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## **Valuing Water for its Invaluable Services**

By Sandra Fallon, Training Specialist, National Environmental Services Center

“Water has a voice. It carries a message that tells those downstream who you are and how you care for the watershed.” Those words from Bernie McGurl are rooted in experience. He’s the co-founder and long-time executive director of the Lackawanna River Corridor Association (LRCA), a non-profit river conservation group in northeastern Pennsylvania. McGurl and others who live near the Lackawanna River, the Susquehanna River into which it flows, as well as people who live 170 miles downstream along the Chesapeake Bay, are still hearing the message of how upstream neighbors treated the water over the last two centuries. Today, the LRCA is working to clean up acid mine drainage pollution from 150 years of coal mining operations.

The mine drainage comes from a huge body of water—essentially an underground lake—that has formed in the deep and lengthy abandoned mine tunnels and voids beneath Scranton, Pennsylvania. Although mining operations ceased in the 1950s, water still accumulates from underground water sources and seeps in through fissures in river and streambeds on the surface. The water is high in iron content from exposure to iron- and sulfur-bearing rocks in the mines.

If the water were to remain trapped underground, it would flood basements and residences in low elevations. In 1962, the state of Pennsylvania drilled a borehole near the town of Old Forge to release the water. Since that time, in what is perhaps the largest single discharge point of abandoned mine drainage in the U.S., up to 60 million gallons of polluted water has flowed daily into the lower three miles of the Lackawanna River. Chemical reactions cause an orange-colored iron sediment to settle on the riverbed, which can harm or kill aquatic life and inhibit the use of water for recreation, public drinking, and industrial needs. Efforts to treat and clean the discharge have been unsuccessful, although the LRCA has now secured a \$600,000 planning grant to address it.

“Our rivers tell the story of how we relate to each other and what we value as a community,” says McGurl. “Everything we do in our lives, our homes, our businesses, on our land and on our streets relates to what goes into the river.” McGurl is not alone in raising questions about how we value our water. Because it’s so crucial to our lives, and because our water supplies face challenges from increasing demand, overuse, pollution, drought, and competing interests such as agriculture, industrial, energy, and municipal (drinking water) uses, many say it’s time to discuss the value of this resource.

### **What Is Meant by the Value of Water?**

There is no one definition of the value of water. It can have different values to different people at different times. Water’s value is likely to be perceived as higher in arid areas where supplies are limited than in areas with abundant water supplies. Water is probably more valued during a drought than during a flood.

Economists measure the value of a commodity or service, such as water, as the maximum someone is willing to pay for it. Other ways to value water relate to its public health benefits; cultural, spiritual or emotional relevance; for environmental reasons; for its economic development opportunities; for agricultural, industrial, or energy needs; or for recreational goals.

Historically, the development and management of river systems and water laws in the American west, for example, emphasized economic progress in the way water was stored for use during dry periods, transported to satisfy human needs, and used for irrigation, municipal, industrial, and domestic supplies. These priorities reflect what was valued at the time: water for new communities, irrigation, and flood control. Water for other needs, such as ecosystem services and American Indians' indigenous rights to water, were not prioritized.

Over time, societal values have shifted and new ones have emerged. People increasingly value water flowing in the river where it supports natural ecosystem functions and provides habitat for aquatic life. There is concern about balancing development practices with securing water for future generations (the future value of water). Recognition of climate change impacts, which can alter the amount of precipitation and availability of water, has spurred interest in ensuring that rivers and watersheds remain healthy in the coming years. There is awareness that the water needed to produce energy to meet our ever-increasing demand may impair the quality and availability of local water supplies.

### **Water Utilities Promote the Value of Water**

Two organizations representing water and wastewater utilities are working to raise public awareness about the value of water. The American Water Works Association (AWWA) Research Foundation suggests that, while most of us recognize water's importance to our lives and lifestyles, what we value to a lesser degree are the processes, equipment, and facilities—the water utility infrastructure and services—that deliver safe water to our homes, workplaces, schools, and hospitals. Because drinking water and wastewater services are so reliable in most communities, we often take them for granted. AWWA's campaign, *Only Tap Water Delivers*, communicates the value of tap water service for delivering public health protection, fire protection, support for local economies, and the quality of life we enjoy, as well as the need to invest in water infrastructure. (*Only Tap Water Delivers* materials are available to AWWA members at [www.awwa.org](http://www.awwa.org).)

The Water Environment Federation's *Water's Worth It* campaign highlights the lack of attention on protecting drinking water and wastewater systems in discussions about environmental issues, declining federal and state investment in water projects, the failure of current utility rates to reflect the true cost of service, and the need to address water shortages and failing infrastructure systems. (*Water's Worth It* materials are free and available to the public at [www.waters-worth-it.org](http://www.waters-worth-it.org).)

### **A Framework for Discussing the Value of Water**

The Colorado Water Conservation Board, a state agency, commissioned a study in 2011 to determine useful ways to raise citizen's awareness about the value of water. Colorado's growing population combined with limited water supplies and the uncertain impacts of climate change on

those supplies will require citizens to understand the varied uses of water and why it's so important to the state, the environment, and to quality of life. Their research suggests four core themes for fostering a greater appreciation of the value of water.

*The Life Cycle of Water:* This approach highlights where water comes from and where it goes when it disappears down the drain. It would explain water's journey from the source to the drinking water treatment plant to the tap and back to the wastewater treatment plant, as well as the work, equipment, facilities, and expenses required to clean and transport the water.

*The Finite Nature of Water and Projected Shortfalls:* This approach would raise awareness and urgency about water shortages, the finite nature of water as a resource, and the potential consequences of shortages to people's daily lives. The messages would use understandable language and let people know the problems are solvable and that they have an important role in the solution.

*The True Cost of Water:* The current low price of water may be one of the biggest barriers to increasing the appreciation of water. Communicating how much is spent annually on infrastructure, and treating drinking water and wastewater will help illustrate the actual costs, which may not be apparent to people. Making comparisons between the cost of a gallon of water and other products like milk, bottled water, or gasoline could help illustrate its value.

*The Varied Uses of Water:* This approach would let people know that household water use is just one small component of water use. It would illustrate the multiple uses of water, and the connections between various water needs, such as how one use impacts another, and point out the importance of the state's water supply to its economic prosperity.

### **The Many Values of Protecting Water Sources**

Protecting our drinking water supplies from pollution keeps water cleaner and reduces the cost of treating it before we drink it. Such a program might involve buying land, establishing ordinances, or building fences around a community's water source to prevent polluting activities from occurring. In calculating the costs and benefits, it's important to consider potentially unrecognized values. These might include reducing erosion (which can improve water clarity, deter landslides, and promote land stability), enhancing recreational access, or improving environmental aesthetics. A higher quality of source water may also result in improved health and reduced medical costs, increased water customer satisfaction, lower water monitoring costs, or a longer infrastructure life span.

### **Engage the Community in Understanding the Value of Water**

McGurl emphasizes the importance of educating citizens about water issues. The LRCA conducts outreach campaigns in conjunction with the local municipal sewer authority to encourage people to divert water from their downspouts into their yards or gardens. This prevents storm water from overloading municipal sewer systems and adding more pollution to local waterways. Other efforts identify the causes of pollution and how to stop it, and what a watershed is and how it works. "Outreach and education is critical," McGurl says, "because people don't think about these issues until we ask them to."

Decisions about water use are happening all around us every day. Each of us uses water in our homes, yards, and workplaces. Agricultural, industrial, and commercial interests are making decision about water, along with others at the community, watershed, state, tribal, and national levels. As the Lackawanna River shows, past practices have left water pollution legacies, requiring additional water decisions. “What we allow into the Lackawanna affects people from the Susquehanna to the Chesapeake Bay,” McGurl reminds us. “We’re all responsible for paying attention to the flow of water through our lives.”

Yet, few of us understand where our water comes from, who’s using it, who controls it, the condition it’s in, who’s polluting it, how much should be used, and how to protect it. Taking the time to consider what we value about our water resources, and what messages our water carries to downstream neighbors, can lead to better decision making and more sustainable use of this vital resource.

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