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This month's issue of *The CIP Report* highlights the challenges that stakeholders face in the protection of the Water Sector, and offers solutions to some of these challenges.

First, the Sector-Specific Agency for the Water Sector, the U.S. Environmental Protection Agency (USEPA), describes the available resources and tools designed to promote resilience and emergency preparedness for governments and utilities. A Professor with the Department of Civil Engineering at Colorado State University analyzes the interdependencies of water systems and the challenges this presents to stakeholders in the Water Sector, including citizens. Finally, a representative from American Rivers explains why healthy rivers and other surface waters, such as lakes and streams, are part of the Nation's "critical natural infrastructure."

This month's *Legal Insights* examines the status of water and wastewater treatment facilities in the Chemical Facility and Anti-Terrorism Standards (CFATS).

We would like to take this opportunity to thank the contributors of this month's issue. We truly appreciate your valuable insight.

We hope you enjoy this issue of *The CIP Report* and find it useful and informative. Thank you for your support and feedback.

Mick Kicklighter
Director, CIP/HS
George Mason University, School of Law

EPA Resources to Help the Water Sector Prepare for a Disaster

by Michael Dexter, Graduate Intern,
Oak Ridge Institute of Science and Education (ORISE)

Recovery after a natural disaster is difficult due to the broad impact these emergencies have on an array of services and sectors. The Water Sector, while often taken for granted, is crucial to the recovery process because of the reliance all other sectors have on drinking water and wastewater services. Homeland Security Presidential Directive 7 (HSPD-7) designates the U. S. Environmental Protection Agency (USEPA) as the sector-specific agency for improving the security and resilience of our Nation's drinking water and wastewater systems. Within EPA's Office of Water, the Water Security Division (WSD) has developed several voluntary tools and resources to help promote resilience and emergency preparedness in the Water Sector. These products target a broad range of stakeholders, including water and wastewater utilities, emergency services personnel, and concerned citizens, in order to facilitate *emergency preparedness, response, and recovery*.

Emergency Preparedness and Response

Community-Based Water Resiliency

The WSD website provides a variety of technical tools and resources that can help guide the development of an effective emergency response plan. One vital aspect is the understanding of the connections between water utilities and other interdependent sectors, especially

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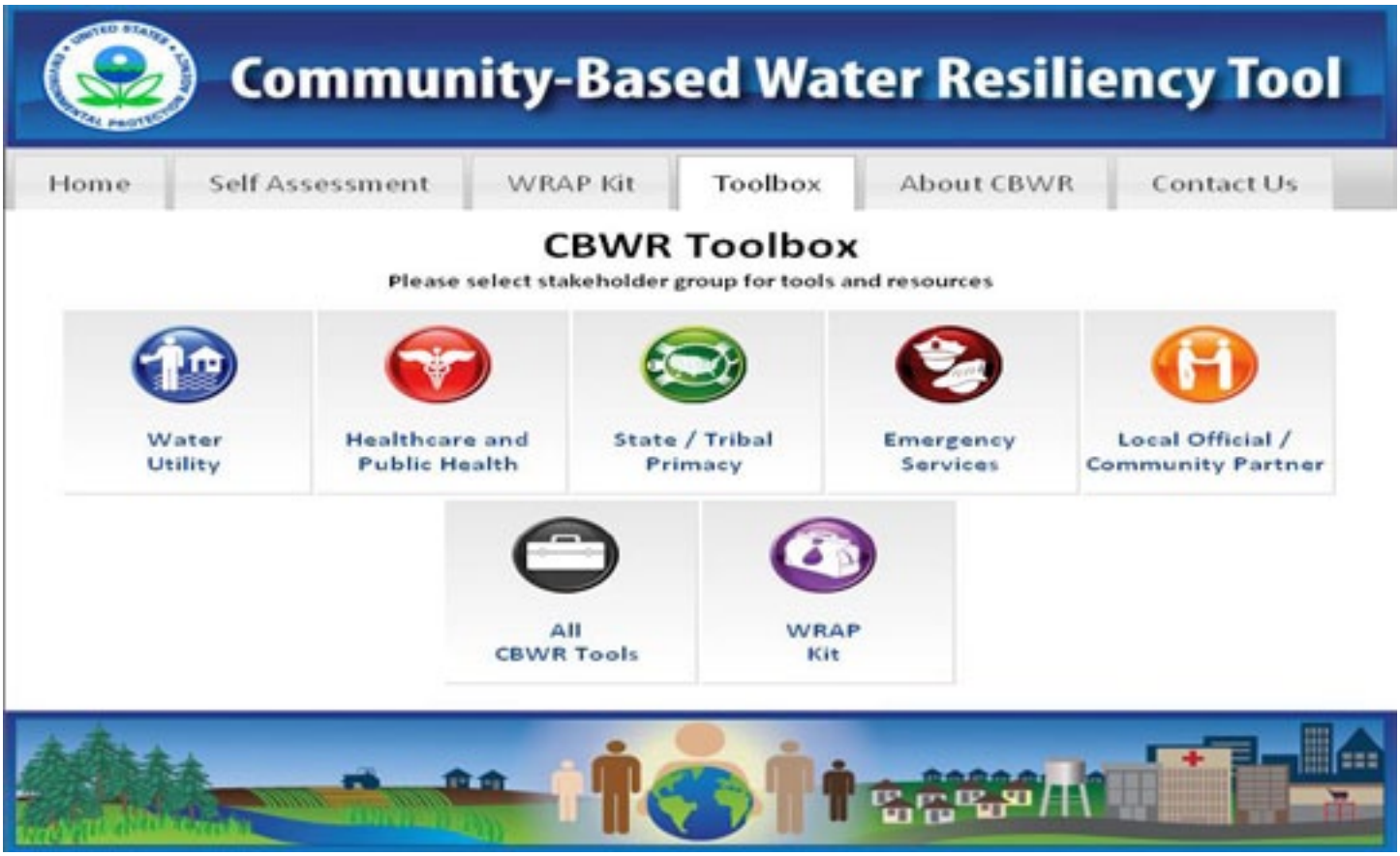

Figure 1: Community Based Water Resiliency Tool.

EPA *(Cont. from 2)*

those classified as "critical infrastructure" by the Department of Homeland Security (DHS). The Community Based Water Resiliency (CBWR) tool provides technical assistance to prepare for an emergency and better understand the interdependencies between the Water Sector and other sectors. The CBWR tool provides a valuable self-examination of a user's level of water resilience preparedness, tailored specifically to the individual's stakeholder group (see Figure 1 on Page 2). Upon completion of this quick self-assessment, the tool provides a summary report highlighting recommended tools and resources to support emergency response plans. These tailored recommendations are supported by over 400 free resources to help implement the recommendations, including case studies, best practices, and detailed step-by-step guides that help strengthen emergency response plans. The tool is regularly updated with additional resources for communities; version 2.0 will be available fall 2012.

One of the more valuable resources being added to the CBWR tool is the Water Resiliency Action Planner Kit or, "WRAP Kit." The WRAP Kit details the step-by-step process to host a water emergency roundtable in your community, a vital step in preparing for a possible emergency. The WRAP Kit helps users quickly and easily plan and host a meeting on water preparedness. It provides suggestions on planning team members, potential invitees, sample invitations and presentations, registration forms, sample after action reports, and other important meeting materials. In essence, it is a one-stop-shop for all resources needed to lead a discussion of emergency response planning in your community. To review or download the CBWR Tool, please visit the CBWR website at: http://water.epa.gov/infrastructure/watersecurity/communities/.

Multi-Sector Workshops

USEPA are also co-hosts of Multi-Sector Infrastructure Protection and Threat workshops that bring together a broad range of stakeholders. Sponsored by USEPA, the Federal Bureau of Investigations (FBI), the Food and Drug Administration (FDA), and the U.S. Department of Agriculture (USDA), these workshops engage participants from Federal, State, and local governments, including drinking water and wastewater utilities, law enforcement, public health, food manufacturing/processing, and agriculture industries, to better understand the assets, capabilities, and interdependencies of the these sectors. Similar to the tabletop exercises, participants increase personal contacts with other sectors which can help encourage cooperation, promote information sharing, and facilitate future emergency response. USEPA has hosted several Multi-Sector workshops this year in: Arlington, VA; Frankfurt, KY; Helena, MT; and East Lansing, MI. Up to 10 additional workshops are planned for Fiscal Year 2013. To get involved in a Multi-Sector Workshop, please contact: WSD_Outreach@epa.gov.

Training and Exercises

Developing an emergency response plan by itself is not sufficient preparation. Considering the variation of possible scenarios, emergency response plans are likely to contain gaps or inconsistencies that are only identified when put into action. All plans must be able to adapt to real-time conditions. For example, while one of the almost 800 daily water main breaks in the United States may impact a single block and take just hours to fix, a hurricane's impact can span multiple jurisdictions and recovery may take years. USEPA actively supports efforts that address and prepare for potential response challenges. These efforts include training and exercises that engage participants and test readiness and the facilitation of mutual aid and assistance, such as the Water/Wastewater Agency Response Network (WARN), that expand local emergency response capabilities.

Training

Understanding how to manage disaster response is important to ensure an effective and coordinated response to any emergency. Since 2007, USEPA has provided various in-person and webinar training to the Water Sector on Incident Command System/National Incident Management System (ICS/NIMS). ICS/NIMS is a national system that provides for improved

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EPA *(Cont. from 3)*

coordination and communication among response organizations, including water utilities. ICS is the national standard for managing domestic incidents, whereas NIMS is a consistent nationwide template that enables all government and non-governmental organizations to work together during domestic incidents. ICS/NIMS training helps water and wastewater utilities to better prepare for responding to emergencies. In addition, NIMS is a requirement for jurisdictions wishing to receive Federal preparedness funding. For more information about NIMS or ICS training for the Water Sector, please visit: http://water.epa.gov/infrastructure/watersecurity/emerplan/index.cfm.

Exercises

Water preparedness and emergency response training exercises can range in complexity and participation, yet they all contain the underlying theme of testing response capabilities through hypothetical, all-hazards emergency scenarios. USEPA has developed the "Tabletop Exercise Tool for Water Systems: Emergency Preparedness, Response, and Climate Resiliency (TTX Tool)" to assist utilities in planning and developing tabletop exercises (TTXs). TTXs bring participants together to discuss organizations' respective roles and responsibilities in a hypothetical disaster scenario. By incorporating different stakeholders, such as local elected and appointed officials, emergency managers, water utilities, and other first responders, these voluntary exercises provide valuable

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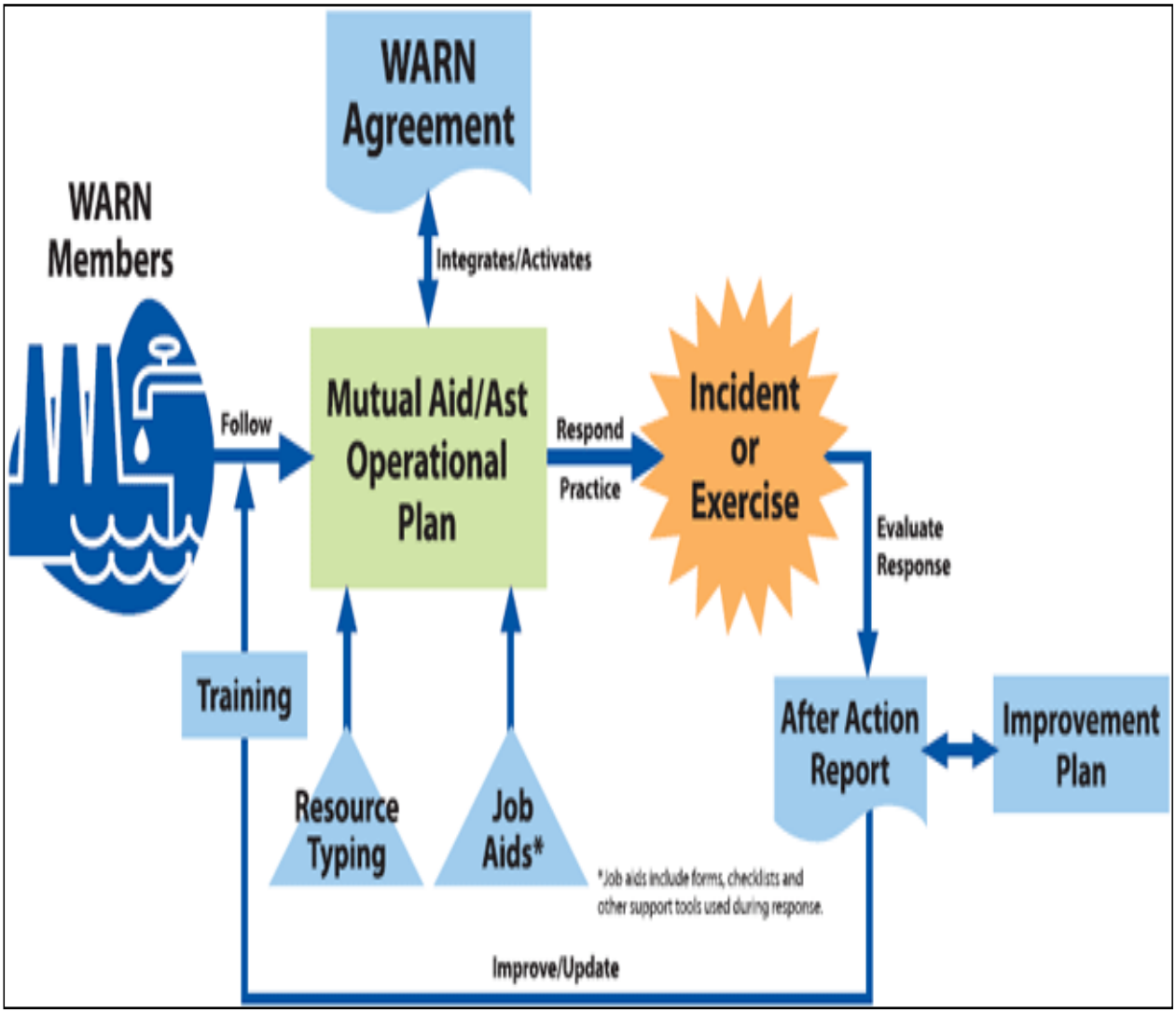

Figure 2: WARN Operationa.

EPA *(Cont. from 4)*

challenges at minimal cost to communities and ensure a more effective response to actual incidents. These exercises also foster a better understanding of interdependency among stakeholders by acknowledging an organization's impact and vulnerability in an emergency. TTXs strengthen participating organizations' emergency response plans by fostering relationships that can facilitate future cooperation among organizations. Followed by an after-action planning step, these exercises can gain even greater significance when "After-Action Reports" (AAR's) highlight the specific lessons learned through the TTX and specific activities needed to address them. For more information about TTXs, or to download the TTX Tool, please visit: http://water.epa.gov/infrastructure/watersecurity/techtools/ttx.cfm.

WARN

USEPA encourages utilities to develop mutual aid and assistance agreements that enable utilities to share response resources after an incident. Commonly referred to as a WARN, this voluntary intrastate agreement is signed by utilities and coordinated with emergency management agencies, State primacy agencies, and other stakeholders. As a WARN member, utilities can request, and lend, resources during an incident without administrative barriers or the delay of receiving State or Federal assistance (see Figure 2 on Page 4). Currently active in 47 states and the National Capitol Region, WARNs are at different stages of development, but have already been utilized in more than 25 major incidents. Since 2008, USEPA has sponsored TTXs to support WARNs by improving their incident response capabilities to provide resources more efficiently and effectively. After each exercise, WARNs are encouraged to review the AAR and implement changes to address any response gaps highlighted during the exercise. For additional information on mutual aid programs, please visit: http://www.epa.gov/mutualaid or, to learn about your state's individual WARN program, visit www.nationalWARN.org.

Recovery

FedFUNDS

Federal Funding for Utilities — Water/Wastewater — in National Disasters, or FedFUNDS, is a web-based tool that provides step-by-step instruction on how to help utilities access Federal funding support for disaster mitigation, recovery, and response. FedFUNDS will be released in fall 2012. It was developed with the participation of water utilities, State water primacy agencies, and other Federal disaster agencies. FedFUNDS helps utilities expedite and obtain disaster funding from a variety of Federal agencies, including the Federal Emergency Management Agency, USEPA, USDA, U.S. Department of Housing and Urban Development, and the Small Business Administration.

(Continued on Page 14)

Figure 3: FEDFunds Interative Home Screen.

Protecting Interdependent Water Systems

by Neil S. Grigg,
Colorado State University, Fort Collins, CO

Water Systems and Their Interdependencies

Sustaining Water Sector services is critical to public health and the economy, but protecting them requires action across a range of interdependent systems. The critical systems begin with drinking water supply and extend to water for energy production, industries, environmental systems, and others. Due to their interdependences, water systems present special security challenges, but they can also be resilient. Water systems are found almost everywhere and are easy to attack or disrupt, but the problems can often be quickly overcome through cooperation and joint actions.

Water system interdependencies resemble supply chains where production of high quality finished water depends on inputs of raw water, electric power, chemicals, and other resources. Water users drink the water, swim in it, cook with it, or use it for other purposes, and indirect water users use products that require water as inputs, such as

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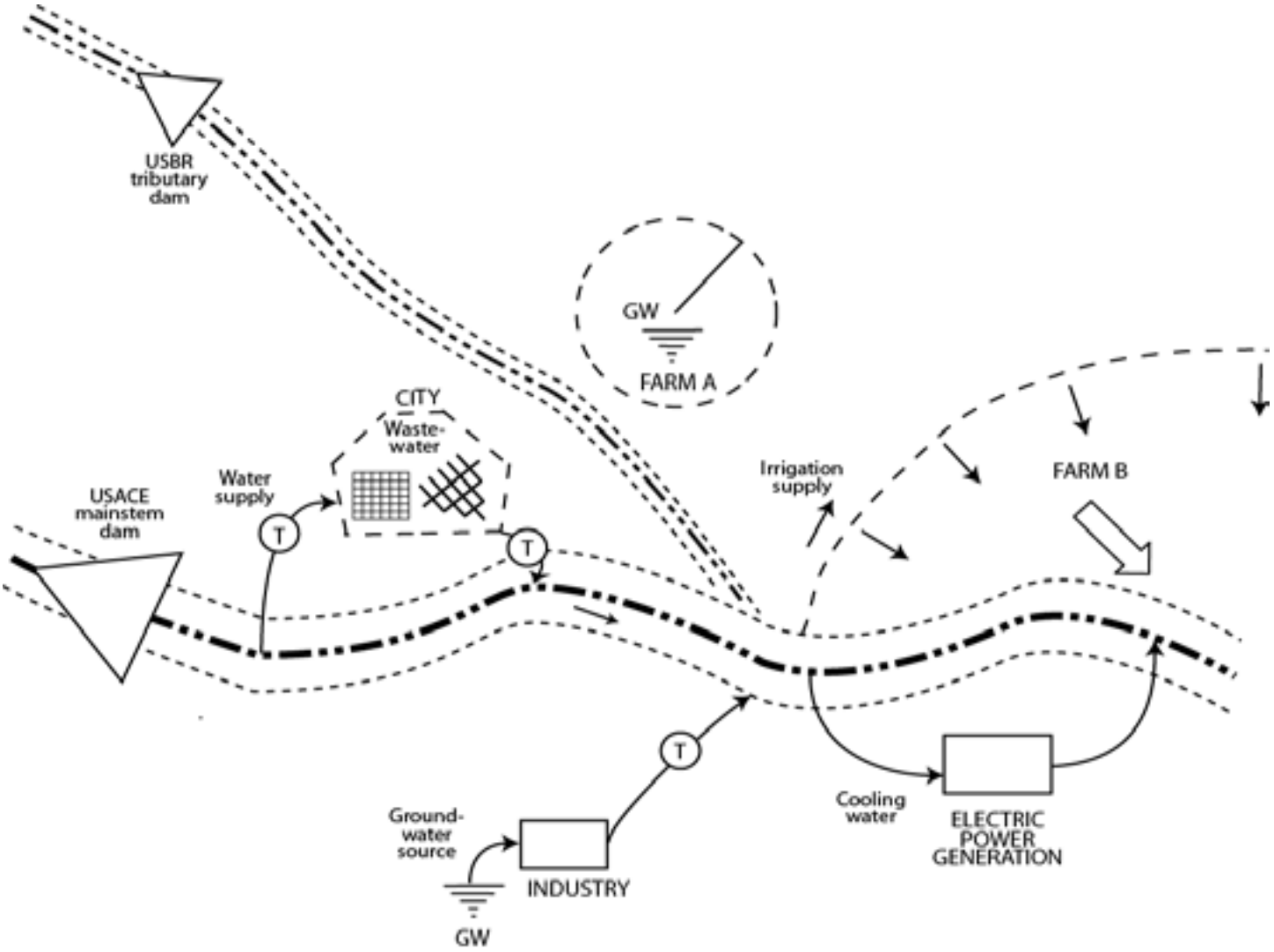

Interdependencies *(Cont. from 6)*

food produced through irrigation. The interdependencies require protection across the Water Sector, and stakeholders must be prepared through cooperation and joint actions.

Water Sector Stakeholders and Interdependencies

The diagram shows the major Water Sector players and some types of Water Sector facilities along a river corridor. At the left, a dam owned by the U.S. Army Corps of Engineers (USACE) controls water flow along the major stream, and a dam owned by the U.S. Bureau of Reclamation (USBR) controls flow on a tributary. A city diverts water and returns wastewater to the main stream. An industry use self-supplied groundwater and a farm receives irrigation water from another well. Farm B receives surface water for irrigation at nearly the same point of diversion where a thermoelectric generation plant takes cooling water. Not shown on the diagram are other uses and controls on water facilities, such as environmental uses, flooding and storm drainage, hydroelectric generation, and actions by regulators.

These water uses and actions require many administrative arrangements and communication channels to identify vulnerabilities and manage risk. In the United States, thousands of water and wastewater systems operate to serve utility customers. While most of the management organizations are small, these collectively exhibit the main authority and responsibility to manage water through the hydrologic cycle. Another influential group comprises the agencies that manage the Nation's some 75,000 dams and reservoirs. These comprise management units such as the Corps of Engineers, Bureau of Reclamation, and hydroelectric producers, among others. Security requires cooperation. For example, a Federal agency may operate a reservoir that provides water supply to a city, which is regulated by a State agency.

Interdependencies and vulnerabilities begin with raw water, which must be transported to points of storage, treatment, and use. Wastewater systems also involve vulnerable treatment plants and pipes. Irrigation systems are linked to the food supply and can be disrupted. Examples of interdependences begin with raw water, where an earthquake could block a tunnel and cut supplies. Water supply systems often extend for long distances, and drought can reduce supplies in a wide area. River flooding may disrupt operation of raw or treated water facilities. Intentional contamination of treated water is an obvious threat, but contamination of raw water may involve less risk because of volume and the opportunity for early warning. Security of dams is critical to water supplies, public safety, and the environment and dams can be threatened by sudden events or lack of maintenance.

Water systems have interdependencies with other infrastructure. Contaminated drinking water and/or failed water systems are linked to public health, as are wastewater and irrigation water. The public health system presents threats to water systems when disposal of medicines from health care facilities enters the supply stream. Inadequate regulation of public swimming and fishing areas can also pollute water and expose the public. Food security is a health-related water issue because water is an ingredient in food and contaminated irrigation water can lead to outbreaks of waterborne disease. Industrial water security starts with the chemical industry, which produces water treatment chemicals such as phosphates and chlorine gas. Shortages of these will impede water treatment, and their transportation can create hazardous conditions. Water infrastructure has interdependences with transportation systems too. Vulnerable bridges and tunnels may form part of water conveyance systems. If a dam fails, it may cause destruction of transportation arteries. During drought, water utilities often call for reduced navigation flows for barges, which may be transporting vital commodities. Energy systems and water are linked because if raw or treated water is pumped, the systems are vulnerable to power outages. Control of water systems is automated and loss of energy can fail control systems. Hydroelectricity is produced from water and thermoelectric cooling is a large user of water.

(Continued on Page 8)

Interdependencies *(Cont. from 7)*

Water Sector Security Preparations

Although Water Sector responsibilities are fragmented, much has been done to prepare for and counter threats. At the Federal level, the National Infrastructure Protection Plan (NIPP) is the vehicle for overall preparedness.[1] The Water Sector Specific Plan of the NIPP covers water supply utilities and wastewater treatment systems, which comprise most, but not all, of the vulnerable water infrastructures of the Nation. Dams are identified as another sector in the NIPP.

While the NIPP addresses water supply, wastewater, and dams, other water sector facilities also offer targets for terrorism or natural disaster failures. These include collection systems for wastewater and stormwater, flood control facilities, and groundwater systems. Management of these disparate systems is dispersed among local, State, and Federal authorities and coordination is a challenge. For example, most damage during Hurricane Katrina was due to failure of levees and other flood control facilities, in which control was split between local authorities and the USACE.

Claudia Copeland provided an overview of government and private sector water security efforts undertaken since September 11, 2001 in a report for the Congressional Research Service.[2] Under Homeland Security Presidential Directive-7, USEPA became the lead Federal agency for security of drinking water and wastewater utility systems and established partnerships with the American Water Works Association (AWWA) and American Metropolitan Water Association (AMWA) to safeguard water from terrorist acts. The Water Research Foundation (then the AWWA Research Foundation) also developed a vulnerability assessment tool for water systems.

AWWA, the Water Environment Federation (WEF), and the American Society of Civil Engineers (ASCE) created a Water Infrastructure Standards Enhancement (WISE) Committee to plan for implementation of security measures, with AWWA taking the lead on water supply, WEF on wastewater, and ASCE on contaminant monitoring. WISE developed voluntary guidance documents, training materials, and standards to aid utilities in their security programs.

For coordination, the DHS Critical Infrastructure Partnership Advisory Council (CIPAC) has a Water Sector Committee that includes representatives from Federal agencies and State and local agencies, water utilities, and water affinity organizations. A water sector Information Sharing and Analysis Center (WaterISAC) was supported by USEPA and created under AMWA in 2002. It is a private, subscription service that receives some Federal funding and is the primary communication tool in the Water Sector. It includes a free Water Security Channel, which disseminates USEPA and DHS security bulletins to many utilities, State agencies, and engineering firms.

The USACE and USBR have facility protection and dam security programs to focus on high-hazard dams and hydroelectric plants. Both agencies participate in the Interagency Committee on Dam Safety (ICODS); FEMA coordinates ICODS.

Toward the Future

While Water Sector security preparations are extensive and much has been learned, more is needed because the dispersed facilities and responsibilities in the sector leave many vulnerable elements. While many players are involved, water utilities have special responsibilities because in their risk management programs, they must be ready to respond to emergencies and keep their systems running to deliver reliable and safe water.[3]

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1. U.S. Department of Homeland Security, Water Sector: Critical Infrastructure, available at: http://www.dhs.gov/files/programs/gc_1188399291279.shtm; and U.S. Department of Homeland Security, *National Infrastructure Protection Plan*, (Washington, D.C., 2009), available at: http://www.dhs.gov/xlibrary/assets/NIPP_Plan.pdf.
2. Claudia Copeland, *Terrorism and Security Issues Facing the Water Infrastructure Sector*, Congressional Research Service, (December 15, 2010), available at: http://www.fas.org/sgp/crs/terror/RL32189.pdf.
3. American Water Works Association, *Emergency Planning for Water Utilities*, Manual M19, 4th Edition, (Denver, Colorado: 2001), available at: http://www.awwa.org/files/bookstore/toc/m19ed4.pdf.

Healthy Rivers as Critical Natural Infrastructure

by Katherine Baer,
American Rivers*

Background

Across the country, rivers and other surface waters like lakes and streams provide the majority of our drinking water. Rivers provide critical habitat for fish and wildlife and offer places for us to fish, paddle, and swim. Despite these benefits, nationwide our rivers face a variety of threats, placing clean and reliable water for people and wildlife at risk.

Increased population combined with growth patterns that transform natural areas into ones dominated by roads, parking lots, and rooftops has strained water infrastructure and increased sewer overflows and polluted stormwater runoff. While we have made gains in areas like wastewater treatment, over 40 percent of our streams are in "poor" condition nationwide due to excess nutrients, sediment, as well as loss of streamside buffer zones.[1] Every year, an estimated 860 billion gallons of sewage flows untreated or partially treated into our waters.[2] Yet, as we approach the 40th anniversary of the Clean Water Act, protections for clean water are under attack in Congress and funding for water infrastructure is slated for continued cuts.

Climate change further threatens our freshwater resources as it will alter precipitation patterns and increase the frequency and intensity of floods and droughts, impacting both pollution and water availability. While individual occurrences are not attributable to climate change, recent events are illustrative of a future marked by more extreme weather. As of late June, over 55 percent of the country was experiencing moderate to extreme drought, which threatens crops and drinking water supplies as well as increasing water temperatures, creating conditions ripe for toxic algal blooms. Conversely, flood intensity and frequency is also increasing.[3] Current pollution and water supply challenges must be addressed in the face of a changing climate, underscoring the urgent need to start considering rivers and freshwater systems as part of our "critical natural infrastructure."

Solutions

Despite the serious threats facing our rivers, they are inherently resilient systems if given the chance. In 2011, for example, dam removals on the Elwha River in Washington are restoring native salmon runs to the Olympic Peninsula well ahead of what scientists had predicted, simultaneously restoring the environment, cultural traditions, and local economies.[4] Actions like these to protect and restore our "natural infrastructure" — such as small streams and wetlands, floodplains, and green roofs — that clean and recharge the health of our rivers and the communities that depend upon them should be considered part of our critical infrastructure systems. The following are several of the solutions we believe are critical to ensure that rivers can function as resilient systems, providing clean and reliable water into the future.

Define Water Infrastructure Expansively: Across the country, we routinely engineer water in a linear

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[1] U.S. EPA, *The Wadeable Streams Assessment, A Collaborative Survey of the Nation's Streams*. http://water.epa.gov/type/rsl/monitoring/upload/2007_10_25_monitoring_wsa_factsheet_10_25_06.pdf.

[2] U.S. EPA, *Clean Water Needs Survey* (2004) http://water.epa.gov/scitech/datait/databases/cwns/toc.cfm.

[3] Tierney Smith, *'1 in 100-Year' Floods Will Become More Frequent*, Climate Action (March 3, 2011) http://www.climateactionprogramme.org/news/1_in_100_year_floods_will_become_more_frequent/.

[4] Timothy Egan, "Biological Boomerang," *The NewYork Times*, (July 26, 2012) http://opinionator.blogs.nytimes.com/2012/07/26/biological-boomerang/ and see http://www.americanrivers.org/our-work/restoring-rivers/dams/projects/elwha-river-background.html.

Rivers *(Cont. from 9)*

and highly energy intensive fashion, often sidestepping or destroying existing natural infrastructure systems, such as small streams and wetlands, along the way.[5] For instance, we collect and dispose of stormwater as quickly as possible, decreasing local water supplies and increasing downstream pollution and flooding. Likewise, we fail to protect source water watersheds, treat all water to drinking water standards regardless of its end use, and then dispose of it as "waste." An expanded definition of water infrastructure is needed to integrate clean water and water supply and address freshwater holistically to create a more sustainable and secure approach.

As part of the Aspen Institute's Dialogue on Sustainable Infrastructure, American Rivers, along with other participants, developed a new definition for water infrastructure that would address the importance of sustainable infrastructure for clean and reliable water. At its core, the Dialogue recommended redefining water infrastructure as a system that "integrates built infrastructure components with the protection and restoration of its supporting natural watershed infrastructure and the use of emerging small-scale water technologies and water management solutions."[6] This definition recognized the critical nature of protecting natural systems, such as small streams and wetlands, source water watersheds, and other natural features. In addition, using "embedded" and decentralized technologies can increase water efficiency and reuse along with more traditional water treatment plants and distribution systems.

At American Rivers, we include a focus on approaches that protect, restore, and replicate natural function. Such approaches to water management include using rooftop vegetation to control stormwater and reduce energy use; restoring wetlands to retain floodwater; protecting source water watersheds; installing permeable pavement to mimic natural hydrology; and using water more efficiently. These sensible infrastructure approaches have far-reaching benefits — they reduce stormwater runoff and sewage overflows, recharge drinking water supplies, and create valuable natural spaces for community enjoyment, while providing cleaner rivers. By treating water onsite and reducing water use, green storm-water controls and water efficiency reduce energy costs and corresponding greenhouse gas emissions by decreasing the amount of water that must be pumped, distributed, and treated. Moreover, these green approaches are flexible in terms of scale and can be integrated at the building and neighborhood level as well as across watersheds and river basins, making them key elements of any climate adaptation strategy.

Invest and Adopt Policy Solutions Accordingly: Following this broadened definition of water infrastructure, it is then critical to align investment and policy solutions with this approach. One success in this area has been the dedicated funding for green infrastructure and water and energy efficiency. This was first established in the American Recovery and Reinvestment Act and continued since then as part of the regular appropriations for the Clean Water and Drinking Water State Revolving Funds (SRF). While projects such as water efficiency, rain gardens, and water reuse have long been eligible for funding under the SRF, historically almost no funding has been used for these purposes. This recent dedicated funding, known as the Green Project Reserve, catalyzed the use of these public funds for a variety of projects, such as urban tree planting, water reuse, and green roofs that have multiple environmental benefits for communities and rivers. The demand for this funding has well outpaced availability and some states have revised their funding criteria to reflect these new approaches.[7] Looking forward, any new water infrastructure funding vehicles, including trust funds, finance authorities, and SRF reauthorizations should be designed to prioritize and thoroughly

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5. Trevor Clements, Vic D'Amato, and Tina Taylor, *Integrating Water Infrastructure in a New Paradigm for Sustainable, Resilient Communities, Cities of the Future Conference,* Water Environment Federation (2010).
6. R. Bolger, D. Monsma, and R. Nelson, *Sustainable Water Systems: Step One - Redefining the Nation's Infrastructure Challenge. A Report of the Aspen Institute's Dialogue on Sustainable Water Infrastructure in the U.S, (*May 2009).
7. U.S. EPA, Office of Water, *Clean Water State Revolving Fund Green Project Reserve Report* EPA-832-R-12-006 (June 2012) and Katherine Baer and Mark Dorfman, *Putting Green to Work Economic Recovery Investments for Clean and Reliable Water,* American Rivers (2010).

Rivers *(Cont. from 10)*

evaluate water infrastructure solutions that protect, restore, and replicate natural function as a prerequisite for funding.

There are a range of policy opportunities to better safeguard healthy rivers as critical infrastructure. Better protecting the small streams and wetlands that comprise the majority of stream miles and are critical to the flows and quality of downstream rivers is one example. Over the last decade, the scope of the Clean Water Act has been chipped away, limiting the ability to protect our small streams and wetlands from paving and destruction. Administrative and legislative action is needed to restore the Clean Water Act's protections to reflect both the law's original intent as well as scientific research connecting upstream and downstream waters.[8] Another important opportunity is EPA's update to the municipal stormwater program where the agency is considering adopting performance-based standards that will drive the use of green infrastructure by requiring a certain amount or percentage of water to be retained on-site.[9] Such a move would follow the lead of many communities who are using performance-based standards as a smart way to reduce municipal stormwater treatment costs while reaping a range of multiple benefits from green infrastructure, such as improved air quality and public health.

Align Financial and Environmental Security by Investing in Sustainable Infrastructure and Efficiency First: Financial decisions for infrastructure should be guided by the best information about environmental risk, but this is often not the case. In our recent report, *Money Pit*, we show the folly of investing reflexively in large reservoirs as a first-choice water supply solution in the Southeastern U.S.[10] While reservoirs are typically a community's automatic choice to increase water supply, many reservoirs sink local governments and ratepayers into debt, cost more that estimated, and are not in fact reliable water sources given increasing droughts and contested water sources. Instead, communities should look first to optimize existing water infrastructure through efficiency, potable reuse, system interconnections, and repurposing existing storage, all of which are more cost-effective for communities and better for rivers. More generally, there is a need to align financial and environmental security to invest in sustainable infrastructure by increasing transparency about environmental risk, increasing opportunities for market formation for more sustainable approaches, and valuing clean water protections on the official balance sheet, allowing communities to borrow against sound investment in watershed protection.[11]

Conclusion

Already, communities around the country are starting to use approaches that integrate the built and natural environment as part of their strategies to protect clean and reliable water for rivers and people, simultaneously reducing sewer overflows, localized flooding and polluted stormwater runoff, increasing water availability, and improving public health.[12] As an example, with a grant from the Milwaukee Metropolitan Sewage District (MMSD), American Rivers worked with the Garden District Neighborhood Association and other partners to install a 5,000 gallon underground water harvesting tank that is filled by stormwater via pervious pavers. The system will provide an estimated 25,000 gallons of water a year for urban farm plots, reducing polluted stormwater runoff and demand on potable municipal water.

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8. *Where Are the Clean Water Rules?* New York Times editorial (June 20, 2012), http://www.nytimes.com/2012/06/21/opinion/where-are-the-clean-water-act-rules.html.
9. U.S. EPA, *Proposed National Rulemaking to Strengthen the Stormwater Program,* http://cfpub.epa.gov/npdes/stormwater/rulemaking.cfm (last visited Aug. 20, 2012).
10. Ben Emanuel and Jenny Hoffner, *Money Pit: The High Cost and High Risk of Reservoirs in the Southeast*, American Rivers (June 2012).
11. Jeff Odefey, Sharelene Leurig, and Fay Augustyn, *Restoring the Flows, Financing the Next Generation of Water Systems*, American Rivers and Ceres (April 2012).
12. Jeff Odefey, et. al. Banking on Green: *A Look at How Green Infrastructure Can Save Municipalities Money and Provide Economic Benefits Community-wide,* American Rivers, American Society of Landscape Architects, ECONorthwest and Water Environment Federation (April 2012).

Legal Insights

The CFATS Water Exemption: Stay or Go?

Congress first authorized the development and implementation of the Chemical Facility and Anti-Terrorism Standards (CFATS) in June 2007. Designed to regulate facilities possessing specified chemicals in certain amounts, the CFATS program is set to expire on October 4, 2012. While CFATS has received its share of criticism of late, a continual question has been its exemption for water and wastewater treatment facilities. Several bills have been introduced in the past five years in both the House and Senate which would extend CFATS oversight to the Water Sector. The administration has also supported modifying the program to include public water systems. However, jurisdictional wars and conflicting viewpoints about whether and how this could be accomplished have prevented any actual changes.

Currently, the EPA is primarily responsible for regulating public water systems and treatment facilities under the Safe Drinking Water Act (SDWA) and the Federal Water Pollution Control Act (FWPCA). When Congress first enabled CFATS promulgation, it ensured that the program would not apply to water systems as defined in these statutes. Yet, many believe SDWA and FWPCA are insufficient to address chemical security in the Water Sector, and that this exemption has left a large hole in chemical security.[1]

Those who do not want to repeal the water exemption claim that CFATS regulation of water systems would be duplicative and conflict with EPA's current authority.[2] In a hearing earlier this year, Representative John Shimkus, Chairman of the Energy and Commerce Committee, reiterated his view that CFATS "should not take on any additional responsibilities," including "taking drinking water security oversight away from EPA."[3] However, it is not clear that EPA views the issue in quite these terms. In 2010, the EPA Assistant Administrator for Water told the Senate Committee on Homeland and Governmental Affairs that "there is a critical gap in the U.S. chemical security regulatory framework — namely, the exemption of drinking water and wastewater treatment facilities …Drinking water and wastewater treatment facilities that meet CFATS thresholds for chemicals of interest should be regulated."[4]

Regardless of one's take on the CFATS exemption, it is clear that there are differences in the Water Sector that must be considered when thinking about chemical security. For instance, safe drinking water is a major public health concern. As such, "a 'cease operations' order that might be appropriate for another facility under CFATS would have significant public health and environmental consequences when applied to a water facility."[5]

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1. *See* Alice Su, "Bush EPA Chief Urges Action on Chemical Hazards," *The Center for Public Integrity* (June 13, 2012), http://www.publicintegrity.org/2012/06/13/9130/bush-epa-chief-urges-action-chemical-hazards.
2. Jessica Zuckerman, "Chemical Security in the U.S.: CFATS Regulations Too Complex, Overly Burdensome," The Heritage Foundation, August 12, 2012, available at http://www.insideronline.org/summary.cfm?id=18148.
3. Opening Statement of John Shimkus, Chairman of the Energy and Commerce Committee, *Evaluating Internal Operation and Implementation of the Chemical Facility Anti-Terrorism Standards by the Department of Homeland Security*, (February 3, 2012), available here.
4. Testimony of Peter S. Silva, Former Assistant Administrator for Water, U.S. Environmental Protection Agency, Before the Senate Committee on Homeland and Governmental Affairs, (March 3, 2012), available at http://www.epa.gov/ocir/hearings/testimony/111_2009_2010/2010_0303_pss.pdf.
5. Ibid.; see also, Testimony of Rand Beers, Under Secretary, National Protection and Programs Directorate, Department of Homeland Security, Before the House Committee on Energy and Commerce *H.R. 908, A Bill to Extend the Authority of the Secretary of Homeland Security to Maintain the Chemical Facility Anti-Terrorism Standards (CFATS) Program*, (March 30, 2011), available at http://www.dhs.gov/news/2011/03/30/written-testimony-nppd-house-committee-energy-and-commerce-hearing-titled-hr-908.

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Interdependencies *(Cont. from 8)*

Water Sector security is a shared responsibility. Water utilities are better prepared than in the past, but the challenges from natural disasters and human-caused threats loom large. At the end of the day, preparedness by water utilities will depend on management and leadership as well as procedures, drills, and emergency plans. Organizations that learn and use good management practices will survive and continue their core missions of providing reliable and safe water. ❖

EPA *(Cont. from 5)*

With its interactive, easy to use menu, this tool directs users to the most applicable funding program for their specific situation (see Figure 3 on Page 5). After determining possible funding sources, FedFUNDS assist utilities by providing necessary forms, photo-logs, and checklists needed to obtain funding and start on the road to recovery. The information is specifically tailored to water/wastewater utilities and includes examples of successful utility applications, activities for utilities to prepare to tap into funding, lessons learned/tips from other utilities, and funding mentors. For more information regarding FedFunds or its prospective launch date, please contact: WSD_Outreach@epa.gov. ❖

Rivers *(Cont. from 11)*

As we look to a future influenced by more frequent and extreme weather events, we will do well to consider healthy rivers and the natural systems needed to support them, as part of the country's critical infrastructure and take the necessary steps to protect and restore them.

American Rivers is a leading organization working to protect and restore the nation's rivers for people and wildlife. www.americanrivers.org. ❖

Legal Insights *(Cont. from 10)*

Perhaps the solution is for EPA to maintain its status as lead agency, but utilize the CFATS framework, with support from DHS, to ensure chemical security at water facilities. Rand Beers, DHS Under Secretary of the National Protection and Programs Directorate, advocated for this approach before Congress, contending that it will bring consistency across all critical infrastructure sectors. Additionally, "[t]his consistency could be achieved, for example, by the use of CFATS compliance tools and risk analysis with modifications as necessary to reflect the uniqueness of the water sector and statutory requirements."[6]

At the moment, CFATS' impending October expiration date, as well as the political climate, makes it likely that the Secretary's plan remains dormant and the water exemption stays in place. But, like most current policies, we will have to wait and see how the coming elections affect the Water Sector's fate. ❖

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6. Ibid.

The Center for Infrastructure Protection and Homeland Security (CIP/HS) works in conjunction with James Madison Univerity and seeks to fully integrate the disciplines of law, policy, and technology for enhancing the security of cyber-networks, physical systems, and economic processes supporting the Nation's critical infrastructure. The Center is funded by a grant from the National Institute of Standards and Technology (NIST).

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