One Water for America
Policy Framework

US Water Alliance

ONE WATER BIG IDEA 2.

Accelerate agriculture-utility partnerships to improve water quality.

This is one in a series of policy briefs that comprise the One Water for America Policy Framework.

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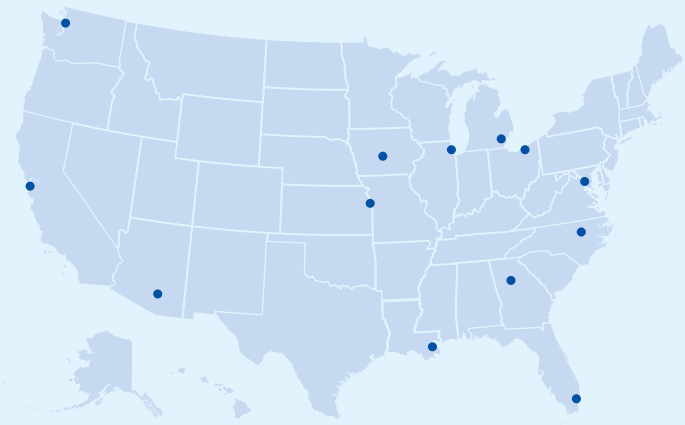
America's water supplies and services are at risk. Climate change, growing income disparities, and the threats posed by our aging water infrastructure call into question the continued availability of safe water supplies and reliable, affordable water service. In light of these challenges, we must come together and create a new era of water management in America—one that secures economic, environmental, and community wellbeing.

To that end, the US Water Alliance worked with more than 40 partner organizations to host 15 One Water for America Listening Sessions across the country. These discussions engaged more than 500 leaders, including water utility managers, public officials, business executives, farmers, environmental and watershed advocates, community leaders, philanthropic organizations, planners, and researchers.

One Water for America
Listening Sessions



What we heard from these stakeholders was truly inspiring. Across the nation, people from all walks of life are collaborating and innovating to advance sustainable water management solutions. Now is the time to spread and scale up these successes to benefit more communities across the country. In these seven policy briefs, we have compiled the strongest, most consistent themes from the One Water for America Listening Sessions into **seven big ideas for the sustainable management of water in the United States**:

1. **Advance regional collaboration on water management**
2. **Accelerate agriculture-utility partnerships to improve water quality**
3. **Sustain adequate funding for water infrastructure**
4. **Blend public and private expertise and investment to address water infrastructure needs**
5. **Redefine affordability for the 21st century**
6. **Reduce lead risks, and embrace the mission of protecting public health**
7. **Accelerate technology adoption to build efficiency and improve water service**

Each of these policy briefs digs further into one of these big ideas—exploring the key issues behind it; presenting policy solutions that are working at the local, regional, state, and national levels; and providing real world examples of how these solutions *are* being implemented and *do* produce positive results.

The One Water for America Policy Framework is a clarion call to action to accelerate solutions for the water management problems of our age. In doing so, we secure a brighter future for all.

Accelerate agriculture-utility partnerships to improve water quality.

Context

When it comes to taking action to conserve water and improve water quality, one action deserves particular focus: building partnerships between water providers and the agricultural sector. Too often in our siloed water systems, we do not fully consider the impacts of agriculture and land management on our water sources. Yet the management of land presents one of the greatest opportunities for protecting water quality, preserving ecosystems, and safeguarding our drinking water supplies.

Agriculture in the United States is noted worldwide for its high productivity, quality, and efficiency in delivering goods that benefit consumers. Today, it is widely accepted that farmers must produce more food in ways that take future generations and environmental impacts into account. This is occurring in the face of declining government conservation funding, growing economic pressures on farmers, and an increase in the number and severity of weather events, which can have devastating effects on farmland.

Agriculture is one of the largest users of water in the US,[1] and runoff from agricultural lands is believed to be the largest single source of nonpoint source pollution in US waterways.[2] By concentrating on the development and implementation of best practices that balance conservation with productivity, we can greatly improve water quality of surface and groundwater resources, especially for downstream users.

Key Issue:
Partnerships with agriculture

In many of our listening sessions, we heard about the need for stronger collaboration between water managers and the agricultural sector. Some communities are leading the way in building partnerships with agriculture, focusing on outreach and education and incentivizing best practices for water quality improvement. Successful collaborations among municipalities, farmers, and other stakeholders provide multiple benefits in the form of watershed health, water quality improvements, sustainable agriculture, and cost-effective business decisions.[3] In different communities, there are different pathways to partnerships with agriculture. The US Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), US Fish and Wildlife Service, state departments of agriculture and departments of natural resources and environmental quality, local conservation districts, local farm alliances, neighboring communities, and NGOs focused on water quality are examples of potential partners for identifying and implementing nonpoint source solutions.

Key Issue:
Funding for agricultural and land management best practices

While improvements in agricultural practices and runoff management can yield impressive results, they typically involve some level of investment. If we require farms and ranches to invest in these improvements for greater water quality benefits on their own, we may impose unreasonable burdens on individual farmers, while also increasing prices for food and other agricultural products. Some communities have found inventive ways to cover costs for agricultural best practices. In many cases, it can cost a community far less to support farmers in implementing best practices than to make costly upgrades to wastewater systems—and the water quality improvements realized from better farming practices can be far greater than treatment upgrades could provide. As a result, it is often in a community's best interest to work across boundaries on this issue, recognizing that improving water quality in a watershed is a community-wide, and even region-wide, responsibility. Collaboration with state and federal regulatory agencies is also an imperative to gain endorsement of alternative strategies—like adaptive management—for complying with water quality regulations.

Key Issue:
Policy environment for land management solutions

One of the challenges facing agricultural water policy is that best management practices are deployed at the individual farm level, and it is difficult to scale them up to achieve lasting impacts on water quality. Policies can incentivize the use of advanced technology for water quality optimization, just as we use technology to optimize farm productivity. Today, yield monitors can tell farmers which parts of a field are most productive and profitable, enabling them to concentrate on the lands with the greatest potential. These same tools could and should be adapted for conservation application. By overlaying geographic field profitability data with conservation priorities, we can identify high-priority water conservation areas that are marginal for farm profitability. With an advanced understanding of the outcomes from specific conservation practices, it is possible to select conservation practices with higher potential returns on investment.

Key Issue:
Larger-scale conservation investments

Another problem to address is the need for sustained funding for improvements that support water quality and other ecosystem service benefits, such as reduced downstream flooding, habitat improvement, and enhanced soil health on agricultural lands. For example, flooding can have devastating impacts on farming operations and on downstream water quality. The frequent flooding of land raises difficult questions about how land can be best managed to preserve water quality and minimize community impacts—for example, whether it makes more sense to return land to natural floodplain forest or to add structural defenses (such as levees and embankments) to provide protection from flooding. Even as the need for conservation investments grows, public funding is declining. It is time to move beyond reliance on federal subsidies and enable large-scale investments in conservation.

Policy Solutions

Local Level	Regional & State Level	National Level
• Incentivize collaborative water quality solutions • Advance collaborative funding models	• Adopt adaptive management approaches for water quality improvement • Use loan and grant programs to incentivize best practices • Establish credit trading programs or dedicated funds for watershed restoration	• Incentivize collaboration, and create new sources of funding • Provide regulatory flexibility for utilities to partner on nonpoint source solutions

Solutions: Local Level

Solution:
Incentivize collaborative water quality solutions

At the local level, communities can form partnerships with farm alliances, local and state government agencies, and NGOs to find collaborative solutions for water quantity and quality improvement. These partnerships can be used to identify the best ways to incentivize land management solutions for regional water quality challenges. In many cases, it can cost a community far less to provide financial support for agricultural and land management best practices than to pay for more upgrades to wastewater systems for point source treatment.

In Action:

- **Clean Water Services.** Since 2004, Clean Water Services (CWS) in Oregon has collaborated with federal, state and local agencies to offer voluntary incentive programs that help Washington County landowners enhance farming practices and restore the health of the Tualatin River Watershed. This effort—a partnership between CWS, the Tualatin Soil and Water Conservation District, the Farm Service Agency, and the Natural Resources Conservation Service–offers farmers a variety of voluntary incentives that support local agriculture while helping CWS meet its Clean Water Act compliance needs. By pairing utility-based resources with voluntary Farm Bill incentives, the program simultaneously protects environmentally sensitive land, decreases erosion, enhances irrigation efficiency, restores wildlife habitat, and safeguards ground and surface water. More than 100 farmers have signed up for these programs, and nearly 25,000 acres of urban and agricultural lands are being managed to protect watershed health.

- **NEW Water.** The brand of the Green Bay Metropolitan Sewerage District, NEW Water is implementing a pilot project in the 4,800-acre Silver Creek watershed, working with farmers and agronomists to demonstrate phosphorus reductions resulting from agricultural best practices. The five-year project includes cropland evaluation of all fields, an inventory of stream bank erosion and in-stream sediment deposition, soil testing, stream water quality monitoring, landowner interviews, field walks, and data analysis. A US Geological Survey (USGS) monitoring station was set up to take samples before best management land practices were implemented and repeatedly throughout the project, and the resulting data set will help demonstrate the project's impacts on water quality. Partners include the Oneida Nation, US Fish and Wildlife Service, USDA's Natural Resources Conservation Service, USGS, University of Wisconsin-Green Bay, Brown County and Outagamie County Land and Water Conservation Departments, The Nature Conservancy, Ducks Unlimited, private agronomists, Wisconsin Department of Natural Resources, Fund for Lake Michigan, and the Alliance for the Great Lakes.

- **Madison Metropolitan Sewerage District.** The Yahara Watershed Improvement Network (Yahara WINS), led by the Madison Metropolitan Sewerage District, is a 20-year effort to improve water quality throughout the Yahara watershed, aimed at reducing phosphorus loads to water bodies in order to meet new water quality standards. Under this program, all sources of phosphorus pollution in an area work together to meet water quality goals. Partners in Yahara WINS include 32 communities, wastewater treatment plants, agricultural producers, environmental groups, and others. The partnership focuses on incentivizing agricultural best practices, initially targeting farms that have the greatest impact on water quality in the watershed.

Solution:
Advance collaborative funding models

Incentivizing best practices to improve water quality is a community-wide, or even regional, responsibility. Communities can look outside their zones of control and service areas to optimize applications for funding and financing approaches, calling on a variety of methods such as stormwater utilities, green infrastructure bonds, collaborative funds, and social impact investing, to help meet regional water management challenges. These efforts can be initiated within one community or in partnership with multiple jurisdictions across a region, and they can also incorporate funding from foundations and businesses interested in restoring ecosystems and improving water quality.

A recent study[4] demonstrated that four in five large cities can improve water quality through improved agricultural practices, upstream forest protection, and reforestation—and that one in six large cities can pay for natural solutions through savings in water treatment operations and maintenance costs alone. A separate 2005 study[5] demonstrated that seven cities in the US avoided between $725,000 and $300 million in annual water treatment costs, and between $25 million and $6 billion in capital costs, by investing in the protection and sustainable management of watersheds that deliver urban water supplies.

In Action:

- **Upper Neuse River Basin Association.** The Upper Neuse River Basin Association (UNRBA) was formed by seven municipalities, six counties, and the local Soil and Water Conservation District in North Carolina to provide an ongoing forum for cooperation on water quality protection and water resource planning in the Upper Neuse River basin. The 770-square-mile river basin contains nine public drinking water supply reservoirs that, together, serve approximately one million people. The organization's board of directors includes representatives from all member organizations, and dues are calculated based on average drinking water withdrawal volumes. UNRBA members worked with the North Carolina Division of Water Resources (DWR) to develop an adaptive strategy for controlling nutrients in Falls Lake. Adopted in 2011, the Falls Lake Nutrient Management Strategy establishes nutrient reduction goals and timelines based on ongoing water quality monitoring results, relying on a basin-wide monitoring program that UNRBA established and funded. The organization also developed a toolbox of nutrient reduction strategies to help local governments meet their respective nutrient reduction goals, calling on measures such as land conservation, agricultural best practices, and soil improvement techniques for developed areas. Implementation of the strategy has helped stabilize water quality in Falls Lake, and the lower portions of the lake are now meeting DWR's chlorophyll a standard.

- **Rio Grande Water Fund.** In northern New Mexico, the Rio Grande Water Fund is protecting forests and the water they provide for one million people. This fund generates sustainable backing for a 20-year program to restore 600,000 acres north of Albuquerque, and it is boosting local economies by creating jobs and wood for product. With more than 50 charter signatories, the fund was created following a major fire in 2011 that destroyed more than 156,000 acres of ponderosa pine forests and impaired nearby municipal water systems. In its first year of operation, the fund created 70 new jobs, and it is anticipated that 300 to 600 seasonal forest worker jobs will be created annually in the future. The water fund is a public-private partnership wherein funds from federal, state, and local governments leverage donations from corporations, businesses, and foundations. For example, in the first two years, the fund generated $2 million of private funding that leveraged $9 million of public revenue. The premise of the fund

is that it is more cost-effective to invest in prevention than to pay for expenses that result from damaging fires. For example, thinning one acre of dense forest in the critical Rio Grande and San Juan-Chama headwaters area costs $700 on average, whereas the economic impact of wildfire damage on one acre can be up to $2,150 per acre.

Solutions: Regional & State Level

Solution:
Adopt adaptive management approaches for water quality improvement

At the state level, policy direction can play a critical role in incentivizing collaboration for water quality improvement. Adaptive management approaches can encourage co-operation among all those who contribute nutrients to a watershed—cities, utilities, farms, and landowners—to find solutions that make the best use of limited resources. Under an adaptive approach, a state allows for a flexible approach to deploying solutions, then learns from experience and adapts compliance strategies accordingly. Some states and regions are adopting area-wide nutrient management strategies to drive collaborative solutions for stronger results.

In Action:

- **State of Wisconsin.** As it introduced more stringent phosphorus regulations, the State of Wisconsin also adopted watershed adaptive management rules to facilitate nonpoint source solutions for nutrient control. These rules enable utilities to work with farmers on land management solutions to meet nutrient reduction targets, rather than relying on point source controls alone. In this adaptive management approach, water quality benefits must be proven over a multi-year horizon, with periodic milestone reviews. If the nonpoint source solutions do not result in demonstrated water quality benefits, the state renegotiates strategies—hence, the adaptive nature of the rules.
- **West Fork White River Watershed Initiative.** The West Fork of the White River is a major tributary that flows to the White River and Beaver Lake, the primary drinking water source for one in seven Arkansans. The West Fork White River Watershed Initiative, proposed by the Watershed Conservation Resource Center (WCRC) and partners, aims to help restore the river and ensure clean water flows to the source of drinking water for Northwest Arkansas. The project is funded in part by the Natural Resource Conservation Service through the Regional Conservation Partnership Program (RCPP), an initiative of the USDA. The RCPP promotes innovative projects that integrate multiple conservation approaches to work on a common resource issue, such as maintaining water quality through stream restoration and conservation practices. This initiative provides resources and assistance to landowners and residents for implementing voluntary best management practices (BMPs)—for example, forest management plans, soil tests and fertilizer calibration, streambank restoration, stormwater management, pasture management, and land conservation. The Beaver Watershed Alliance engages landowners and managers through educational programs, property visits and assessments, and quarterly newsletters.

Solution:
Use loan and grant programs to incentivize best practices

State agencies with primary grantmaking authority or lending authority have the flexibility to include agricultural best practices in their prioritization of subsidized loans and grants to farmland (and other non-municipal) projects through mechanisms like State Revolving Fund (SRF) loan programs.

In Action:

- **State of Iowa**. Iowa is one of four states that allows their Clean Water SRF program to be used for sponsored project funding in addition to urban water/sewage improvements. To pay for a sponsored project, a city borrows additional funding from the SRF program, and the Iowa Finance Authority has the ability to lower their interest rate by one to two percent. The reduction in interest lowers the total loan payback to less than it would be without the additional borrowing. Therefore, the farmers, the urban dwellers, and all watershed

inhabitants win from the collaboration. A community that needs to make upgrades can partner with a watershed plan upstream from them, borrowing up 10 percent in additional funding to pay to install strategically located structures—like bioreactors, wetlands, and drainage water management structures—in the watershed to lower nitrogen and phosphorus loadings in the water coming into their community.

Solution:

Establish credit trading programs or dedicated funds for watershed restoration

Water quality credit trading can be an effective way to incentivize best practices for farmland. In some areas, nonpoint source credit trading programs have been established in anticipation of tougher nutrient removal standards imposed by state environmental agencies. Nutrient standards are expected to trigger costly upgrades to wastewater treatment systems, and trading can be a cost-effective alternative for improving water quality. Credit trading programs hold the potential to bring regional stakeholders together into a single program that supports investments on farmland and forestland to benefit clean water and water conservation.

In Action:

- **St. Charles Parish.** On Louisiana's fragile coast, an innovative credit trading methodology is being used to incentivize wetlands restoration. When Mississippi River Delta wetlands are restored, a new carbon credit methodology can be applied to calculate the amount of carbon dioxide and other greenhouse gas (GHG) emissions that the rebuilt wetlands will absorb over time, as well as the reduction in nutrient loadings to waterways. This enables the generation of carbon credits, which can be sold to companies that want to offset or reduce their GHG emissions. The proceeds from the sale of these credits help fund wetland restoration and innovative water resource management. The methodology is being piloted in St. Charles Parish as a partnership among Tierra Resources, the landowner, the St. Charles Department of Public Works, and the electrical utility Entergy Corporation. The project uses treated wastewater from the wastewater treatment plant to restore wetlands, and the carbon funds are used to compensate the landowner for the use of their land. This helps the parish to implement more resilient wastewater infrastructure while maintaining low rates. Nutrient credits are also being voluntarily transacted through the pilot project.

- **State of Missouri.** State public funding can play an important role in protecting water quality. In 1984, the State of Missouri created a parks, soils, and water sales tax through a constitutional amendment, splitting funding equally between soil and water conservation programs and stewardship of Missouri state parks. Voters have since approved the tax three times, most recently in 2016 with over 80 percent public support statewide. Since its inception, more than 179 million tons of soil have been saved, more than 229,000 soil and water conservation practices have been implemented, and more than $700 million has been generated for assistance to agricultural landowners implementing conservation practices throughout the state.

Solutions: National Level

- **Incentivize collaboration, and create new sources of funding.** Reauthorization of the Farm Bill presents an opportunity to continue and expand successful programs like the Regional Conservation Partnership Program (RCPP). Run through the USDA's Natural Resources Conservation Service, RCPP projects encourage partnerships in solving environmental issues at the national and state levels, along with collaboration based on geographic areas as called Critical Conservation Areas (CCAs). Through these projects, producers and owners of agricultural land or non-industrial forestland enter into partnerships with agricultural groups, farmer cooperatives, state or local governments, local Native American tribes, non-governmental organizations, or higher education institutions to develop conservation solutions.

- **Provide regulatory flexibility for utilities to partner on nonpoint source solutions.** In the context of enforcing point source pollution controls, the US EPA should consider providing utilities the flexibility to engage with farmers and land managers to find more effective nonpoint source solutions to meet water quality objectives in a watershed. EPA can more explicitly endorse and support water quality trading as a way to obtain regulatory credit for addressing water quality impairments.

Conclusion

Agriculture is the lifeblood of the US economy, and freshwater is the lifeblood of agriculture. The agricultural sector's productivity, quality, and efficiency in delivering goods that benefit consumers over the last several decades have often occurred in the face of declining government conservation funding, growing economic pressures on farmers, and an increase in the number and severity of weather events, which can have devastating effects on farmland. Too often in our siloed water systems, we do not fully consider the impacts of agriculture and land management on our water sources. Given the symbiotic relationship between the water and agricultural sectors, now is the time to deepen and forge new partnerships on issues bigger than either could tackle alone. As this policy brief has shown, challenges such as nutrient loading, soil erosion, habitat degradation, and flooding affect all parts of a watershed and only careful planning, funding, and cross-sector partnerships can overcome these herculean problems. Strong agriculture and utility partnerships are an essential ingredient for sustainable water management in America.

Endnotes

1 "Total Water Use in the United States, 2010," *US Geological Survey,* 2010, https://water.usgs.gov/edu/wateruse-total.html

2 "Water Quality Assessment and TMDL Information," *US Environmental Protection Agency,* 2010, https://ofmpub.epa.gov/waters10/attains_index.home

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5 Sandra Postel and Barton Thompson, "Watershed protection: Capturing the benefits of nature's water supply services," *Natural Resources Forum,* May 2005, http://dspace.gcswcd.com/bitstream/handle/123456789/106/Postel%26Thompson_WatershedProtection_2005.pdf?sequence=1

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