

# Synopsis of the Third National Drinking Water Symposium

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## EXECUTIVE SUMMARY

The Third National Drinking Water Symposium brought together state public utility commissioners and staff, drinking water program administrators, U.S. Environmental Protection Agency (U.S. EPA) officials, many water utility executives, and other stakeholders to share ideas about optimizing the provision of safe drinking water in the United States, globally, and in developing nations. Success stories and best practices that build on the Synopsis and Action Plan from the Second Symposium were explored. "Communicating Value" was the overarching theme of the event. Program speakers were organized around an agenda that included these topics:

- Enhancing public awareness
- Integrated water resource management
- Industry structure affects service
- Standards of service
- Setting rates and full cost pricing

Strategic water sector issues and future trends affecting the water industry were also discussed.

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The Symposium was made possible in part by a grant from the U.S. Environmental Protection Agency, presented by the National Association of Regulatory Utility Commissioners (NARUC), the National Association of Water Companies (NAWC), and the Association of State Drinking Water Administrators (ASDWA). Carol A. Kozloff, Rate Case Review Specialist for Chairman Wendell F. Holland, of the Pennsylvania Public Utility Commission and Sharon L. Gascon, Deputy Executive Director of NAWC were Symposium coordinators.

## INTRODUCTION

The Third National Drinking Water Symposium brought together state public utility commissioners and staff, drinking water program administrators, U.S. Environmental Protection Agency (U.S. EPA) officials, many water utility executives, and other stakeholders to share ideas about optimizing the provision of safe drinking water in the United States, globally, and in developing nations. Success stories and best practices that build on the Synopsis and Action Plan from the Second Symposium were explored. “Communicating Value” was the overarching theme of the event. Program speakers were organized around an agenda that included these topics:

- Enhancing public awareness
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- Industry structure affects service
- Standards of service
- Setting rates and full cost pricing

Participants included private and public water utilities, economic, public health, and environmental regulators, federal and state drinking water program administrators, academicians, consulting engineers, public officials, researchers, entrepreneurs, and consumer advocates.

### **Opening Ceremony and Remarks by Diane Munns, NARUC President and Commissioner, Iowa Utilities Board**

Commissioner Munns opened the event by contrasting the experience of private and public water utilities in

Iowa during the state’s major flood of 1993. She noted how efficiently the private utilities re-established service and the ensuing public understanding of the need for rate increases. The public more readily understood the true value of water service when it was not available. President Munns also described the need to explain to consumers the interrelationship of water and energy service, and the capital intensity of their infrastructure. This is an ongoing major challenge faced by regulators.

## PROGRESS SINCE 2003 SYMPOSIUM

**Andrew Chapman, Vice President, Strategy and Regulation, American Water; Frederick F. Butler, Commissioner, New Jersey Board of Public Utilities and Chair, NARUC Committee on Water; Stephen F. Heare, Director, Drinking Water Protection Division, U.S. EPA; and Van R. Hoofnagle, Administrator, Drinking Water Section, Florida Department of Environmental Protection and President, ASDWA**

Views among the panelists converged and diverged according to their respective roles. Mr. Chapman emphasized that despite our collective dependence on the water cycle, institutional boundaries may impede desired collaboration among stakeholders. There is a need for business plans to conform to natural systems. Mr. Heare described the Safe Drinking Water Act’s (SDWA) multi-modal approach to protecting drinking water, which deals with source, distribution system, and customer information. The multi-pronged approach is working. Commissioner

*Explaining the interrelationship between water and energy services and the capital intensity of the water industry to consumers is a major, ongoing challenge faced by regulators.*



Butler emphasized consolidation as one means of addressing non-viable systems. Commissioner Butler added that viable water service with adherence to a set of customer service standards akin to New Jersey's report card model remains a key goal. Mr. Hoofnagle expressed alarm about a projected shortfall of \$360 million for 2006 in state drinking water program resources. This is about half of the amount needed to implement new, risk-based rules involving multiple stakeholders and complexities. Priority challenges for drinking water administrators include small systems protection from vandalism and natural disasters; sanitary surveys; and technical assistance.

## STRATEGIC WATER SECTOR ISSUES

**Lynn Stovall, Manager of the Publicly Owned and Operated Greenville, South Carolina Water System, and Chairman, Water Sector Coordinating Council (WSCC)**

### Responses to Hurricanes Katrina and Rita

Not one for mincing words, Mr. Lynn Stovall emphatically pronounced that whatever the disaster, the challenge is to move in quickly. This can best be accomplished if one knows who is in charge! Following Hurricane Katrina, essential communication and coordination with local leaders were lacking. Two working phones—one for the police chief and one for the mayor—would have made a big difference in finding out what was needed and how to respond to those

needs. Mr. Stovall provided kudos to the Corps of Engineers for its coordination efforts in New Orleans as well as efforts of the National Rural Water Association in outlying areas. He also expressed thanks for disaster relief money from Contra Costa, California and deployment of Portland's water staff. Sadly, although the American Water Works Association (AWWA) had pre-positioned several vans with food and fuel, they could not get guidance on where to deliver supplies. Mr. Stovall said successes that did occur—although limited in scope—did not capture the attention of national media. In particular, Mr. Stovall noted the exceptional volunteer spirit that was prevalent throughout the crisis.

Overall, the water sector is creating a culture of safety and security. Contingency measures, such as treatment plant redundancy, alternative sources, and protective coverings for reservoirs, are gaining popularity and financial support in order to ensure supplies are available and safe under varying, unexpected conditions.

The Water Sector Coordinating Council (WSCC), one of 17 critical infrastructure sectors created as a result of the Homeland Security Presidential Directive 7, is a valuable link with the government for critical infrastructure protection. Other partnership groups are also working to enable communication and coordination among the water sector, the federal government, and others around critical infrastructure security and reliability. WSCC's mission is to serve as a coordination mechanism on policy

*Contingency measures, such as treatment plant redundancy, alternative sources, and protective coverings for reservoirs, are gaining popularity and financial support.*

and strategy. Through interactions with the federal government and other critical infrastructure sectors, WSCC recommends actions to reduce and eliminate vulnerabilities to the water sector.

**James Field, Commissioner,  
Louisiana Public Service  
Commission**

Commissioner Field took this opportunity to express his profound gratitude for the help given to Louisiana from around the country. He added that emergency preparedness exercises are indeed useful and back-up generation is a must!

**Robert C. Renner, Executive  
Director, American Water Works  
Association Research Foundation  
(AWWARF)**

AWWARF Futures Study

AWWARF's Board includes professionals from investor-owned and publicly-owned systems. Its research products serve both sectors and their stakeholders. In 2005, AWWARF revisited and updated its 2001 "Futures Study"<sup>1</sup> with a survey of water utility managers and discovered enduring and new trends impacting the water industry, including:

- Population growth and movement\*
- Political environment
- Financial constraints
- Customer expectations\*
- Total water management

<sup>1</sup> Edward G. Means, III, "Watercourse: Navigating Your Utility's Future," AWWA Research Foundation, 2001, Denver, Colorado.  
\* Added to AWWARF Trends list in 2005.

- Workforce issues
- Energy
- Technology\*
- Increasing risk\*
- Regulations

Mr. Renner explained the trends and proposed ways for water utility leaders to address them.

**Population Growth:** Regional population growth will continue with much of that growth in the west and southwest. The population overall is aging; people are living 20 years longer on average and fewer children are being born. Immigration is also fueling population growth and changing the face of water utility customers.

**Political Environment:** The water sector's political environment is manifesting increasing numbers of non-governmental organizations and public participants. Term limits will also make it more difficult for water representatives to build relationships with legislators and other public officials.

**Financial Constraints:** These loom large due to infrastructure replacement needs, necessitating both cost containment by utilities and higher rates for customers.

**Total Water Management (TWM):** TWM means that water utilities must consider broader policy impacts on their sources of supply. TWM is the management of water resources with a comprehensive approach, balancing resources, demands, and environmental issues. TWM considers water supply, water quality and treatment,

*Regional population growth will continue with much of that growth in the west and southwest.*

*Term limits will make it more difficult for water representatives to build relationships with legislators and other public officials.*



storage, conveyance, potential use of alternative water supplies (such as water reuse or desalting of saline waters), conservation and demand-side management, effects of water users, and environmental needs and concerns.<sup>2</sup>

**Customer Perceptions:** Customer views of water utilities differ from water managers' perceptions and customer expectations are increasing.<sup>3</sup>

**Workforce Issues:** Significant changes in the workforce include retirement and the associated "brain drain," increased use of technology, conflicting generational values as well as more diversity of ethnicity and gender.

**Energy and Reliability:** These are major concerns for water managers.

Alternative forms of energy will emerge, becoming the norm.

**Increasing Use of Technology:** Degraded supply sources, new regulations and contaminants are leading to deployment of new and different treatment technologies.

**Risk Considerations:** The risk profile for water utilities is worsening due to risks associated with information technology, physical security, and water quality litigation.

**Regulation:** Regulatory requirements will continue to challenge water utilities, frighten the public, and foster sales of bottled water.

Mr. Renner advised water utilities to engage in integrated resource planning, get involved in watersheds, communicate with customers, stake out a position on development (land use and water use are interrelated), document infrastructure, rate, financial and capital improvement plans, build relationships with stakeholders, become more efficient, use state-of-the-art outreach methods, and educate governing bodies about customers.

Mr. Renner also urged:

- Responding to generational differences and needs of employees by giving workers flexibility, and conducting more training and apprenticeship programs
- Implementing energy plans, by conserving energy and assessing back-up energy needs and alternatives, providing technology and technology training, and allowing customers to access information
- Developing specific risk-management policies and outsourcing functions if warranted; developing and distributing clear regulatory compliance cost information to customers and others
- Engaging early in legislative and regulatory processes
- Seeking to learn stakeholder views of regulations
- Funding and developing an alternative regulatory paradigm

*Financial constraints due to infrastructure replacement needs will necessitate both cost containment by utilities and higher rates for customers.*

*Energy and reliability are major factors for water managers. Alternative forms of energy will emerge, becoming the norm.*

<sup>2</sup> James M. Symons, Lee C. Bradley, Jr., and Theodore C. Cleveland, *The Drinking Water Dictionary*, AWWA, Denver, Colorado, p. 442.

<sup>3</sup> See AWWA's 1993 Consumer Attitude Survey on Water Quality Issues and Consumer Attitude Survey Update of 2003 by Robert Hurd.

Mr. Renner summed up his call to action by urging utilities to relentlessly improve by showing respect for employees and crafting alliances. He charged boards to govern and managers to manage, know their customers and leverage technology.

## THEME I: ENHANCING PUBLIC AWARENESS OF THE VALUE OF DRINKING WATER

**Dr. Robert Raucher, Stratus Consulting**

The concept of value differs from price and cost. Value may be described as the amount of well-being customers derive from a good or service and their willingness to pay an amount reflective of that value. Value is the worth of a thing in terms of its quality and our social values and beliefs. Value comprises the service itself, reliable delivery and stewardship of the resource, capital and community interests. Value is the inherent worth of water for a particular use. According to Dr. Raucher, a value dialogue can and should be a part of justifying rate increases to regulators and customers. Discussions about the value of water may also serve to foster confidence and trust in the utility in general or to promote a conservation ethic, for example. However, to have a productive dialogue about the value of water, managers need to learn about their customers' views, beliefs and concerns. Water managers and their customers don't necessarily see the same things the same way.

**Wendell F. Holland, Chairman of the Pennsylvania Public Utility Commission**

National Drinking Water Week and the Pennsylvania Public Utility Commission (PUC)

Chairman Holland reported on efforts to broaden the PUC's educational water outreach, including recognition of Drinking Water Week in a campaign that is expected to be repeated annually. The PUC's in-house-created theme: "Water: We all need it. We always need it" resonated with water utilities and other stakeholders. This enabled the PUC to draw attention to its commitment to the regulation of drinking water rates and service. The campaign had extensive stakeholder participation including legislators, water utilities, and ratepayers. The campaign used various communication tools: speeches, exhibits, posters, brochures, and video. Chairman Holland said the campaign was effective despite being waged on a "shoestring" budget. One hundred children were also part of the celebration. A permanent repository for related information has been created on the commission's website.<sup>4</sup>

**Stephen F. Heare, Director Drinking Water Protection Division, U.S. EPA**

U.S. EPA's Lead in Drinking Water Program

Mr. Heare touted a voluntary school- and daycare-focused program based on the U.S. Center for Disease Control's assessment that there is no safe level of lead ingestion for children. Since



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<sup>4</sup> See <http://puc.paonline.com>.



children can absorb more lead than the average adult with greater detrimental effects on the central nervous system, all taps will be tested at participating daycare centers and schools. The EPA's Lead and Copper rule as applicable to schools and childcare facilities can be summed up by the motto: Training, Testing, and Telling. Targeted guidance will be provided to schools and related facilities that maintain their own water supply.<sup>5</sup>

**Jeffrey S. Osman, President and CEO, York Water Company**

Communicating Effectively Before a Rate Case

The York Water Company is a smaller investor-owned, surface water utility, serving 55,000 customers in south-central Pennsylvania. Mr. Osman said the company has experienced drought conditions for the last five years. It sought to build a pipeline to assure supplies from extant impoundments. The company used various communications tools to create community/stakeholder dialogue around the associated proposed rate increase including a brochure describing the problem, the proposed solution, and the cost and rate impacts. A bill insert and periodic project status reports were distributed from July 2002 until April 2005. An outreach program targeted to organizations, included question and answer sessions, served to engage affected parties. As a result of the company's enhanced educational and communication efforts, the overall rate case process

went smoothly; and, the rate increase, resolved via a mediated settlement, received broad customer acceptance.

**Arnetta McRae, Chair, Delaware Public Service Commission**

Chair McRae spoke about the disconnection between infrastructure needs and consumer perceived value. She recommended a nationwide industry initiative to foster more "reality-based" perceptions of value. Chair McRae used a video clip from the "20-20" News Show comparing the taste of tap and bottled water. The video made a telling case of revealing consumers' perceptions about taste, quality and value which appeared to have no basis in facts or logic relating to source, cost or treatment process. Chair McRae said concerned public officials and citizens who can't afford rate increases won't be persuaded by arguments of historical underpricing/under-valuing. Instead, a new educational campaign is needed.

*Citizens who can't afford rate increases won't be persuaded by arguments of historical under-pricing. A new educational campaign is needed.*

**Anthony "Tony" Harding, CEO, United Water**

Mr. Harding spoke of the water industry's responsibility for building better communities as manifested at United Water, a subsidiary of the French-based Suez Group. Comprised of 25 regulated utilities and contractually committed to 70 municipalities for operation and maintenance services, the company's three-fold strategy combines:

- Customer service and value
- Business efficiency
- Employee motivation and development

<sup>5</sup> See <http://www.epa.gov/lead>.

*Having a local identity and seeing the business through the local customers' eyes trump intense focus on engineering stewardship of the resource.*

Fostering a local identity and seeing the business through the local customers' eyes trumps an intense focus on engineering stewardship of the resource, according to Harding. That's why United Water facilitates employee involvement in community activities and roles. Employees respect the business more when the company shows a "wider sphere of caring." It's good for growing the business. During United Water's "Days of Caring", staff (including senior staff) go into the community and work on community service projects, for example, a river clean-up or refurbishing a convent. Mr. Harding told his industry peers, "Don't hide the investments. Say what you've spent and how it improves service."

**Aaron Salzburg, Bureau of Oceans and International Environmental and Scientific Affairs, U.S. Department of State**

U.S. Foreign Policy and Drinking Water and Sanitation Problems in the Developing World

The cheerful mood that lingered in the room resulting from Harding's upbeat remarks seemed to shift as Aaron Salzburg described the developing world's widespread water woes, including such basic problems as a lack of safe drinking water and sanitation services. He described the extra burden borne by women who choose to drop out of school because they don't have a place to relieve themselves in private. Harkening to a familiar nursery rhyme, Mr. Salzburg said "Jack and Jill went up the hill, drank the water and died—along with one billion others every year from

waterborne illness." Most fatalities are children under five years "old."

In addition, arable land is diminishing, becoming less farmable even in the United States. Groundwater levels are decreasing, for example, in the north China plain. Mr. Salzburg said more hydropower is needed and pointed to the demonstrable relationship between the amount of annual rainfall in a country and its economic well-being as measured by the gross national product. Complicating nation-based problems are the more than 260 river basins (some of them at risk) that cross over extant political boundaries.

The U.S. Department of State recognizes that the fulfillment of the basic human need for safe drinking water and sanitation also enhances personal dignity and economic growth, reduces poverty, and can play a critical role in democracy-building and peace preservation. Water resource management can be a tool for building democracies on the ground level. Of equal importance, it can be a tool for building peace among countries that jointly manage water resources.

Using the Nile River as an example, Mr. Salzburg observed that countries sharing in the river's water quality, plants, and animals are much less likely to engage in warfare than might otherwise be the case given historical and current conflicts. For example, talks between Egypt and Ethiopia concerning the Nile resulted in a trade agreement. Obstacles to using a shared river resource as a basis for cooperation include political leaders that lack the political commitment

*Fulfillment of humanity's need for safe drinking water and sanitation enhances personal dignity, fosters economic growth, reduces poverty, and can play a role in peace preservation.*



to work on water issues, a lack of capacity, conflicting needs within countries, decentralization and poor governance overall.

While \$25 billion is spent annually in water-related aid to the developing world, an estimated \$180 billion is needed to reduce the incidence of disease and to promote true cooperation of shared waters. The U.S. State Department's **Water for the Poor** initiative, launched in 2002, is its primary vehicle for international water assistance. The initiative includes vulnerability analyses of water systems, national level planning, and cooperation concerning trans-boundary waters.

Symposium presiding officer Andrew Chapman, extolled the merits of centralized water treatment as urban populations increase. He asked about State Department programs to increase native managerial and technical capacity for these systems. Mr. Salzburg explained that the State Department's work is not carried out in that way. Other organizations pursue local community involvement or peer partnering.

#### **James Thebaut, Writer, Producer, and Director of "Running Dry"**

The documentary film, "Running Dry," has become an important vehicle for raising awareness about the state of the world's water and its impact upon human activity and quality of life. The film underscores water's essential, yet unappreciated, value to our very existence, while raising stark concerns

about its scarcity. Water impairment has an important link to poverty and is linked to outbreaks of warfare when not available. "Running Dry" was the subject of a special program during the Symposium and the film's writer, producer and director, Mr. Thebaut, was on hand to describe his work which was inspired by efforts of the late Senator Paul Simon of Illinois. A staunch proponent of Thebaut's film, **Floyd Wickes, President and CEO, American States Water Company**, called on conferees to work quickly to respond to the water woes of the world.

#### **William Bellamy, Senior Vice President, CH2M Hill**

##### Responding to Hurricane Katrina, "the Tsunami" and in Baghdad: Prioritizing Water and Sanitation Solutions

The correct priority order for responding to a crisis affecting water and wastewater, based on Mr. Bellamy's experience, is:

- Public health threats come first. Restore drinking water and basic sanitation:
  - Drinking water needs—interim measures include providing bottled water or establishing a boil order
  - Sanitation needs—drain existing sewage

*The "Water for the Poor" initiative launched in 2002 is the U.S. State Department's primary vehicle for international water assistance.*

*The film, "Running Dry," has become an important vehicle for raising awareness about the state of the world's water and its impact upon human activity and quality of life.*

*When responding to crises affecting water and wastewater, immediate threats to public health from unsafe drinking water or exposure to raw sewage must be addressed first.*

- Restore community water supplies and make sure they are safe
  - Could take months depending on extent and nature of damage and the system's initial condition
- Assure full treatment of wastewater and control contaminated stormwater flows
- Secondly, take care of obvious, straightforward environmental protection needs
- Thirdly, begin working toward full environmental protection

For example, the appropriate first response to health-threatening sewer overflows—a river of sewage on a Baghdad street—is to drain or divert the flow to the river. After public health is protected, then steps to restore water quality in the receiving river may be undertaken.

When providing long-term disaster assistance in unstable or developing countries, Dr. Bellamy recommended that “people capacity” be assessed first, then infrastructure needs can be assessed next. Dr. Bellamy explained, the sustainability of donated equipment and infrastructure—a significant challenge—is directly dependent upon locating, training, and retaining enough technicians, electricians and mechanics with the capacity to keep motors and pumps operating. Dr. Bellamy recommended money be invested into the essential development of an adequate pool of technicians to support any such disaster assistance.

*WaterAid, the largest water assistance agency in the world, has provided water and sanitation to nearly eight million people along with synergistic education about hygiene.*

## **Andrew Chapman, Vice President, Strategy and Regulation, American Water**

### WaterAid's Successes and Prospects

The founders and proponents of WaterAid, established in 1981 in the United Kingdom, envision and strive for a world in which everyone has access to safe water and effective sanitation. With offices in sixteen countries, including the United States and Australia, it is the largest not-for-profit water assistance agency in the world.

With funding partners in Africa and Asia, the organization has provided water and sanitation to nearly eight million people along with synergistic education about hygiene. To ensure long-term sustainability, WaterAid opts for low-cost, low-tech approaches tailored to the resources of the community being assisted such as:

- Hand-dug wells
- Bore holes
- Gravity flow schemes
- Rainwater harvesting
- Surface spring protection

Most importantly, local operators are trained to manage and maintain systems and services after WaterAid specialists move on. Local organizations are created and fostered to shoulder future water and sanitation work. The United States' organization is working to capture the interest and dollars of major foundations and harness America's contribution to the United Nation's Millennium Development Goals for Water and



Sanitation. Information about how your organization can participate in WaterAid's work can be found on the web at [www.wateraid.org](http://www.wateraid.org).

An outgrowth of the 2000 Millennium Summit where world leaders agreed to parry poverty, the Millennium Project was commissioned by the United Nations' Secretary-General in 2002 to develop a concrete action plan to reduce the poverty, hunger, and disease affecting billions of people world-wide. The Project's advisory body presented its recommendations, *Investing in Development: A Practical Plan to Achieve the Millennium Development Goals*, to the Secretary-General in January 2005. The Project's Task Force on Water and Sanitation's report, *Health, Dignity, and Development: What Would it Take*, said the "knowledge, tools, and financial resources are available to achieve the Millennium Development Goal of halving the number of people without access to water and sanitation in the coming decades." The report found that infrastructure, training in hygiene, and improved service delivery are all keys to providing sustainable access to water and sanitation and, through that access, poverty can be reduced. Go to: [www.unmillenniumproject.org](http://www.unmillenniumproject.org) to learn more.

**Wendell Holland, Chairman,  
Pennsylvania Public Utilities  
Commission**

Water Aid in India

Proclaiming that "water is freedom," Chairman Holland spoke of the priceless value placed upon the avail-

ability of safe and reliable water service in developing nations. India is one of 15 African and Asian countries served by WaterAid, a non-governmental organization dedicated to increasing access to affordable and potable water. Chairman Holland shared personal insights from his tour of a proposed WaterAid project. He described India as a "Land of Dichotomy," with extremes from the magnificent Taj Mahal to teeming masses of impoverished citizens. Chairman Holland summarized India's water situation. India contains:

- Four percent of the world's available water
- Fifteen percent of the world's population
- Uneven distribution of water resources
- Twelve major rivers
- 80-90 percent of river flows come from monsoons and Himalayan ice melts
- A high poverty ratio with 27 percent of the rural and 24 percent of the urban population being impoverished

A great number of India's rural and urban poor do not have access to water and sanitation. A WaterAid survey of 1500 villages found only 15 percent with full access to water.

WaterAid intends to broaden its impact in India through advocacy, technological innovations and by increasing the number of urban projects. Based on an on-site meeting with project organizers, Chairman Holland conveyed WaterAid's water supply and delivery challenges. He also detailed,

*Infrastructure, training in hygiene, and improved service delivery are all keys to providing sustainable access to water and sanitation around the world.*

*Integrated water resources management is an imperative.*

*Forty-six percent of states have experienced water shortages associated with drought.*

with optimism, the organization's strategy to lessen the gap.

**Stephen Andrade, CEO,  
StormCenter Communications, Inc.**

#### Environmental Communications and StormCenter Communications

Water utilities can work with StormCenter to provide environmental education for customers and other stakeholders via TV weather reports. StormCenter provides scientific information and satellite imaging to its media partners to deliver into viewers' homes, concerning flooding potential, forest fire locations, watersheds, agricultural aspects of climate change, and changes in the coastal environment that affect communities. StormCenter products address the growing need to customize and package water utility messages from a scientific and educational perspective and deliver them in a consumer-friendly manner. StormCenter products can lead to systemic changes among the behavior of citizens and also play a role in emergency management communications.

## **THEME II: INTEGRATED WATER RESOURCES MANAGEMENT**

**G. Tracy Mehan, III, Principal,  
Cadmus and former U.S. EPA  
Assistant Administrator**

Calling integrated water resources management an imperative, Mr. Mehan said the nation's environmental progress curve is flattening largely due to enduring non-point sources of pollution. Forty-five percent of

lakes are "impaired" and not "fit" for designated uses. For example, the Chesapeake Bay in the east and the Raccoon River in Des Moines, Iowa are already impaired and subject to continuing detrimental runoff and atmospheric depositions. Meanwhile, 46 percent of states have experienced water shortages associated with drought. While U.S. water use has stabilized overall since 1985, according to the U.S. Geological Survey, fresh groundwater withdrawals have increased by 14 percent as of 2000. Under such circumstances, polarities among stakeholders and compartmental approaches are neither productive nor viable.

Voluntary water-focused groups are proliferating. There are 4,000 active watershed groups, land trusts and other stakeholders with whom today's water managers must build symbiotic relationships. Mr. Mehan cited 19<sup>th</sup> century philosopher Alexis de Toqueville's observation of the United States' unique and remarkable genius for forming voluntary associations for a variety of reasons. The water community can and should forge partnerships with newly emerging and extant volunteer groups and play a central role in community-based watershed management.

Mr. Mehan discussed solutions consistent with a comprehensive, integrative approach. One example included the integrative and preventive effort of urban reforestation, which boasts numerous broad-based benefits. For the water industry specifically, urban reforestation can reduce



treatment costs by as much as 20 percent.

**Velma Redmond, Regional General Counsel, Southeast Region, American Water**

Ms. Redmond said principle-based management of the hydrologic cycle is challenging due to jurisdictional fragmentation and lack of economies of scale. She described the innovative Solaire Green Building in Battery Park City, New York, which was equipped with an on-site wastewater system. Stormwater collected and used to irrigate rooftop gardens has resulted in a 40 percent reduction in potable water consumption. Treatment plant residuals are utilized for soil enhancement, re-vegetation and Christmas tree farming. As another example of water resource integrative innovation, Ms. Redmond also spoke of American's Environmental Grant Program, which awards up to \$10,000 to community groups for source water protection projects, such as tire removal from the Monongahela River.

Ms. Redmond then challenged public utility commissions to play a role in trans-boundary water issues and multi-state coordination efforts by both recognizing and accepting that a regional approach may be the least-cost option for the region but may not constitute the least cost option for a particular state within the region, even though its value to the region overall is clear, prudent and in the public interest.

**Stan Ferraro, Vice President, Regulatory Affairs and Corporate Communication, California Water Service Company**

Mr. Ferraro observed the "conservation conundrum" or the disincentive water utilities have to promote conservation because revenues diminish as customers conserve. Although decoupling of sales volumes and revenues has been occurring in the energy sector since the early 1980's, to date, it hasn't been widely used for the water industry and should be if we are to implement a strong conservation ethic.<sup>6</sup>

**Stephen Heare, Director, Drinking Water Protection Division, U.S. EPA**

Mr. Heare discussed source water protection, the first of the multi-barrier approaches to protecting public health and the environment

contained in the SDWA amendments of 1996. Preventing contamination makes good public health, economic and environmental sense; it costs less to protect drinking water sources than it does to treat for contamination. Mr. Heare presented a key equation:

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$$\text{Protecting Source Water} = \text{Controlling Land Use}$$


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While source water assessments to delineate current conditions and potential sources of contamination

*Urban reforestation can reduce water treatment costs by as much as 20 percent.*

*Water utilities have a disincentive to promote conservation since revenues diminish as customers conserve.*

<sup>6</sup> Readers may wish to consult NRRI Publications 94-14, "Decoupling and Public Utility Regulation" and 94-18, "Revenue Effects of Water Conservation and Conservation Pricing Issues and Practices" available at: [www.nrri.ohio-state.edu](http://www.nrri.ohio-state.edu)

*Preventing contamination makes good public health, economic, and environmental sense; it costs less to protect drinking water sources than it does to treat for contamination.*

*The 2003 electricity blackout illuminated the interconnectedness of water and electricity and verified the importance of redundancy in water treatment and supply capability.*

*Privatization activities in the United States include large utility purchases of small, "struggling" or publicly-traded companies, and consolidation of small- and medium-sized systems.*

have largely been completed, protection plans and their implementation are in progress. Implementation involves not only the U.S. EPA but a variety of partners including, for example, the Trust for Public Land and the Environmental Finance Center Network.

At the state level, priorities are being identified based on assessment results and state programs are under construction. Federal government agencies are beginning to integrate their various functions as they pertain to source protection. A cross-EPA Sustainable Infrastructure Initiative, co-led by the Offices of Wastewater Management and Groundwater and Drinking Water's work is guided by Four Pillars: better management, efficient water use, full-cost pricing, and a watershed approach.

### THEME III: INDUSTRY STRUCTURE AFFECTS SERVICE

**Nicholas DeBenedictis, President and CEO, Aqua America**

#### Centralized vs. Decentralized Utility Structures and Regional Approaches

Mr. DeBenedictis said the 2003 blackout illuminated the interconnectedness of water and electricity and verified the importance of redundancy in water treatment and supply capability. In essence, the code word, stated Mr. DeBenedictis, is "reliability." He then explained the capital intensity of the water industry relative to other utilities and industries and the long wait before investors get returns on their water investments.

Privatization activities in the United States have included purchase of small, "struggling" or publicly-traded companies, by larger ones and consolidation of small- and medium-sized systems in order to gain economies of scale either via interconnection or common management. Large foreign conglomerates have entered the U.S. market by purchasing extant systems, such as the RWE acquisition of American,<sup>7</sup> or by providing laboratory, operations and maintenance services to utilities owned by others on a contractual basis. More recently, private equity buyers have been looking at the water industry. Their strategy can include acquiring a system with a small amount of their own funds, leveraging the rest and then cutting costs, changing management and selling the operation at a profit after about three years.

In addition, Mr. DeBenedictis reviewed ongoing industry issues and risks including aging, poorly maintained infrastructure, and the large cost to improve or replace that infrastructure—\$277 billion over the next 20 years will be needed according to U.S. EPA.<sup>8</sup> Mr. DeBenedictis said large companies, such as his own Aqua-America, are the best candidates for addressing the nation's infrastructure challenges due to their long-term business horizon.

<sup>7</sup> RWE announced its intention to divest itself of its American subsidiaries in December 2005.

<sup>8</sup> U.S. EPA, Office of Water, The Clean Water and Drinking Water Infrastructure Gap Analysis, EPA-816-R-02-020 (Washington D.C., September 2002)



While larger utilities enjoy economies of scale and tend to have more financial, technical and managerial capabilities to provide safe water, reliable service, and sustain operations, some small utilities are successful. State capacity development programs put in place pursuant to the SDWA Amendments of 1996 are working both to prevent proliferation of new small systems without the capability to succeed over time and to provide assistance, as needed, to those already in the business.

**Jay Rutherford, Director, Water Supply Division, Vermont Department of Environmental Conservation**

Mr. Rutherford said the capacity development provisions in the SDWA are working:

- Forty-nine states have laws preventing new systems from being formed that lack capacity
- Forty-nine states have and are implementing capacity development strategies with their small water utilities
- Fifty-one states have an approved, operator certification program

States had discretion and were encouraged to be creative in how to improve small system capacity to safely serve customers. Vermont's capacity development tools are summarized below:

- Small systems engineering evaluations
- Monitoring cost study
- Financial assistance
- Technical training and assistance

- Legal assistance
- Engineering technical assistance
- Small system templates and self assessments
- Cross-connection guidance
- User rate review/budgeting
- PSB (PUC) technical assistance
- Board member manual
- Small system design guidance manual
- Restructuring study
- Newsletter—published three times per year
- Communication strategy work-group
- Comprehensive performance evaluations

Mr. Rutherford explained how Vermont's approach has worked so far:

- **Technical Capacity** improved through technical assistance, information materials, and operator certification and training
- **Managerial Capacity** improved through board member/owner training
- **Financial Capacity** improved due to easier access to funding and the lowered cost of borrowing

*Ongoing industry risks include aging, neglected infrastructure, and the large cost to repair or replace it.*

*Capacity development provisions in the SDWA are working.*

## THEME IV: STANDARDS OF SERVICE

**Steve Wright, Benchmarking Initiative Manager, American Productivity and Quality Center**

Mr. Wright discussed benchmarking in the water industry in the last decade. He emphasized the importance of choosing the right things to measure to evaluate performance, the factors

*In benchmarking, it's important to choose the right things to measure to evaluate water utility performance.*

*Consumer Report Cards enable the New Jersey Board of Public Utilities to track utility performance, identify trends, and identify (with utility input) what to measure to fairly evaluate jurisdictional utilities.*

that may influence those variables and their suitability for making useful comparisons with peer water providers. Idiosyncratic data or information viewed as propriety hinder effective benchmarking. He acknowledged AWWA's QualServe self-assessment and peer review benchmarking program in which approximately 200 utilities have participated.

**Peter Nelson, President and CEO,  
California Water Service Company**

Mr. Nelson told the tale of a local government's attempted takeover of the company's operation in Selma, California whose service territory is 75 percent Latino. The company maintains a walk-in customer service office because their customers "prefer to do business in person."

A rate hike to recover an increase in the cost of electricity strained California Water's relationship with the city and the Mayor began an effort to take over the utility. In a "take it to the people" strategy, the company educated customers, the public and the media about their high caliber of service, water quality, the value of a viable, private company owning and operating the water system, and reasonable rates. The company asked its customers to oppose the takeover attempt. Customers, en masse, participated in public meetings and stopped the attempted takeover. Mr. Nelson emphasized that a business relationship is also always a personal relationship and specifically recommended alerting customers early on about anticipated rate actions. Mr. Nelson offered this axiom of customer service, "The first

person the customer talks to should try to solve the customer's problem." In the end, the company's long-standing reputation for excellent service and water quality made the difference.

**Frederick F. Butler, Commissioner,  
New Jersey Board of Public  
Utilities (BPU) and Chair, NARUC  
Committee on Water**

Commissioner Butler spoke about New Jersey's recent experience with Consumer Report Cards covering water and other utility sectors. Motivated primarily by the desire to allow telecommunication customers to make comparisons among providers, the reports also allow the BPU to track improving and declining utility performance, identify trends and (with utility input) identify what to measure to fairly evaluate jurisdictional utilities. Commissioner Butler is proposing a five-star rating system accompanied by a rulemaking to mandate utility disclosure of desired performance information and to provide authority to make company information publicly available.

**Discussion:** Mr. Tony Harding said the report card method works and that U.S. regulators can learn from the United Kingdom's mistakes by choosing performance measures that matter. He cautioned against utilizing speed of response to customer calls as an indicator of good performance. He recommended instead that the *quality* of the response be measured and compared among similar providers and eventually relied on to establish performance targets. According to Mr. Andrew Chapman, Elizabethtown Water instituted a report card to



evaluate and report performance. Mr. Chapman urged regulators to include small utilities in such assessments and to select indicators with customer input.

**Henry Duque, former Commissioner, California Public Utilities Commission (CPUC) and Chairman, Committee on Water introduced current California Commissioner John Bohn**

Commissioner Bohn spoke about CPUC's extensive efforts to engage California's diverse workforce in its entirety. California is a large economy with nine million foreign-born residents and 1.6 million learning English as a second language in California schools.

The CPUC requires utilities to submit diversity plans; more than 30 utilities are involved in minority supplier programs. Other steps being taken to facilitate minority involvement in diversity procurement programs include: diversity workshops, collaborations with community colleges to create class offerings responsive to employer needs, and utility procurement expositions designed to give "outliers" a shot at business opportunities with regulated utilities.

NARUC and its Committee on Water supported the Utility Market Access Program (UMAP), geared towards minority and female-owned businesses and led by Commissioner Harold D. Williams (Maryland Public Service Commission), which was described as a user-friendly and useful minority involvement program.

Supplier diversity boosts a state's economy by facilitating access to a wider pool of service providers.<sup>9</sup> California water companies have embraced the UMAP and have developed strong, ongoing diversity programs.

## THEME V: RATESETTING AND FULL COST PRICING

**Kathy Pape, Vice President, Treasurer and Rate Counsel, Aqua America, Inc.**

Ms. Pape juxtaposed the obligations of state regulators to assure that utilities provide safe, reliable service and just and reasonable rates to the standard ratemaking/rate of return formula. Ms. Pape urged regulators to undertake a self-assessment that considers the following questions:

- Whether authorized returns on equity promote a utility's ability to attract capital
- Whether a "true opportunity" exists to earn authorized returns on equity
- Whether regulators have chipped away at expenses to the point where a utility's earnings erode
- Whether surcharges are permitted for purchased water and power costs
- Whether tariffs are designed to reflect high fixed costs
- Whether regulators begin with an end goal in mind or operate strictly in accordance to mechanistic rate-making formula

*The CPUC requires utilities to submit diversity plans. More than 30 jurisdictional utilities participate in minority supplier programs fostered by CPUC diversity workshops and utility procurement expositions.*

*NARUC and its Committee on Water support the UMAP geared towards minority and female-owned businesses.*

<sup>9</sup> A UMAP booklet and other materials are available on the NARUC website at: [www.naruc.org](http://www.naruc.org).

*Water utilities must compete for capital from investors for whom size and liquidity are key determining factors.*

In summary, Ms. Pape said the utility's ability to earn a fair and reasonable return is critical to attract capital needed to make necessary improvements and sustain quality water service.

#### **Walter Hulse, Managing Director of UBS-Warburg**

Walter Hulse of UBS-Warburg, a global investment bank, offered a Wall Street perspective on water utilities and returns on investments. Mr. Hulse explained that water utilities must compete for capital from investors for whom size and liquidity are key determining factors. Marginal investment dollars will tend to tilt toward the regulatory jurisdictions whose policies exhibit the most clarity and bestow the highest returns on equity.

#### **Lawrence Kolbe, Brattelle Group**

Mr. Kolbe made the old new when he reminded listeners of the Bluefield Water Works case which established that property cannot be taken without just compensation<sup>10</sup> and the Federal Power Commission v. Hope Natural as case which found that the U.S.

<sup>10</sup> See U.S. Supreme Court Bluefield Water Works Co. v. Public Service Commission, 262 U.S. 679 (1923) ("[A] public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties.")

Constitution does not prescribe a formula for setting rates.<sup>11</sup> Mr. Kolbe asserted both that property rights are essential to economic growth and well-being and that returns on equity for water utilities should be in line with investments with corresponding risks, including the energy sector.

#### **Stephen Genzer, Saul Ewing LLP**

Mr. Genzer discussed alternative rate-making mechanisms by first reflecting back on prior resource investment decisions and how well those actions hold up to scrutiny today. In the "old" days, regulators and consumer advocates were concerned about too much investment or "gold-plating" of infrastructure and took steps to curb company spending. Today, the pendulum appears to be swinging in the other direction. Some are concerned about insufficient infrastructure investment and potential detrimental impacts on service reliability and water quality.

Whether customer costs go up via conventional rate increases or surcharges, Mr. Genzer proposed presenting rate hikes in terms of the amount per day of the increase by posing the question: does it sound better to ask regulators to approve and customers to pay a rate hike of \$1 to \$2 per day for infrastructure or to talk about a pending 100 percent increase?

Historically, most water utilities didn't focus on comprehensive asset management and did not always

<sup>11</sup> See Federal Power Commission v. Hope Natural Gas, 320 U.S. 591 (1944) (Constitution requires no particular formula for setting rates; it is the "end result" which counts.)

*Returns on equity for water utilities should be in line with investments with corresponding risks.*



charge full cost rates.<sup>12</sup> That is changing as assets near the end of their useful lives and water leaders seek to more efficiently and comprehensively manage their investments, improve operational practices and compete with alternative private or public drinking water providers. Today, most water (and wastewater) utilities clearly need to invest wisely in infrastructure. Surcharge mechanisms for enabling rapid recovery of qualifying investments have been utilized in at least one state, Pennsylvania, for about ten years. A few others have had less experience since laws were passed permitting approval of such surcharges by state regulators in the last two to five years. For example, legislation permitting infrastructure related surcharges passed in Delaware and Illinois in 2001. The Illinois Commerce Commission approved the first Qualifying Infrastructure Improvement Project in August 2003. Missouri's infrastructure surcharge law was adopted in 2003. Ohio's System Improvement Surcharge law became effective in January 2004.<sup>13</sup>

**Frederick F. Butler, Commissioner,  
New Jersey Board of Public  
Utilities and Chair, NARUC  
Committee on Water**

Commissioner Butler reported on a July 2005 Committee on Water-sponsored NARUC resolution that calls for consideration of an array of

innovative regulatory mechanisms. These include settlement conferences and mediation, a distribution system improvement charge, and single tariff pricing. These are all considered to be "Best Practices" and economic regulators are urged, in the resolution, to consider their implementation to help meet current challenges.<sup>14</sup> The resolution referenced by Commissioner Butler was an outcome of the National Association of Water Companies April 2005 Water Policy Forum where water utility executives gave presentations and engaged economic and environmental regulators, state drinking water program administrators, and Wall Street representatives in discussions on the following timely topics:

- Best Practices to Promote Capital Investments and Cost-Effective Rates
- Importance of Return on Equity and Risk
- Affordability
- Small Company Viability

As explained in both the Summary Report on the 2005 NAWC Water Policy Forum and the ensuing NARUC resolution, consensus on the merits of the regulatory policies and mechanisms called "best practices" was not sought as a goal. Instead, participants want to continue dialogue on the four major topics and recommended that the 2006 Forum delve more deeply into

*Surcharges are charges added to rates to cover the cost of qualifying infrastructure repair and replacement projects. Usually in the range of 3-5 percent of base rates, they are added to customer bills for a finite period of time and subject to later review.*

<sup>12</sup> United States General Accounting Office (GAO) Report to Congressional Requesters, Water Infrastructure: Information on Financing, Capital Planning and Privatization, GAO-02-764 (Washington, D.C.: August 2002)

<sup>13</sup> Melissa J. Stanford, National Regulatory Research Institute

<sup>14</sup> NARUC's Resolution, *Supporting Consideration of Regulatory Policies Deemed as "Best Practices,"* adopted by the NARUC, July 2005, Austin, Texas and the 2005 NAWC Water Policy Forum from which it was adapted are available on the NARUC Website at: <http://www.naruc.org>.

*Southern California Water Company developed an electronic data management tool to track its statewide water portfolio and facilitate integrated water resources planning.*

varying state commission authority over mergers and acquisitions. (The 2005 report included “Clearly Articulated Acquisition Adjustment Policies” as a best practice for regulators.) Commissioner Butler invited Symposium attendees to bring forward for discussion their own useful policies and “best practices.”

A compilation of current state commission merger and acquisition policies is available on NRRI’s website.<sup>15</sup>

**Joel Dickson, Senior Vice President, Southern California Water Company**

Mr. Dickson promoted full cost pricing to regulators as a way of assuring “necessary and timely” investment in new technology and infrastructure. The company developed an electronic data management tool to track its statewide water portfolio and facilitate integrated water resources planning. Information from 41 different systems is accessible in the database including maps, franchise agreements, acquisition histories, rate schedules and water rights litigation history and current status. The comprehensive database is used to simplify and reduce the company’s regulatory workload and ensure timely, credible responses to regulator requests and requirements. It will also facilitate the company’s plans to seek approval for single tariff pricing, an availability-for-use connection fee and an integrated water resources plan. The utility operates a 24-hour customer service center, which, according to Mr. Dickson,

managed to reduce the number of representatives and improve service to customers. All of these innovations, concluded Mr. Dickson, reflect the company’s “invest in the future” philosophy. The most visible action perhaps was the exemplary Employee Development University it established in 1993.

It is noteworthy that a Water Action Plan<sup>16</sup> was approved by the CPUC following the Symposium. Objectives include:

- Maintain highest standards of water quality
- Strengthen water conservation programs to a level comparable to energy utilities
- Promote water infrastructure investment
- Assist low income ratepayers
- Streamline CPUC decision-making
- Set rates that balance investment, conservation and affordability

**Mark LeChevalier, Director of Innovative and Environmental Excellence, American Water**

Dr. LeChevalier espoused the power of full cost pricing to promote implementation of “the latest” security preparedness enhancements and infrastructure condition assessments. For example, “real time” water quality monitoring and back-flow sensing meters could alert the utility that someone is putting something into the system. Technologies used to assess American Water’s 44,000 miles of main, such as, fiberoptic cables and

<sup>15</sup> See <http://www.nrri.ohio-state.edu/bluepages/documents/merger-table-v-2.pdf>.

<sup>16</sup> CPUC, *Water Action Plan*, Nov. 9, 2005.



electro-scanners can detect leaks and breaks. Dr. LeChevalier emphasized the importance of monitoring pressure waves to avoid undue stress in the pipes and to prevent chances for failure. Thames' "super pig" combines multiple technologies in a single unit used to locate and diagnose problems and prioritize repairs and replacements. The utility also has the ability to inform customers of leaks in their water pipes.

American's "Service First" initiative features field staff computer capability, enabling field service personnel to make scheduling adjustments and other decisions on the basis of first-hand situation assessments.

It has been found to be a basic tenet of good customer service to give representatives the tools, information and authority to resolve the customers' problem. This echoes a prior speaker's admonition that the first person a customer talks to should also be the last one to say goodbye to a satisfied customer.<sup>17</sup>

**E. Buck Henderson, Manager, Public Drinking Water Section, Water Supply Division, Texas Commission on Environmental Quality and Director of ASDWA's Board of Directors and Security Committee Chair**

Mr. Henderson reviewed security preparedness in the form of vulnerability assessments (VAs) and emergency response plans (ERPs). Texas' "Water

Watchers" program and new state legislation established penalties for acts against critical infrastructure, requires notification policies and provides authority for governments at all levels to issue mandatory evacuation orders. Mr. Henderson said initial resistance to VAs and ERPs diminished as they proved useful in addressing unanticipated system upsets and system planning. State drinking water administrators are the major link among local water utilities, emergency first responders, state and federal officials. Going forward, state drinking water officials are tasked with facilitating improved information sharing and better coordination among emergency responders at all levels.

Mr. Henderson shared results of a Cadmus survey of 40 states on how federal homeland security funding was used. Among other findings, 90 percent began integrating security into other program areas. More than 80 percent funded a security coordinator and 70 percent developed training modules. Better communication is still needed in the states along with:

- Funding eligibility (securing funds to address vulnerabilities identified during vulnerability assessments)
- Exercises and training
- Simplified tools for small systems
- Physical security enhancements
- Improved preparation

Mr. Henderson also shared a "Lessons Learned" presentation on Hurricanes Katrina and Rita that significantly impacted water system operations along the Gulf Coast states in August and September.

*"Real time" water quality monitoring and back-flow sensing meters could alert a utility that something is being put into the system.*

<sup>17</sup> See Myron Olstein, Melissa Stanford, and Charles Day, *Best Practices for a Continually Improving Customer Responsive Organization*, AWWARF 2001.

**John W. Betkoski, III,**  
**Commissioner, Connecticut**  
**Department of Public Utility**  
**Control (CDPUC) and former**  
**Chair, NARUC Committee on**  
**Water and Charles V. Firlotte,**  
**CEO, Aquarion Water**

Commissioner Betkoski and Mr. Firlotte publicly dialogued about “The Anatomy of Two Rate Cases”—a failed first attempt and subsequent successful effort to get approval for a rate increase at the CDPUC. It had been eight years since Aquarion’s last increase and a major “land deal” championed by the governor was completed pursuant to Connecticut’s open-space legislation when the company filed to increase rates in 2004. Aquarion had maintained an 11.6 return on equity (earnings had not eroded during that time). The governor resigned amid fraud allegations and both the CDPUC and Aquarion had new personnel on board following retirements. The Attorney General opposed the rate increase ultimately resulting in disallowances and a \$1.5 million rate decrease. Commissioner Betkoski said work was done to change staff attitudes toward the company by communicating that, “The company is not the enemy.” Aquarion began relationship building and familiarizing staff with the company’s strategic goals and service commitments. Aquarion met with individual staff members, held workshops and hosted facility tours. These efforts led to a successful rate filing in 2005.

*State drinking water administrators are the major link among local water utilities, emergency first responders, and state and federal officials.*

## SYMPOSIUM WRAP-UP

**Co-sponsor representatives Andrew Chapman, Commissioner Frederick F. Butler, Stephen F. Heare, and E. Buck Henderson**

Each spoke about highlights of the Symposium, progress and challenges ahead for water providers and regulators.

Mr. Chapman reminded commissioners of what he called “the regulatory compact” and urged them to begin their regulatory work with the desired outcome in mind. Why? Because utilities, and the investors they aim to attract and retain, look closely at the regulatory environment and practices when making investment decisions. An underlying theme, said Mr. Chapman, is the need for a quick return on investments that do not lead to increased unit sales of finished water. He urged utilities to capitalize on their legacy as the “original environmentalists” by working with StormCenter Communications and getting involved in Integrated Water Resources Planning. He noted the importance of condition assessments so investment dollars may be optimally allocated.

Commissioner Butler concurred with NARUC President Munns’ opening remarks that the world of water has indeed changed dramatically as demonstrated by international companies serving local customers throughout the United States. He noted that some water utilities have only minimally maintained their infrastructure absent commission



encouragement and incentives. The pendulum is swinging toward more investment as a utility plant nears the end of its useful life and new regulations require new technology. Because of the critical role played by economic regulation, in the water sector, despite or perhaps because of its many actors and jurisdictions, the “multilogue”—including the sharing and comparing of best practices—must continue at NARUC, among states, and in other forums where water industry representatives and stakeholders are gathered.

Mr. Heare brought the discussion back to Integrated Water Resources Management and its importance due to the high cost of residual waste disposal—a topic that wasn’t discussed at length during the Symposium. Underground injection control wells may be a way to dispose of residuals or they may serve as carbon sequestrators. Either way, it is a current and emerging issue.<sup>18</sup> Noting the U.S. EPA’s Gap Analysis,<sup>19</sup> Mr. Heare concluded that there is a water crisis. Sustainability will be the byword of the future.

Mr. Henderson focused on the five Symposium themes of:

- Enhancing Public Awareness
- Integrated Water Resources Management
- Industry Structure Affects Service
- Standards of Service
- Ratesetting and Full Cost Pricing

In addition, Mr. Henderson offered the following recommendations from a state drinking water program perspective:

- Symposium sponsors should and can collaborate to convey to customers and other stakeholders the value and true costs of drinking water with value encompassing all aspects of safe water provision from source to tap
- Compelling reasons for engaging in Integrated Water Resources Management include reducing costs of treatment by preventing contamination at the source, for example, the Source Water Collaboration Initiative
- Support for either physical or managerial consolidation of small systems (as warranted) requires incentives
- Consolidation will benefit state programs whose activities are driven by industry structure; for example, an inordinate amount of time and resources are devoted to small systems challenges

*The pendulum is swinging toward more investment as a utility plant nears the end of its useful life and new regulations require new technology.*

<sup>18</sup> NRRI’s Commissioner Primer: Carbon Dioxide Capture and Storage provides public utility regulators with an initial background on geologic CO<sub>2</sub> storage and terrestrial carbon sequestration and their associated regulatory issues. The March 2006 primer is available at <http://www.nrri.ohio-state.edu/Electric/commissioner-primer-carbon-dioxide-capture-and-storage/>.

<sup>19</sup> U.S. Environmental Protection Agency (EPA), Office of Water, *The Clean Water and Drinking Water Infrastructure Gap Analysis*, EPA-816-R-02-020 (Washington, D.C.: September 2002).

*Symposium sponsors should collaborate to convey to customers and other stakeholders the value and true costs of drinking water.*

- State drinking water programs and the EPA are working to measure both outputs and long-term outcomes. States and utilities will need to synchronize measuring and reporting requirements and ensure the correct factors are being measured and measurement data is available.
- Provide conceptual support of full cost pricing, including single tariff pricing where appropriate, adequate returns on investment and the EPA's Four-Pillar approach; and
- State drinking water administrators, public utility commissions and the NAWC should work together more closely; in particular, states can provide clarification and technology options for new regulations

As Mr. Henderson concluded his remarks he echoed many sponsors, speakers and attendees when he underscored three important "Cs" we should keep in mind: Cooperation, Communication, and Collaboration. Mr. Henderson's added one "C" we should all strive to avoid: Complacency.

As NARUC, EPA, ASDWA, and NAWC continue their "multilogue" at the national organizational level, stakeholders should commence and continue collaborations at state and local levels. It will take "many sages" to uncover and implement sustainable solutions protective of public health and "many savvy practitioners" to make safe drinking water broadly accessible and reasonably priced for today and well into the future.





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