treatment funding provided by the Clean Water SRF program is significantly larger, with the federal contribution amounting to \$1.25 billion in 2003 (USEPA 2004b). EPA statistics indicate that, nationally, most of the loans under both programs are made to systems serving fewer than 10,000 persons (Cody *et. al.* 2003, pp. 19, 22).

In Kentucky and West Virginia, as in many other states, similar agency structures have been established to assist communities with infrastructure development. The Kentucky Infrastructure Authority (KIA) allocates the 20 percent state match for projects funded by either of the two EPA SRFs; the funds are derived from an ad hoc bond issuance incorporated in the annual state budget (Covington 2004). Kentucky has 15 local Area Development Districts (ADDs), public corporations consisting of elected officials, technical experts, and local citizens who serve as planners and financial facilitators for their respective regions. Equivalent organizations in West Virginia are the 11 Regional Planning and Development Councils and the Infrastructure and Jobs Development Council, which disburses state matching funds for water and sewer development.

As substantial as sums of three or four billion dollars may seem, funds available annually through these various programs are inadequate to meet the challenges of providing safe drinking water and wastewater treatment in Appalachia. With the exception of the relatively minor funds provided by the ARC, these sums are greatly diluted by application to the U.S. as a whole, so that an individual state's annual share is generally only a few tens of millions of dollars. A single drinking water plant may cost two or three million, and literally hundreds of communities are in need in the Appalachian region. According to a 2001 report by the U.S. General Accounting Office, "The estimated cost of the investments needed to repair, replace or upgrade aging

facilities; to accommodate the nation's growing population; and to meet new water quality standards ranges from \$300 billion to \$1 trillion over the next 20 years." Larger appropriations for existing programs or alternative means of funding are needed, or less expensive methods of treating sewage and supplying potable water to communities.

Traditional approaches to developing water and sewer infrastructure have generally been applied from the top down, driven by regulatory mandates and technical expertise. These are indeed essential components, but some current approaches are being implemented from the bottom up; that is, through a planning process that begins at the grassroots level and is controlled by the local population whose interests are at stake. Participation of stakeholders, who represent local knowledge, is complemented by expert advice from regulators, scientists, and technicians.

By examining three non-traditional but differing approaches to infrastructure development, each of which is designed to build community capacity by engaging the populations directly in planning and implementation, readers might see relevant applications to their own communities. In McDowell County, West Virginia, residents of many small communities in the Big Creek region organized to protest through the court system the intolerable water quality and poor service provided by an absentee-owned private company, with the end result being the formation of a locally controlled Public Service District that supplies reliable and potable water. Elsewhere in McDowell County, the community of War acquired the aging and deteriorated city waterworks from a nonresponsive private company and, with labor provided by citizen volunteers, is installing a modern system. In Letcher County, Kentucky, water and sewer development undertaken at the grassroots level combines concepts of both regionalization of infrastructure and locally tailored solutions. In two of these cases, an external, non-governmental organization served as a catalyst to motivate the population and facilitate the process; in the third case, citizen activism was strictly home-grown. Observations and conclusions presented here are based upon field observations and interviews undertaken during fall, 1999, which have been updated by more recent communications with concerned individuals.

Characteristics of McDowell and Letcher Counties

Both Letcher County, Kentucky (339 square miles), and McDowell County, West Virginia (538 square miles), are mountainous, heavily forested, rural regions in their respective states. The two counties share similar socioeconomic histories in which characteristics of local topography and geology fostered a legacy of resource extraction—timber and coal—that left each largely devoid of the most fundamental infrastructure and economic opportunities. Many of the present communities were once coal camps, whose amenities were supplied according to the whim or conscience of the companies and, following cycles of boom and bust, were left poorly equipped to fend for themselves once the companies withdrew their patronage.

The socioeconomic situation in these two counties is more or less typical of distressed counties in the Central Appalachian Region. "Distressed" counties are defined by the Appalachian Regional Commission as those with poverty and unemployment rates that are 150 percent or more of the national rates and a per capita market income no more than two-thirds of the national average. Letcher and McDowell have persistently occupied the distressed category since ARC began this system of classification. Unemployment in these two counties exceeds 10 percent; approximately one-third of the population lives in poverty; and per capita market income is only \$10,465 in Letcher and \$7,951 in McDowell (ARC 2004). Paralleling the decline of employment in the coal industry, populations have steadily decreased. Letcher County's 1950 population was nearly double the 25,277 inhabitants reported in the 2000 census. McDowell has similarly declined from nearly 100,000 persons 50 years ago to about 27,000 today (U.S. Bureau of Census 1952, 2002a, 2002b). McDowell is the most distressed county in West Virginia, and one of the poorest in the United States. The county's economic and infrastructure problems were greatly aggravated by devastating floods in both 2001 and 2002.

A declining population means a declining tax base, particularly when a lack of financial resources in the population discourages investment in maintenance of existing structures, both commercial and residential, let alone new business ventures and new construction. Accordingly, infrastructure development has also lagged. Although the former coal companies often provided minimal environmental services such as water supply systems, and rarely, sewage treatment, physical facilities in many cases are generations old and deteriorating. The greater part of the population, however, has never had access to such amenities and today still follows traditional ways, obtaining water wherever possible from local sources and discharging untreated waste into their rivers and streams.

Water and Sewer in McDowell County

Framed in a box at the top left corner of the *Welch Daily News* is the perennial appeal:

McDowell County Needs
Jobs
Modern Highways
Affordable Sewage Facilities
Affordable Quality Water Systems

In March, 1999, a resident of the community of Jaeger ticked off the local water supply problems on his fingers:

Starting at Long Bottom and following the road, all the wells are salt water, can't drink it. The new middle school has to treat for salt water from their well. About two miles from here, iron water starts. There is iron water in the wells at Ohhnnycake, Mohawk, Panther, Mile Branch, Ritter, Long Pole, Short Pole, Roderfield and Redbird. From Bradshaw down to Virginia is iron water. On Coon Branch Mountain they don't have any water at all. They have to catch water in cisterns.

He continued his assessment, moving from the rural sections to the town systems. "Bradshaw has good water, so does Welch [the county seat], the water has a good taste. Davy has iron water, it has a bad water system. Now Iaeger, well, Iaeger has real bad water. It has a nasty taste. There is iron and barium in it, and the pressure is always weak."

On Brushy Fork Mountain, near West Virginia's southern boundary with Virginia, a local man observed,

"Everybody on the mountain has water problems. Most folks have cisterns. They catch rain water or haul water. The wells don't yield much, but the water quality is OK. A few people have springs out of the sandstone." Water is literally precious up on the mountain. This resident, who pipes water by gravity from a flooded coal mine near his mobile home, estimated that about a dozen families on his road purchase water, paying as much as \$60 per load for two or three 2,000-gallon loads per month from a private hauler. The Bradshaw Fire Department also hauls water for people in need, accepting "donations" of about \$40 per load to offset vehicle maintenance costs.

A representative of the Bradshaw Fire Department (BFD) confirmed that they get as many as 12 or 15 calls per week during the dry months of July through October. Using two trucks, they can do two or three loads in the evening after regular work hours. "We tell people that the water is to be used only for washing, not



The "back side" of Iaeger, WV, viewed from the Tug Fork. Before the public system was acquired by the McDowell PSD in 1999, the water here was unsafe to drink. All photos by Gary O'Dell



Fire trucks in Iaeger, McDowell County, as in many mountain communities, haul water to those in need, but increase vehicle maintenance costs for towns with scant resources.

drinking, but we have no control over what they do after the delivery." The Department received about \$4,500 in water-hauling donations in the previous year, just "barely enough to pay for vehicle maintenance." The BFD would like to end the program of hauling water because it is too hard on the vehicles, but "we probably won't because people have no other way to get water." Bradshaw is in pretty good shape in regard to its water and sewer facilities. It is a small system, serving a population of only about 280 persons,³ but the main lines are all new, installed in 1985, and the sewer system is only nine years old.

Municipal sewage treatment is a relatively new development in McDowell County. On-site disposal of waste has been the prevailing mode, at best through septic systems often inadequate for the terrain but more commonly simply discharged in raw form through straightpipes into the nearest stream. Until the mid-90s, only the town of Gary, with a population of 900, was equipped with a sewer system. Like so many other communities in McDowell and other coalfield counties, Gary was a company town. Gary's former patron, the US Steel corporation, was more concerned with community welfare than many mining companies and equipped the town with a sewage treatment plant. In the county seat of Welch, population about 2,600 persons, sewage treatment did not begin until a new \$13.5 million plant came on line in November 1997, mandated by court order. Previously, all sewage was piped straight to the Tug Fork River that runs through town.

An \$8.7 million treatment plant was constructed for the city of War (population 780) in 2000. Funded by HUD, this grant was unique in West Virginia in allocating funds for household connections, an innovation necessitated by the extreme poverty of the county. Furthermore, a special dispensation of the Davis-Bacon union wage scale allowed the work to be performed by local, rather than outside, contractors (Hatcher 2004). Despite these infrastructure gains, in all of McDowell County, only these four communities—Bradshaw, Gary, Welch, and War, representing about 21 percent of the total population—currently treat sewage (Infrastructure Council 2002).

Many community drinking water supply systems in McDowell County are aging legacies of the boom years of coal mining, built and operated by the coal companies to serve the workers in company towns. When the markets collapsed and companies pulled out, these water systems were taken over by private operators. For a time, these systems were profitable operations. Constant erosion of the customer base, the result of long-term population decline in the county, has thrown most of these systems into the red.

In the late 1980s, residents of several small communities in the Big Creek area of the county faced an intolerable situation as the quality of water supplied by the McDowell County Water Company steadily deteriorated.⁴ The primary water source for the system was the Olga Coal Company's No. 2 Mine. For many years, the water service provided by the company had been acceptable, if marginal, as long as the water company operated in informal association with the local coal company to address, on an ad hoc basis, the most serious problems. In February 1987, Olga filed for Chapter 11 bankruptcy, and shut down all mining operations. The local economy was

devastated by the loss of a major employer, and the effect at the water tap was noticeable within weeks.

The water turned jet black at Caretta from manganese, and at Coalwood, the water was rust red from iron. Other communities served by the water company suffered equally or worse. Frankie Rutherford, a Caretta resident, recalled, "I could run two inches of water in the bathtub to bathe my two-year-old, and when I put my hand in the water, it would disappear, you couldn't see it anymore." According to later testimony before the West Virginia Public Service Commission, customers

... frequently experience extended water outages; frequently experience low water pressure; often receive black, dirty or unpleasantly smelling water; often received water with debris, sand or other foreign object in it; often receive water with excessive chemicals in it or which smells like raw sewage; and frequently experience damage to water heaters and other appliances, as a result of low water pressure and water outages.⁵

Repeated complaints to the McDowell Water Company achieved no results. Many angry customers refused to pay their water bills, on the basis that the water provided was unusable; others, such as Frankie Rutherford, continued to pay in order to retain the right to complain about the service. Water company customers, including those paying a monthly charge, were forced to haul water for their daily household needs.

For Rutherford, the pivotal moment arrived when, frustrated, she decided to hire a contractor to drill a water well on her property. The driller drove his rig to her home one evening and parked it in the yard, intending to begin work the next day. That night Rutherford, a single mother, thought seriously about the water problem. Having a well drilled might solve the problem for her own family, but would not help the many other children in the community who did not have access to safe drinking water. When the driller arrived on the next morning, Frankie Rutherford told him to go home. "I did not want to have a solution for myself alone until one could be found for all the children," she recalls.

Instead, she became an activist, organizing a series of meetings in Caretta and Coalwood where community residents resolved to take legal and political action to secure clean water for McDowell County. The initial meetings generated an organization, Big Creek People in Action (BCPIA). Participants were mostly women; their men, as Rutherford observed, had



Deteriorating company-built housing at Coalwood, in McDowell County, a legacy of the coal camp era.

been stunned to apathy by the collapse of the coal industry and the massive job losses. With the pro bono assistance of a local attorney, the McDowell women established committees and went after the water company. The initial goals were to force McDowell Water to fix the existing supply problems, and to seek compensation for damages to fixtures and appliances; Frankie Rutherford chaired the committee charged with finding a long-term solution to the region's water issues.

"We spent a lot of time in court," she recalled. "We had meetings of one kind or another almost on a daily basis, at the court, the county commissioners, we would go wherever we thought we could find a solution." Representatives from BCPIA sat on the front row in the courtroom for every hearing, wearing bold purple tee-shirts that proclaimed "We want clean water!"

At a hearing before the West Virginia Public Service Commission (PSC) in March, 1989, the Chief Administrative Law Judge found McDowell Water Company to be "providing grossly inadequate water service to its customers"; the management and operation to be "inadequate, inefficient, and irresponsible"; and the ownership and officers, unresponsive to the needs of the customers. The court ordered the company to take specific steps to remedy this situation.

By October, 1989, little had been accomplished by the water company, and at a PSC hearing on October 27th, the Commission found McDowell Water to be "irresponsible" and "unresponsive" and ordered receivership proceedings begun against the company. Further, in June 1992, the McDowell Court found the absentee owner and majority stockholder of the company (who had not set foot in McDowell County for more than nine years) guilty on seven criminal misdemeanor counts in violation of the West Virginia Code, Chapter 24-3-1, failing to "establish and maintain adequate and suitable facilities for customers." The company owner was fined \$500 and sentenced to serve 90 days home confinement on each count, to run consecutively.⁶

When the water company, at the direction of the Circuit Court, was placed in receivership, company assets were turned over to the McDowell County Commission, the only existing form of government for the 14 small unincorporated communities in the service region. The Commission was initially inclined to place the water system in the control of another private operator, but BCPIA was vehemently opposed to this idea. The residents of the Big Creek region decided that communities would be better served by retaining local control through the organization of a Public Service District under the auspices of the County Commission, which would allow the county to seek state and federal funding for rehabilitation and extension of the system.

Public service districts or "PSDs" are public corporations established by county commissions with approval of the West Virginia Public Service Commission to develop and maintain water, sewer, and gas systems in areas specified by the county commission.⁷ Of the 294 non-private water systems in West Virginia, 143 are PSDs (Jarrett 2003). The McDowell County PSD was established in 1990 after a long series of hearings during which several members of the local commission resisted undertaking this responsibility.

When Bobby Lewis, a commissioner who had supported the concept, became president of the McDowell County Commission, the PSD became reality. Frankie Rutherford, one of the prime agitators for a solution to the region's water problems, was appointed as Director of the newly formed district, and became one of three members of the oversight board.

The new District found itself in possession of an infrastructure disaster. Working together, Rutherford and Lewis applied makeshift solutions to the most urgent problems until funding could be obtained to provide long-term remedies. The first new water systems were constructed for Caretta and Coalwood, the worst cases, with the aid of federal funds obtained from the RUS program. By the time Bobby Lewis left McDowell County in 1993 to take a position with the USDA as head of Rural Development for West Virginia, all 14 communities in the Big Creek service area had been provided with potable water and reliable service.

Since its inception, the McDowell PSD has continued to expand its role in the county, taking over and upgrading small private community systems in trouble, one or two at a time, building new treatment plants when needed. Typically, these small plants, often using groundwater extracted from deep abandoned mines, have cost \$1.5-\$3.5 million each, with funding provided through ARC and RUS loans and grants. Currently the McDowell PSD systems serve about 1,700 households in 16 small communities. Planning is presently concerned with upgrading or extending service to the small but relatively dense settlements represented by the former mining camps; provisions for addressing the needs of the dispersed rural population remain in the distant future.

One of the PSD's most recent acquisitions, in March 1999, is the former City Water Inc. of Jaeger. If ever a community had severe water problems, Jaeger fits the profile. Not only was the physical infrastructure in terrible shape, but the health hazard from a high natural barium content in the water source also prohibited its use for any domestic purpose but flushing toilets. The citizens of Jaeger had a water system in name only. Following the acquisition, a new well solved the barium problem, and replacement of the distribution system will soon be made possible through RUS funding and a pending block grant from HUD (Cole 2004). Another high priority area for future PSD activity is the town of Gary. The municipal system of this town pumps more than a million gallons per day, but over 95 percent of the water is lost through line leakage. Gary and the county PSD plan a joint renovation of the water system, and future expansion to communities eastward.

The water-supply situation of the incorporated city of War, one of the larger population concentrations in McDowell, bore many similarities to the predicament of small rural communities in the county. At a public hearing in War on March 22, 1999, officials of the community sat down with the owner of the privately owned War Water Works and a representative of the West Virginia Planning and Development Council in an attempt to resolve the water-supply problems of the community.⁸ Previously, in October 1998, the city had filed a grievance against the company with the West Virginia Public Service

Commission. In response, War Water Works offered to sell the business to the city. The city, then in the midst of constructing its first sewer system to replace straightpipe discharges, considered the proposal. The water lines were 75 years old, and the company had virtually no other physical assets, not even an office building. There had been no improvements or upgrades to the infrastructure in decades. There were only two six-inch main lines in town; all others were four-inch or two-inch lines. "Any house that catches fire in War burns to the ground," said Mayor Thomas C. Hatcher, "because there is not enough water to fight them." Two sections within the city limits had no water service at all, after more than 40 years of resolute petitioning. The Middleton neighborhood threatened to secede from the city over this issue.

Three options were available to the McDowell County community of War: (1) allow the water system to remain in private hands; (2) purchase the water works for a sum that would burden the city with debt for years to come; or, (3) negotiate the purchase of the system by the McDowell County Public Service District (PSD). The March hearing, however, concluded without establishing a definite plan of action. "We are willing to work with either the water system owner or the PSD," the mayor stated. "All we want is drinkable water, and we are willing to work with whoever can do this."

Stasis of this sort may sometimes be overcome by the influence of a third party, a non-governmental entity that can act as negotiator, motivator, and organizer of resources. In February, 1999, West Virginia Governor Cecil H.



The only water supply for this new Sandy River Middle School in McDowell County was well water contaminated with salt brine.

Underwood, specifically acknowledging the magnitude and severity of McDowell County's infrastructure development problems, announced the initiation of a program to engage the local population in solving these problems. With financial assistance from the ARC, the government of West Virginia engaged

the Rensselaerville Institute of New York to implement leadership programs in McDowell County directed toward self-help and community development activism (West Virginia Development Office 1999).

The Rensselaerville Institute, which refers to itself as "the think tank with muddy boots," is a non-profit, independent organization dedicated to helping

low-income communities achieve concrete results with limited resources, using self-help and volunteerism. The Institute's outcomes-focused development philosophy is based on the premise that local knowledge and grassroots initiatives often provide better, faster, and less expensive solutions than the conventional dependence upon outside experts and millions of state and federal dollars often ineffectively applied. Rensselaerville seeks out motivated individuals with ideas and leadership potential, or "human sparkplugs," to build community capacity and make local improvements with citizen volunteer help. Such improvements may be small projects that can have a large impact on the community, or more ambitious undertakings such as solving drinking water and wastewater problems. Nationwide, the Institute has assisted more than 300 towns and neighborhoods to obtain or upgrade water and wastewater systems using the self-help approach.⁹

Cultivating activism in McDowell County was challenged by an ingrained sense of dependency, the product of an historic tradition of coal company paternalism and the physical and cultural isolation of McDowell County from the state administrative center in Charleston. Water and sewer development in McDowell, as in most of the nation, has historically progressed through a strictly top-down approach. Government officials and technical experts at the state level make decisions on assigning priorities and procedures for implementation, which fosters in the population a perception of detachment from decisions that affect their lives. Although citizen involvement is officially encouraged, primarily through the hearing process, little evidence of grassroots participation was occurring in McDowell County. The March 22, 1999, hearing at War, for example, was attended by only two persons from the community other than the local officials involved. Many county residents who are concerned about water quality and availability have little faith in either the solicitude of the state government or its ability to provide solutions.

At the governor's behest, the Rensselaerville Institute began by presenting a series of county-wide workshops on leadership development and self-help.¹⁰ Officials and citizens of War who attended were intrigued, and they decided to work first on two small-scale youth projects, engaging local talent to stimulate young people's interest in science and music. The success of the youth projects encouraged citizens to tackle a larger undertaking, the long-standing problem of the Middleton neighborhood's water supply lack. With funding provided by both the city and the water company, during the spring of 2002 more than 50 residents of Middleton volunteered their time to dig ditches and lay new water lines to each household. By June, the project was complete, and Middleton is now served by the city water supply for the first time in its history.

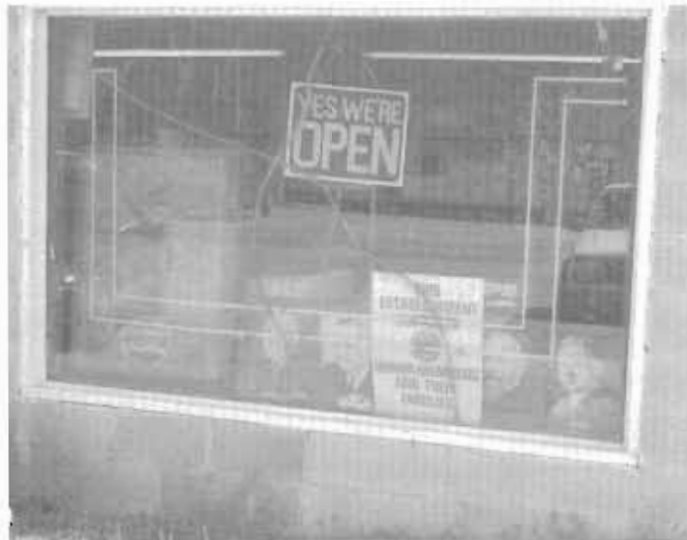
Success in this endeavor, and substantial cost savings achieved through citizen involvement, has encouraged optimism for a long-term solution of the city's water problems. The city of War filed an additional complaint in June 2000 against War Water Works, Inc., to allow the purchase of the water system by the city, a plan that was opposed by the McDowell PSD. Hearings were held before the West Virginia Public Service Commission in 2003 to determine the ultimate fate of the War water system, and local citizens expressed strong

opposition to PSD acquisition because of a widespread perception that the PSD had little concern for the needs of the people of War. Water rates charged to customers in other PSD-operated systems in the county were considered outrageous; War citizens had no desire to pay high rates for water provided to the community as a consequence of subsidizing water line extensions elsewhere in McDowell County.

The Public Service Commission ruled in the city's favor, and system ownership was transferred to the community in November 2003. A HUD block grant of \$20,000 provided the down payment against the total purchase price of \$250,000. War is currently conducting an engineering study to determine installation costs for an entirely new water system to replace the ancient, undersized, and deteriorated plant and lines. Funding will be provided by a combination of sources, including HUD, ARC, and the state's Abandoned Mine Lands program. Civic participation in War, as in Middleton, to be encouraged and coordinated by the Rensselaerville Institute, will save an estimated 25 percent in costs as opposed to contracting through bids. As Mayor Hatcher observed, "We have a lot of retired miners here, an able-bodied labor pool."

Water and Sewer in Letcher County

The late James McAuley, proprietor of a small store in Kona, liked to tell a story that he swore was true. Coal mining, he said, has damaged or destroyed many good water sources in Letcher County over the years. Extension of deep mine tunnels often "cut the bottom out" of drilled wells, so that a person (or community) might have plenty of water one day and nothing but a dry empty hole the next. McAuley told of a man whose well went dry, and as he stood over the borehole bemoaning the fact that he no longer had any water, a voice



This display in a Kona storefront (Letcher County) highlights the long regional heritage of coal mining.

issued from the bottom of the well saying, "We've got plenty down here!" Whether this particular tale is true or not, many residents report hearing muted voices and machinery noises coming from the

underground mines that intersected their destroyed private wells. Kentucky law now requires that mining companies replace a damaged water supply within 48 hours.

At the end of the 20th century, only about one in four Letcher households had access to a community water supply or connection to a sewer line. Letcher County contains six municipal water systems: county seat Whitesburg (2000 population: 1,600), Fleming-Neon (population 840), Jenkins (population 2,400), Jackhorn (population 200), and Blackey (population 150).¹¹ In addition, several water districts in the county purchase water from these systems. Public sewers serve only the first three of these communities (Governor's Commission 1999). Jenkins, Kentucky, like Gary in McDowell County, West Virginia, was a model coal camp where a more civic-minded company provided basic environmental services.

Across the length and width of the county, however, many rural residents cope with marginal water supplies often tainted by iron and sulfur that leave fixtures and clothing indelibly stained and reeking of rotten egg, while thousands of straightpipes discharge sewage to rivers and creeks. For years, local and regional newspapers have regularly featured stories with headlines that typically read:

- Residents polluting Kentucky River (*The Mountain Eagle* 1992)
- Polluted river, streams pose threat to county (*The Mountain Eagle* 1996)
- Sewage problems hurt health, growth in Eastern Kentucky (Harris 1996)
- Lack of clean water hampers Letcher County development (Deaton 1997)

The North Fork of the Kentucky River originates in Letcher County and supplies water to Whitesburg and many downstream communities in the state. Advisories against swimming in the river, prompted by high levels of fecal coliform bacteria, have been in place since intensive testing began in 1991. Even simple contact with the river water is considered a health hazard (Kentucky DOW 2004). Health statistics indicate that the average annual incidence of Hepatitis A, a water-borne disease, is significantly higher in Letcher County than in Kentucky as a whole and nearly double the national incidence ("Polluted river" 1996). Leading sources of the bacterial contamination are defective septic systems and illegal straightpipes.

Various estimates have placed the total number of illegal straightpipe discharges in Letcher County from 3,000 to 6,000 (Mead 1997). According to Dr. Rice Leach, Commissioner of the Kentucky Department for Public Health, the prevalence of straightpipes can be attributed to several factors. A 1993 survey determined that over 90 percent of all new housing in Letcher County is mobile homes; available financing packages do not include septic and drainfield systems, which must be financed separately. The average cost of a septic system installation in Letcher County at that time was estimated as \$1,700 ("Sewage" 1993). Furthermore, house and mobile home lots are often very small with little room for a drainfield. The regional tendency for "do-it-yourself" without employing a licensed plumber is complemented by the lack of zoning and building codes.

The water supply and sewage disposal situation in Letcher County had become of great concern to local and state officials. Water supply planning was addressed prior to sewage disposal, as part of a state-coordinated county-based planning process implemented through the local Area Development Districts (ADDs). The County Water Supply Program was a response to the 1988 drought, when many Kentucky communities were forced to ration water. Responding to this emergency, then-governor Wallace Wilkinson issued an executive order creating a Water Supply Task Force. Building on task force recommendations, in 1990 the Kentucky legislature passed a law mandating development of long-range county water supply plans.

Each county plan was submitted to the Kentucky Division of Water in two phases. Phase I involved data collection and analysis to project water system needs over the next 20 years. Phase II included plans for (1) provision of projected water quantity, (2) prevention of water source contamination, (3) emergency response to source contamination, and (4) drought management. As of April 1999, all ten counties in the Kentucky River ADD, including Letcher, had completed both Phase I and II of the process. The concern for water supply in this area is strongly indicated by the fact that, at the same date, 75 percent of counties in other ADDs had not reached this stage; 15 counties had yet to submit even Phase I (Kentucky DOW 1999).

The Letcher County planning document, submitted in 1994, projected water supply development in the county as a gradual process of extending lines outward from existing suppliers to include certain adjacent and relatively dense population concentrations. Water sources for both Whitesburg, the largest water utility in the county, and Jenkins, were deemed inadequate for future expansion, requiring that alternative sources be located. The plan recommended that Jenkins (currently dependent on a small reservoir) seek connection to a Pike County system, and Whitesburg (currently withdrawing water from the North Fork of the Kentucky River) develop nearby flooded mines. Under the plan, the needs of the dispersed rural population would remain unsatisfied indefinitely (KRADD 1996).

Up to this point, the planning process had proceeded according to a typical bureaucratic model with regulatory officials imposing mandates upon local officials who then hired technical experts to meet those requirements. In this traditional top-down approach, little direct input comes from those who will be most affected by implementation of the plans—the ordinary citizens. The Letcher Water Supply Planning Commission consisted of four community mayors, one representative from a minor water supplier, the county-judge executive, and a representative of the District Health Department. Limiting citizen participation was not an intention of the planners, but more a consequence of traditional planning procedures. Public input is officially encouraged only through the medium of public hearings which, in the case of the water supply planning agenda, were held at ADD offices in an adjacent county, a location sufficiently distant to preclude participation by those of limited resources.

Ultimately, Letcher County chose not to follow the traditional planning process, but took a different path with the goal of providing water and sewer services to a greater proportion of the county within a shorter span of time. The process of the planning and initial implementation stages worked from the bottom up, rather than the top down; that is, from the grassroots level of ordinary people and local officials working together to create a shared vision rather than responding to an external mandate.

The seeds of civic capacity were planted and nourished by a regional non-government organization, the Mountain Association for Community Economic Development (MACED), headquartered in Berea, Kentucky. Early in 1996, MACED, equipped with matching funds from the state Division of Water, sponsored a program in Letcher County to find ways to deal with the local problems of sewage disposal. Brady Deaton of MACED became coordinator of a group of interested local citizens in Letcher County, known as the North Fork Clean Water Project, and began working to convince rural homeowners to upgrade existing systems or install alternative methods of wastewater treatment such as constructed wetlands or peat systems ("Judge Smith" 1997). Cost-share funding by MACED provided incentive for eligible persons who could obtain up to 75 percent of the money necessary to install a system or make repairs. Another organization, Homes, Inc., helped owners to finance their part of the cost with low-interest loans and low monthly payments ("Septic system funding" 1995).

The North Fork Clean Water Project, which originally intended to deal only with the sewage problem,

soon took on a life of its own and a greatly expanded mission because of the many needs of the local population. From the original organization, another citizens' group, the Letcher County Action Team, was formed in 1996 to address a wider range of social issues. The North Fork Project subsequently operated as a subsidiary of the Action Team.



The ironies of uneven development: across the creek from the Fleming-Neon sewage treatment plant in Letcher County, mobile homes discharge raw sewage directly into Boone Fork Creek through straightpipes.

A great deal of interest and energy was generated in Letcher County as a result of the activities of the North Fork Clean Water Project and attention from state officials and the media concerning the unwholesome condition of the county's water. Two developments have had profound and lasting effects. In February, 1996, the Letcher Fiscal Court passed an ordinance requiring all electrical inspectors to receive a notice of release from the local health department before approving the electrical wiring in any new structures. This simple measure allowed the health department to insure that all new construction in the county was provided with adequate sewage disposal ("State officials" 1996). The new Letcher County ordinance proved tremendously successful. Septic system permits doubled after the ordinance went into effect. Impressed, state senator Barry Metcalf introduced legislation modeled after the Letcher ordinance that was passed by the 1998 Kentucky General Assembly, mandating health department approval before electricity can be provided to new construction ("Septic tank permits" 1997). Also in the early months of 1996, County Judge-Executive Carroll Smith appointed a study group of six persons to examine the county's water and sewage problems and make recommendations. Two group members were chosen from the North Fork Clean Water Project sewer grant committee; Kona storekeeper James McAuley became chair of the study group. In mid-May 1996, the study group presented its conclusions to Judge-Executive Smith, recommending the formation of a county-wide water and sewer district ("County men" 1996). In a county-wide district, communities with existing systems would retain control of and revenues from their own systems, contracting with the district to supply service to outlying areas. A county system would eliminate much of the resistance to community system connection expressed by rural residents who feared that annexation would increase their tax burden. Later that month, the Letcher Fiscal Court passed a resolution authorizing the county attorney to work with the citizens group to lay a framework for county-wide water and sewer district ("Court okays" 1996).

The real work was ahead, formalizing details of the plan and persuading the state Public Service Commission (PSC) to allow the district to be created. At the initial PSC hearing on March 27, 1997, the application was denied. The Commission operates under a mandate to prevent proliferation of water utilities if preexisting water suppliers can serve the proposed area. A feasibility study by PSC staff had concluded that expansion of the Whitesburg system could serve a larger population. The ruling was appealed on the basis that the Whitesburg expansion postulated by PSC staff would serve only a small portion of the area proposed for the county-wide district. At a second hearing on April 21, 1997, the Commission reversed its findings and ordered the creation of the Letcher county-wide water and sewer district, the first of its kind in the Commonwealth of Kentucky ("PSC approves" 1997). In June, 1997, responsibility for the proposed new district was formally transferred from the study group to an official commission, of which James McAuley was elected chair and served in that capacity until his death in February 2004 ("Judge Smith" 1997; "McAuley" 1997).

According to the plan developed by the Letcher study group, with assistance from technical experts, the district is to be expanded in phases based on identified priorities. The first phase will extend sewer service to areas to which municipal systems already supply water but have not provided sewer due to lack of resources. The district will use the excess capacity of wastewater treatment plants in Whitesburg and Fleming-Neon. Second, because the flow of the North Fork of the Kentucky River is insufficient during the summer months, a separate water source must be developed. Third, water and sewer service is to be extended to densely populated rural areas such as Mayking and Millstone. These three initial phases would provide water to 56 percent of the county and sewer to 53 percent, including the presently served population. The fourth priority will be to provide service to parts of county where the housing density is ten per mile or greater. Finally, the district will construct alternative sewage plants for settlements in small valleys containing 15-40 houses. Should sufficient funds be available, phases might be constructed simultaneously ("Water, sewer" 1997). The primary guiding philosophy of the district is the cooperative sharing of county resources, so that local excess capacity does not go unused.

Thus, the Letcher County Water and Sewer District came into being. The new district had scarcely a dime in financial resources, yet the projected cost of the project exceeded \$55 million. Funding began to trickle in, some from traditional sources, some from quite unexpected directions. The community of Blackey received funding from the ARC and RUS to build a \$2.87 million dollar water plant to replace the town's reliance on wells, many of which were found to be contaminated (Ulmer 1997). The Kentucky PRIDE project was launched in June 1997, the creation of U.S. Representative Hal Rogers from Somerset, Kentucky. PRIDE stands for "Personal Responsibility In a Desirable Environment" and is intended to tackle the problems of sewage and open dumps in Eastern Kentucky (Mead 1997). The North Fork Clean Water project was phased out, and PRIDE adopted its goals for Letcher County. The county received two grants from PRIDE: \$568,000 to Whitesburg to extend sewer lines to 22 homes outside the city which have adequate water but faulty septic systems or straightpipe discharges, and \$328,000 for an alternative sewage disposal system for a cluster of 30 homes at Millstone ("County gets" 1998). Representative Rogers also worked hard—and successfully—in Washington to secure additional funds, obtaining an additional \$1.5 million for Letcher County attached to the bill that renewed funding for the Environmental Protection Agency ("It's official!" 1998).

The district had a bold plan, but the greatest obstacle was to locate a water source sufficient for the needs of an entire county. Letcher County is headwaters for many streams, but home to no large bodies of water. Existing water supplies are currently strained nearly to capacity. For a time, opinion favored tapping the supposedly vast water reserves found in some flooded local underground coal mines, but the idea was discarded after some disappointing pumping tests and the objection of the state Division of Water. Consequently, sources external to the county must be secured. The most

abundant supply will come from a proposed new water plant to be located at Carr Creek Lake in adjacent Knott County. The newly formed Carr Creek Water Commission, of which the Letcher Water and Sewer District is a member, will serve communities in three Eastern Kentucky counties. Funding for the \$7 million project has been obtained from the ARC, RUS, EPA, and a HUD block grant, and construction is expected to begin by summer 2006 (Pridemore 2005).

The district has jurisdiction over the entire county outside the four municipalities of Whitesburg, Jenkins, Fleming-Neon, and Blackey. As of this writing, the Letcher County Water and Sewer District provides water to about 250 households, but is in the process of extending water lines along the highway from Blackey, which has excess capacity, through the rural neighborhood of Isom. Initially, this plan will add about 750 households, and when feeder lines are extended up the mountain hollows from the main line, the system will provide service to an additional 750 rural homes. Current district chair Don Profitt estimates that the lines will be able to provide water to nearly 4,000 households within five years (Profitt 2004; 2005).

So through a combination of efforts at the lowest and highest levels, Letcher County's vision of a county-wide, unified water and sewer system is becoming a reality. Obstacles still exist, but the same grassroots energy and creativity that brought about the district is finding innovative ways to solve them. Christel Blackburn, who became coordinator for the North Fork Clean Water Project in 1997 after Deaton's departure, observed, "Our mission here was to build citizen capacity to get good water and sewer," she says, "not specifically to form a county-wide district. You can't cookie-cut what happened in Letcher; it was driven by personalities" (Blackburn 1999).

Implications for the Future

These case studies illustrate that encouraging citizen involvement can accomplish concrete results. As Christel Blackburn noted, there are no "cookie-cutter" solutions, no one-size-fits-all model for infrastructure development in Appalachia's distressed counties. Although an outsider may perceive these



More irony: Whitesburg, Letcher County seat, depends upon the North Fork of the Kentucky River for its water supply. According to a source in the state Division of Water, the main source of flow in the river during the summer months is the discharge of wastewater from hundreds (or thousands) of straightpipes upstream. If the straightpipes were replaced by septic systems or sewage treatment plants, Whitesburg would no longer have enough water for its citizens.

counties to be alike in their rugged topography and their legacies of social and economic impoverishment, individual Appalachian counties vary considerably in these and many other factors. The lessons from Letcher and McDowell are not intended to provide templates for indiscriminate application elsewhere, but rather to show what can be accomplished when a sufficiently motivated citizenry evaluates local circumstances to produce locally based solutions.

From the Letcher and McDowell experiences, certain key concepts can be extracted which may be used elsewhere as a foundation upon which local solutions to local problems, not limited to water and sewer issues, may be constructed. The first, and most important, is citizen participation at all levels in assessing, planning, and implementing development projects. This idea goes far beyond the traditional process in which citizen participation is adjunct rather than integral, limited to comments solicited at hearings and aired in the media after plans have already been made by groups of "experts." The professionals, representing expertise in areas such as public health, law, engineering, geology, and the environment, have a significant and necessary role, but they should serve as advisors who work directly with citizen representatives to plan achievable goals. Experts may suggest options and alternatives, but should remain receptive to ideas generated from the local populace; experts should facilitate, not dominate.

Motivating citizens to participate in the decisions that affect their own lives and welfare can be a challenging task in any part of America, but may be particularly daunting in those parts of Appalachia where paternalistic coal companies dominated social and economic life for so long. Here, an outside, non-government organization, such as the Rensselaerville Institute or MACED, may serve as a catalyst, providing the impetus and the means for people to get together and begin the process of evaluating their needs and making decisions about solutions. As in the case of Letcher's Action Team, the original effort may grow to address concerns that far outrange the original area of interest. In other cases, such as Big Creek People in Action, a single, highly motivated individual, a local resident, may serve to stimulate the involvement of many other persons without the need for outside encouragement.

Citizen-based planning does not guarantee success, of course. The huge cost of building water and sewer infrastructure remains a primary hurdle, especially when these basic services are lacking for large areas where construction costs are high and funding sources are limited. Nor is it only areas completely lacking these services which are in need; many Appalachian communities that possess a public water system are poorly served by aging and inadequate facilities. The solution is likely to require an approach that at first seems contradictory. Planning should include not only regionalization of water supplies to take advantage of efficiencies of scale in the pooling of resources, but also funding and supporting small-scale, strictly local and often non-traditional methods of supplying safe drinking water and treating sewage.

The investigations in McDowell and Letcher counties lead to several primary conclusions:

1. Water supply and sewage disposal must be addressed simultaneously. Lacking proper sewage treatment, an increase in the number of persons served by a water system dramatically increases the volume of raw sewage released into rivers and streams.

2. Water and sewer planning should be conducted on a regional basis, although many small communities may require strictly local solutions due to economic considerations. A regional system may thus incorporate many water supply sources and methods of sewage treatment under one umbrella.

3. Direct and continuous citizen involvement in the planning, implementation, and administration of infrastructure improvements provides benefits in the form of local knowledge, innovative solutions, and morale building through empowerment, and may generate a willingness to tackle other local issues.

4. Stimulating grassroots participation may require a catalyst—an individual or organization that can provide encouragement and coordination in the early stages.

NOTES

1. "Public water system" is defined in this article to mean a publicly or privately owned system of supplying piped water to a community, subdivision, or mobile home park. The Environmental Protection Agency provides technical definitions for classes of public water systems according to the number of connections, number of users, and duration of use.

2. Water use estimates for Kentucky reported in Solley, *et al.* (1998) indicate 50 gallons per day per capita for self-supplied users and 70 gallons per day per capita for users on public systems. Self-supplied household water usage data collected by O'Dell (1996) for 26 rural Appalachian households in Kentucky indicated a mean per capita consumption of less than 22 gallons daily. This study concluded that difficulties in obtaining water promoted strict conservation measures.

3. Population figures given for West Virginia communities from Bureau of Census, 2002a.

4. Account of the establishment of Big Creek People in Action and of the McDowell County Public Service District derived from personal communications with Frankie Rutherford, Director of BCPIA, and Bobby Lewis, Director, West Virginia Development Office, Charleston (Sept. 2005).

5. Order, Public Service Commission of W.Va., Charleston, Case Nos. 87-579-W-SC and 87-642-W-P.

6. Order, Public Service Commission of W.Va., Charleston, Case Nos. 87-579-W-SC and 87-642-W-P, 27 Oct. 1989; *State v. Blair*, 190 W.Va. 425, 438 S.E.2d 605 (1993). The fine and sentence were overturned on appeal to the West Virginia Supreme Court, who found that the West Virginia Code §24-3-1 was "unconstitutionally vague."

7. W.Va. Code §16-13A-1b; W.Va. Public Service Commission, "Rules and Regulations for the Government of Public Service Districts," 150 C.S.R., 17, Sections 2.0 through 5.0.

8. Account derived from notes taken by the author at the hearing, and pre-hearing interview with Mayor Hatcher.

9. General information about the Rensselaerville Institute and its activities is taken from the organization's website, <http://www.rinstitute.org>.

10. The following account of events in War and concerning its involvement with the Rensselaerville Institute is derived from several personal communications (June-July 2004) with Mayor T.C. Hatcher and J. Stutso, War Director for Water Works.

11. Population figures given for Kentucky communities from Bureau of Census, 2002b.

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