

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

**CAPACITY DEVELOPMENT
REPORT TO THE GOVERNOR**



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Drinking Water State Revolving Fund Program
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EXECUTIVE SUMMARY

The Safe Drinking Water Act (SDWA), Section 1420(c)(3), requires that not later than two years after the date on which a State first adopts a capacity development strategy, and every three years thereafter, the head of the State agency that has primary responsibility to carry out this title, the Nevada Division of Environmental Protection, shall submit to the Governor a report that shall also be available to the public on the efficacy of the strategy and progress made toward improving the technical, managerial and financial capacity of public water systems in the state. This report is intended to fulfill the requirement of Section 1420(c)(3).

Capacity has three components: technical, managerial and financial. Adequate capacity in all three areas is necessary for a system to have “capacity” and to help assure the sustainability of the water system. Nevada’s Capacity Development Strategy was approved by the U.S. Environmental Protection Agency in September 2000. The major objectives of Nevada’s Capacity Development Strategy are:

1. Prioritization of systems most in need
2. Assessment of system capacity
3. Developing programs to assist systems with SDWA compliance
4. Encouraging partnering between systems
5. Measuring success

Helping water system personnel determine a system’s level of capacity can help them understand that they should be “operating the system like a business.” Seeing the long-term implications can encourage the system to manage their operations sustainably, so that they are able to continue to afford as well as be allowed to operate in the future. Many water systems throughout Nevada have increased their capacity through the technical assistance program. A capacity assessment can be a useful tool for the water system manager to measure strengths and identify weaknesses. It can also be a useful tool for state staff to provide the most appropriate assistance to a particular system. Capacity assessments have revealed the following common deficiencies among small water systems:

- Limited maps of water distribution systems
- Lacking plans for Operation & Maintenance, Emergency Response, Cross Connection Control and Capital Improvement
- Routine maintenance lacking
- Under-staffed and under-funded operations

Overall water systems have shown improvement in combined technical, managerial and financial capacity since 2007 with 79% scoring 80% or above compared to only 35% achieving this score in 2007/2008. The greatest areas of weakness in rural Nevada continue to be in managerial capacity. Finding and retaining qualified and experienced water system operators, managers and board members is limited in rural areas.

While all systems are unique, the vast majority of water systems in Nevada still need assistance with managerial and financial principles and planning. Full cost pricing is required in order for a water system to fully function as it should. Proper operation and maintenance activities as well as management of infrastructure assets is critical to sustainability and is a major focus of future technical assistance. Plans and strategies are already in place to make sure Nevada’s water systems will continue to successfully meet new challenges and build capacity.

As the capacity development program grows and evolves, lessons learned have resulted in a program that continues to improve and better serve the needs of Nevada’s water systems. From the beginning of the program, Nevada has maintained that the Capacity Development Strategy is a ‘living’ document and will be revised as needed. Although the Strategy document, itself, has not been revised, the method of implementation of the Strategy has evolved.

INTRODUCTION

In the 1996 Amendments to the Safe Drinking Water Act, Congress ratified a philosophy that capable water systems are better positioned to consistently comply with applicable standards and provide safe and reliable water service. Congress recognized that protection of the public’s drinking water supply requires ongoing vigilance in the operation and maintenance of public water system facilities. The term “capacity development” was used by Congress to describe capability. The fundamental goals of capacity development are (i) to protect public health by ensuring consistent compliance with drinking water standards; (ii) to enhance performance beyond compliance through measures that bring about efficiency, effectiveness, and service excellence; and (iii) to promote continuous improvement through monitoring, assessment, and strategic planning.

Capacity has three components: technical, managerial and financial (TMF) as shown in Figure 1. Adequate capacity in all three areas is necessary for a system to have “capacity.”

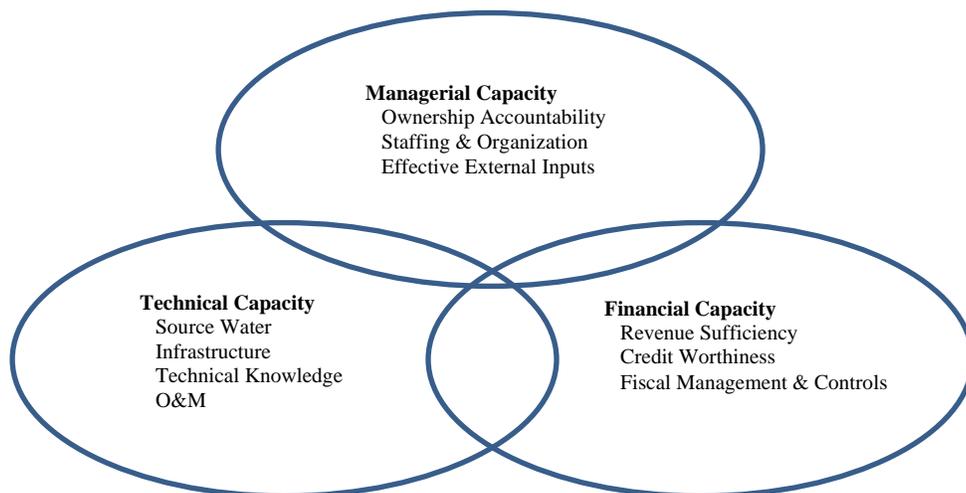


Figure 1. TMF Capacity

Technical capacity refers to the physical infrastructure of the water system, including but not limited to the adequacy of source water, infrastructure adequacy (source, treatment, storage, and distribution) and the ability of system personnel to implement the requisite technical knowledge. *Managerial capacity* includes the ownership accountability, staffing and organization and effective external linkages. *Financial capacity* refers to the financial resources of the water system, including but not limited to the revenue sufficiency, credit worthiness and fiscal management and controls.

Section 1420 of the Safe Drinking Water Act (SDWA) requires that states develop and implement a strategy to assist public water systems in acquiring and maintaining technical, managerial and financial capacity. States failing to develop and implement capacity development programs will have up to 20% of their Drinking Water State Revolving Fund allotment withheld. The Drinking Water State Revolving Fund (DWSRF) is a loan program to help public water systems finance the infrastructure needed to achieve or maintain compliance with SDWA requirements and to achieve the public health protection objectives of the Act.

Objectives of Nevada's Capacity Development Strategy

Nevada's Capacity Development Strategy was approved by the U.S. Environmental Protection Agency in September 2000. The Strategy is based on information that emerged from the deliberations of a Stakeholders Working Group which consisted of members from Federal, State and local governments; private and public water systems; system customers; and drinking water organizations and associations. Nevada's Capacity Development Strategy provides a framework to identify and prioritize water systems most in need of assistance for enhancing their technical, managerial and financial capacity. Having identified and prioritized systems most in need, Nevada can then effectively target systems in need of technical and financial assistance.

The major objectives of Nevada's Capacity Development Strategy are:

1. Prioritization of systems most in need
2. Assessment of system capacity
3. Developing programs to assist systems with SDWA compliance
4. Encouraging partnering between systems
5. Measuring success

The objectives, scope and budget of the technical assistance effort are to provide a "targeted" assistance by focusing on specific issues or problem areas with the ultimate goal of increasing capacity. The goal of technical assistance should be to make increases in capacity through teaching and training that will last long after the assistance provider is gone.

Nevada revisited the Capacity Development Strategy in 2006 by holding a workshop at the Annual Nevada Rural Water Association Conference. Many of the attendees at the

workshop had received technical assistance through the Capacity Development program. NDEP attempted to determine from the attendees if the program was addressing their needs or if changes to the program were needed. The feedback received was overwhelmingly positive that the assistance has been beneficial. No major shortfalls were identified. Based on this feedback, NDEP determined it was not necessary to revise the Capacity Development Strategy.

ACCOMPLISHMENTS

Several tools are being utilized to implement the capacity development strategy. These tools, which are discussed below, include data collection, technical assistance, funding, operator training and wellhead protection.

Data Collection

Capacity Development programs provide water systems the necessary resources to build and maintain TMF capacity. The large number of systems in the state can make it challenging to pinpoint individual assistance needs. A capacity assessment, through a self-assessment or one-on-one interview, can be a useful tool for the water system manager to measure strengths and identify weaknesses. It can also be a useful tool for state staff to provide the most appropriate assistance to a particular system.

Helping water system personnel determine a system's level of capacity can help them understand that they should be "operating the system like a business." Seeing the long-term implications can encourage the system to manage their operations sustainably, so that they are able to continue to afford as well as be allowed to operate in the future. Knowing what expectations the state has can help water systems recognize the areas with which they need assistance in meeting those expectations. These assessments also help systems realize that poor management can jeopardize future opportunities for assistance or even participation in DWSRF loans.

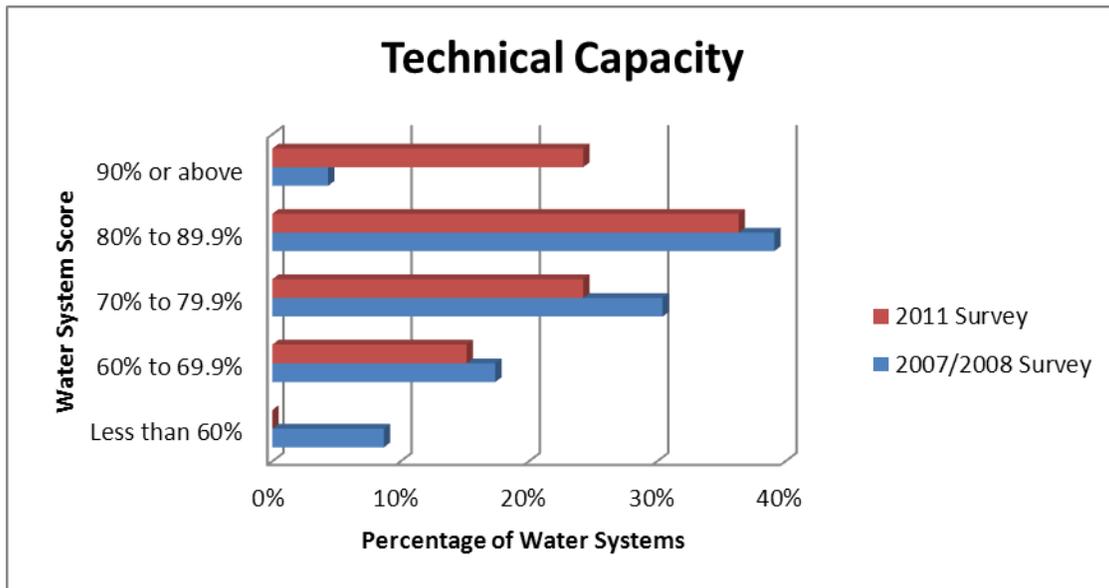
An extensive data collection effort to evaluate the capacity of small water systems was conducted in 2003. Although much good and useful information about each system's capacity was collected, it was discovered that the scoring system did not provide information about the real need for technical assistance. The method of data collection was revised in 2007 to a format that has more of a focus on technical assistance needs. The new survey format is interactive providing the water system an opportunity to think about and evaluate their capacity.

In order to begin a measure of the effects of the technical assistance over time, the survey format from 2007 was repeated for 2011. Creating a statewide capacity baseline and keeping track of capacity trends can more easily show improvements in the capacity of water systems. The 2011 surveys first focused on systems that received either significant technical assistance, grant funding for system improvements or both.

Initial data analysis revealed the following common deficiencies among small water systems:

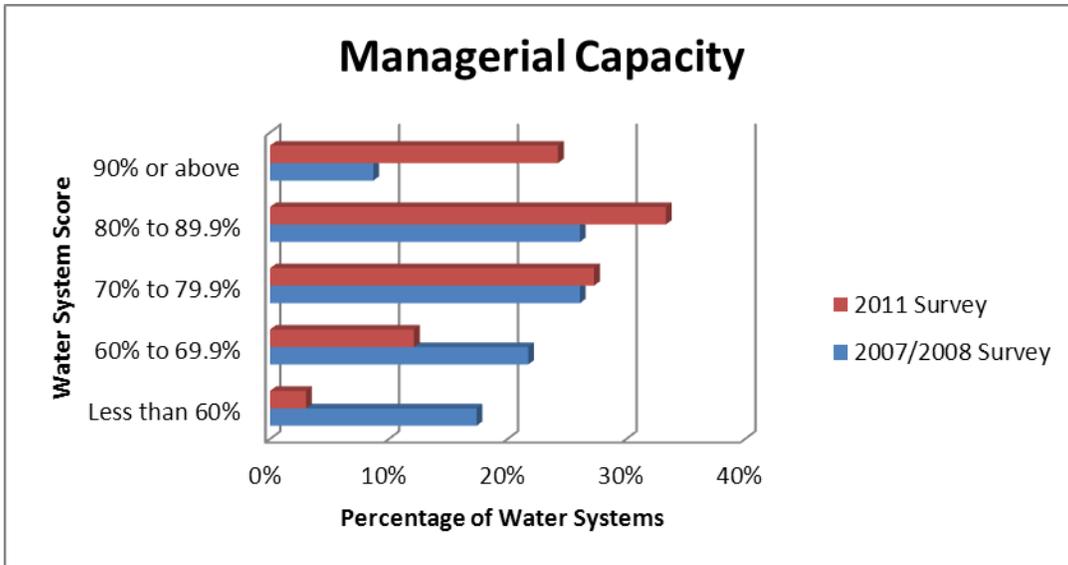
- Limited maps of water distribution systems
- Lacking plans for Operation & Maintenance, Emergency Response, Cross Connection Control and Capital Improvement
- Routine maintenance lacking
- Under-staffed and under-funded operations

The graphs below show general scoring results for technical, managerial, financial and combined TMF capacity:



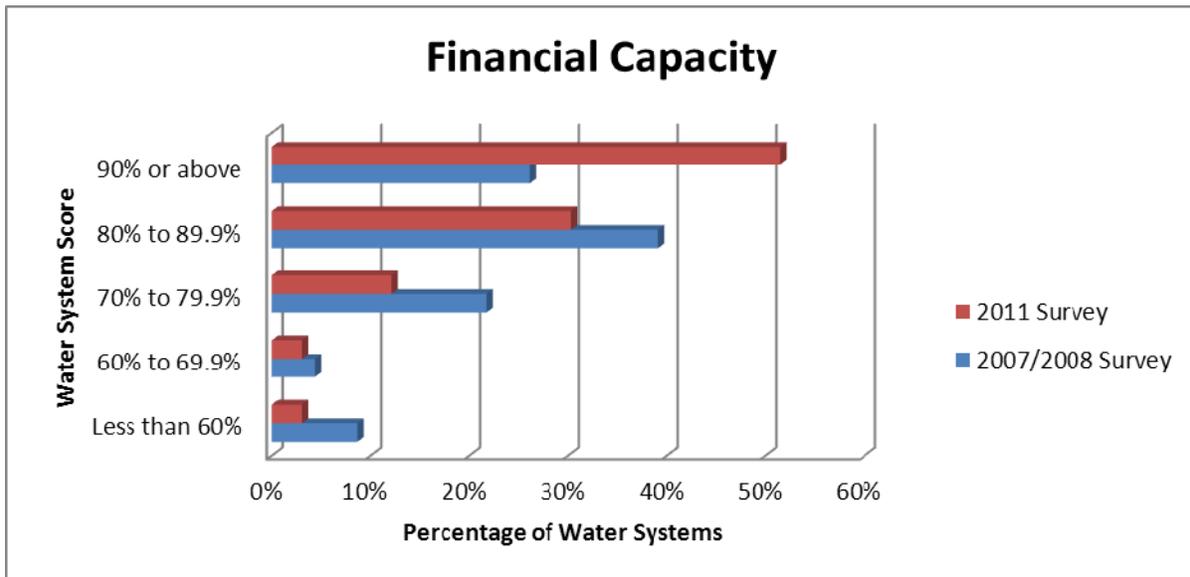
Observations

- Overall water systems have shown improvement in Technical Capacity since 2007 with 60% scoring 80% or above compared to only 43% in 2007/2008.



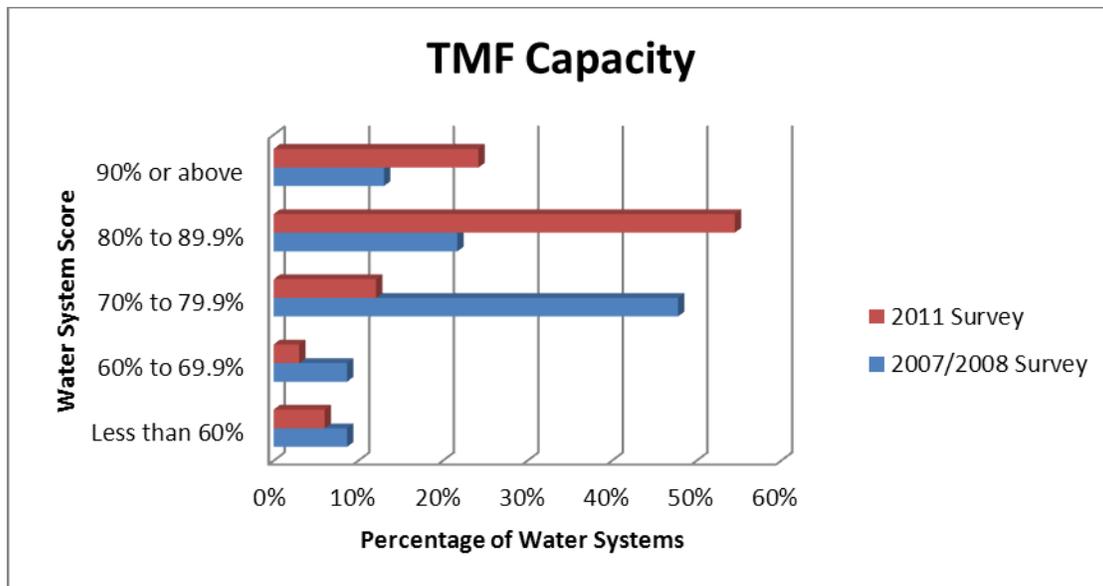
Observations

- Overall water systems have shown improvement in Managerial Capacity since 2007 with 57% scoring 80% or above compared to only 35% in 2007/2008.



Observations

- Overall water systems have shown improvement in Financial Capacity since 2007 with 82% scoring 80% or above compared to only 65% in 2007/2008.



Observations

- Overall water systems have shown improvement in combined Technical, Managerial and Financial Capacity since 2007 with 79% scoring 80% or above compared to only 35% in 2007/2008.

Top technical assistance requests based on the 2011 survey:

- Cross-connection control plans & implementation
- Digital system mapping
- Governing Board training
- O&M manual
- Water loss audit & tracking
- Operator training
- Asset management plans
- Water Conservation planning & implementation
- Wellhead Protection Plan
- Maintenance of Existing Water Rights

Technical Assistance

Helping water systems develop and maintain capacity is the backbone of the Capacity Development Strategy. Many water systems throughout Nevada have increased their capacity through the technical assistance program. This program provides “targeted” assistance by focusing on specific issues or problem areas. Some of the more recent highlights of technical assistance are described below.

Cross-connection Control Plan Development

One of the technical capacity needs at several systems in Nevada has been an individual system plan for the control of potential flow of contaminated liquids by back-siphoning or back-pressure, into the drinking water distribution system. Nationwide, cross-connections represent the single largest source of contamination of drinking water. Nevada Administrative Code 445A addresses cross-connection control and requires both local plans and plan implementation through control measures at connections where specific activities take place. The capacity development program technical assistance contractor, Nevada Rural Water Association, developed a template and then used that model to begin writing plans at thirty small and medium sized water systems. Where needed, system managers and boards were educated on the need to include the local plan in system policies. Systems with plans in place are ready to take the next step to implement their local plan. The challenge is in moving from no program to a costly device installation and testing scenario, which by and large impacts businesses. Future efforts will be multi-phased, finding community-appropriate ways to carry out implementation, conducting public education, managerial capacity development and additional training for local governing boards.

For the smallest public water systems, the cross-connection control plan is combined into one template with operations and maintenance (O&M) and emergency response plans. These items are all regulatory requirements for every public water system. Now that these living documents are in place, often for the first time, local managers and staff will be guided to periodically update their plans and encouraged to take on ownership of the plans. Most can be expected to maintain the O&M manual and emergency response plan on their own after one or two years of assistance with updating.

Pre Sanitary Surveys

One of the ways capacity development in water system technical and managerial areas will be carried out is by taking system staff through mock sanitary surveys. Regulatory sanitary surveys are conducted on a triennial basis for systems using groundwater. Working through a survey of their own, guided by the capacity development contractor staff, system personnel will gain a deeper understanding of system requirements and the regulatory perspective. They will receive assistance in understanding and addressing any system deficiencies identified in these public health surveys.

Water Conservation Plan Development

The Nevada Division of Water Resources requires that every water system submit a Water Conservation Plan that includes measures to evaluate the effectiveness of the plan. This requirement was addressed by working with the system staff to write individual plans. The plans were then presented to local boards for adoption into policy and submitted to the State Engineer's Office for approval. The capacity development technical assistance provider assisted twelve systems to complete their water conservation plans. Systems should now be able to implement and update these plans on their own. In addition to user based conservation measures, systems are being educated to audit and chart the amounts of water produced and sold on a monthly basis. Boards are being informed to ask for this

information each month. Once usage patterns are established, changes in use will prompt managers to implement leak detection studies. The technical assistance provider has obtained electronic leak detection equipment specifically so that water system personnel can be trained on up-to-date detection technologies while locating any leaks. Control of leakage in water systems not only saves water but pumping costs and energy.

Operator Training and Certification

NDEP has funded the University of Nevada Reno to provide operator training using remote video-conferencing. This method of offering training has been very successful in part because it meets the needs of a very specific audience, the very small system operators (those that serve between 25-100 customers). The sessions are broadcast from Reno to sites all over the state and offer the advantage of being essentially local classes that are cost-effective extensions of the university that require minimal travel for the participants.

NDEP has also funded the Nevada Rural Water Association to provide both group and individual operator training at the operator's water system. These sessions are open to any interested party, and often staff from a number of nearby systems participate.

In 2011, two industry groups, the volunteer Certified Drinking Water Operators Forum and Nevada Water and Wastewater Training Coalition, concerned with guiding operator training and development consolidated. Members recognized some overlap in the work of the two groups and found a way to unify for the benefit of both the water and wastewater sectors. The consolidated group will continue to evaluate operator certification exam performance to provide input to training organizations and advice to the State Environmental Commission.

Declining Pool of Professionals

A large number of long serving water operators will be retiring in the next 5 to 10 years. Water operator certification exams in Nevada are now fully-validated, national exams which are provided by the Association of Boards of Certification. Using standard national certification programs makes the water and wastewater industry in Nevada more attractive to qualified personnel from both Nevada and out of state. This development facilitates recognition of qualified persons wishing to make interstate career moves and obtain Nevada certification through reciprocity. Reciprocity in the wastewater sector is facilitated by using exam materials obtained through the National Water Environment Association. Other efforts to attract people to the water sector being carried out through the Capacity Development program include publishing articles about the trades and distributing to the community of high school guidance counselors. Initial participation in high school career day activities, where local waterworks staff also participated, generated a great deal of interest among the students. Water systems are being asked to participate in outreach activities such as career days and also to consider job shadowing and internship programs so that more young people can be made aware of the variety of careers in the industry.

Wellhead Protection

Groundwater is the source of drinking water for approximately 90% of Nevada's public water systems. To assist in protecting groundwater from contamination, Nevada has successfully implemented a multi-faceted, voluntary Integrated Source Water Protection Program (formerly referred to as the "Wellhead Protection Program" or "WHPP"). It is Nevada's belief that effective source water protection must be developed and administered by local government in conjunction with the water supplier(s). A local plan should be a long-term commitment on the part of the community to protect its drinking water sources. By the end of 2008, 118 of 564 public water systems in Nevada participated in individual or community wellhead protection plans, including 83 community water systems serving over 580,000 Nevadans.

In 2009, the Wellhead Protection Program underwent an extensive review and update process to refocus the program in moving forward with protecting ground water into the future. NDEP recognized a need to enhance source water protection efforts through increased public education and outreach and the encouragement of community ownership of local wellhead protection plans. As a result, NDEP contracted with a private consulting firm to partner with NDEP to effectively evaluate and update the State's program and to assist communities to develop and implement local source water protection plans into the future.

The most notable update was changing the program name from the Wellhead Protection Program to the Integrated Source Water Protection Program (ISWPP) so that the name is more intuitive and more closely reflects program goals. Another major revision to the program included a shift from individual public water system planning to a community (county-wide) approach to source water protection planning. County-wide planning and coordination provides a framework for all public water systems within a specific county to work together to examine shared water sources, evaluate community development impacts to those sources and discuss how to collectively manage potential risks from a broader perspective. This multi-jurisdictional approach provides opportunities for public water systems to pool resources, promote community-wide awareness and acceptance of the plan, and ultimately increases opportunities for small public water systems with limited resources and/or capacity to develop individual plans to be included under a more comprehensive community wide source water protection plan.

The current ISWPP planning schedule and funding allocations should allow for every public water system in the State of Nevada an opportunity to participate in the planning process over the next 15 years. In addition, the program planning schedule goal is to provide assistance for up to three counties at a time, for which approximately two years of technical assistance is dedicated for each to include team building, plan development and implementation, and to promote community acceptance of the plan. Resource dedication and planning schedules largely depend upon the size and political climate of each county as well as available program funding. NDEP is currently assisting three counties to develop and implement plans. In all three counties, multiple jurisdictions unanimously agreed to

participate in the planning process through a county wide coordinated effort. Douglas County served as the pilot community for the new program approach and has successfully completed a county-wide plan that will be presented to the County Commission for inclusion in the Master Plan. White Pine County and Nye County began participating this past year, and draft county-wide plans should be completed in August and November 2011, respectively. For these three counties, all of the public water systems within the county will be protected under the county-wide plans.

Sustainable Infrastructure

The U.S. Environmental Protection Agency's (USEPA) *Clean Water and Drinking Water Infrastructure Gap Analysis (2002)* estimated that if capital investment and operations and maintenance remained at current levels, the potential funding shortfall for drinking water and wastewater infrastructure could exceed \$500 billion by 2020. To address the funding gap, USEPA launched the *Sustainable Water Infrastructure Initiative*. The Sustainable Infrastructure Initiative will guide efforts in changing how the nation views, values, manages, and invests in its water infrastructure. Many of the efforts of Nevada's Capacity Development Program support sustainable infrastructure. USEPA has identified the following four sustainable infrastructure priority areas:

- Better Management
- Full Cost Pricing
- Water Efficiency
- The Watershed Approach

Nevada's Capacity Development Program addresses, to some degree, all four of these areas. Nevada has recognized that good management is critical to a well-functioning utility. Nevada offers technical assistance in the form of Board training to assist in better management. In terms of full cost pricing, Nevada's technical assistance providers have completed a number of rate studies for water systems and presented the findings to the governing board and the public. Being the driest state in the U.S., Nevada has long recognized the value of water. The Nevada Division of Water Resources requires that every water system submit a Water Conservation Plan that includes measures to evaluate the effectiveness of the plan. Technical Assistance providers have helped a number of communities prepare these plans as described above. Although the concept of "Watershed Approach" is more focused on management of pollution sources, Nevada's wellhead protection program also fits into this concept. State grant funding policies have required water systems to implement reasonable water rates and contribute to future infrastructure renewal and replacement.

Funding

From 1991 to 2010, the Nevada State Legislature supported a program that provided grants to water purveyors for costs of capital improvements to publicly-owned community water systems in order to meet the requirements of the Safe Drinking Water Act. Eligible projects included any water infrastructure project that was made necessary by the state health

requirements. This grant program assisted small rural communities in Nevada in addressing their infrastructure problems thereby increasing the capacity. When a water system received a state grant, they were required to raise their water rates to a reasonable rate and to put money in a restricted capital replacement account. Receiving a grant, raising water rates and setting aside money for depreciation all helped to improve the water system's financial capacity. In 2010, due to continuing poor economic outlook and a lack of affordability, the State Treasurer's Office made the difficult decision to end the general obligation bond revenue that funded this program.

The Drinking Water State Revolving Fund (DWSRF) provides low interest loans to both publicly and privately owned water utilities. As part of the DWSRF, Nevada has created a "disadvantaged community" program to address low income areas that have infrastructure deficiencies that pose a health threat. The Nevada Administrative Code defines a disadvantaged community as an area served by a public water system in which the average income per household is less than 80 percent of the median household income of the state median household income. Starting in 2009, the federal appropriations for the DWSRF required that the state use a percentage of its grant to provide additional subsidization to eligible recipients in the form of forgiveness of principal, negative interest loans, or grants or any combination of these. Water systems that qualify for the disadvantaged program may be eligible for this subsidy. The terms and amount of the additional subsidy are determined on a case by case basis based on the individual community's financial situation. This funding has helped to fill the gap created when the State grant program lost funding.

Nevada, as a whole, recognized that the needs associated with infrastructure deficiencies are increasing while many federal and state funding resources are dwindling. The funding agencies in Nevada all had different application formats, which complicated the application process for small water systems. Due to the multiple sources of funding available, Nevada received feedback from potential recipients that they were confused about what funding sources were available and which sources were best suited for their projects. Nevada also learned that some potential recipients were "answer shopping" which created confusion and often duplication of efforts, and discouraged cooperation among the funding agencies.

Collaboration between the major funding agencies in the state was initiated in 2006 as a subcommittee of the Infrastructure for Nevada Communities (INC) group that existed for many years in Nevada. INC's mission statement is "To provide a forum for coordination on utilities serving Nevada communities to promote efficient application of technical and financial assistance and to ensure they have the best access to resources." The subcommittee known as the Nevada Water and Wastewater Review Committee (NWWRC) is composed of representatives from the different water system funding groups in the state: Drinking Water State Revolving Fund (DWSRF) Loan program, state Grant program, United States Department of Agriculture – Rural Development (USDA-RD) Loan/Grant program and Community Development Block Grant (CDBG). This collaborative effort allows us to stretch limited funding dollars and support the greatest number of projects. NWWRC developed a

“pre-application” process to help various agencies to coordinate and communicate and sort out what funding sources are most appropriate. This has saved time in the funding application stage and funding agencies now receive applications for more appropriate projects.

CHALLENGES

Impact of the new drinking water standard for arsenic on Nevada

In medical studies, arsenic ingestion has been linked to both cancerous and non-cancerous health effects. Arsenic was one of the first regulated drinking water contaminants. On December 24, 1975, under the authority of the Safe Drinking Water Act (SDWA) of 1974, the USEPA issued a National Interim Primary Drinking Water Regulation for arsenic of 0.05 mg/L (50 ppb). On January 23, 2006, the arsenic maximum contaminant level was lowered to 0.010 mg/L (10 ppb).

According to the NDEP Bureau of Safe Drinking Water (BSDW), 113 Public Water Systems, approximately 35% of systems subject to the Arsenic Rule in Nevada, were impacted by the new standard when compliance determinations were made in 2005. A few systems have since been added to the list based on more recent arsenic data. Allowances in the Safe Drinking Water Act and Nevada Administrative Code, allow for systems that met certain criteria to be eligible for Exemptions to the new standard, allowing them more time to comply. For some systems with small populations and low concentrations, final compliance deadlines can be as far out as January 23, 2015. Exemptions are approved by the State Environmental Commission.

As of September 2011, 69 affected water systems have met their compliance requirements through treatment or non-treatment solutions. Exemptions are in place for 26 systems allowing more time to determine their path to compliance and obtain appropriate funding. Eight (8) systems in violation of the drinking water standard are under an NDEP Administrative Order on Consent that outlines their compliance timeframes. There are ten (10) additional systems that are not in compliance with the standard, but are working on their compliance solutions in concert with NDEP staff using various enforcement approaches other than the Administrative Order. An Arsenic Rule compliance status list is included in Appendix B.

The cost impact of the new arsenic standard has been significant. Many systems were not prepared financially or otherwise to meet their compliance deadlines. Funding for arsenic mitigation projects from just the State agencies is nearly \$38,000,000 with grant funding assistance to water systems from the State Capital Improvements Grant Program totaling approximately \$20,000,000 and funding from the Drinking Water State Revolving Loan Fund (both regular loans and principal forgiveness loans) totaling nearly \$18,000,000 to date. Systems also received funding for arsenic mitigation in the form of loans and grants from the US Department of Agriculture – Rural Development, Community Development Block Grants and the US Army Corps of Engineers. Systems faced many hurdles pertaining to

regulatory requirements, exemption options and processes, compliance options, treatment options, cost impacts, funding options and strategic planning.

In addition, the requirements of operator certification increased. Previously, systems that only consisted of water storage and distribution were not assigned treatment points for operator certification. Any system that employs treatment must have a treatment-certified operator. Some water systems have installed treatment systems of some complexity, elevating them from no treatment required to now needing a Treatment 2 to Treatment 4 operator and adding more costs.

Forty-five (45) treatment solutions have been implemented within the state to-date. Nevada Rural Water Association is preparing to survey systems where arsenic or other treatment (such as nitrate or uranium mitigation) has been put in place, gathering information on costs experienced for operation and maintenance of these technologies. There is currently little real information on actual operational costs. This information may help guide selection of appropriate technologies as well as provide some feedback for future regulatory MCL changes. These surveys should be completed within the fiscal year 2012.

Managerial Capacity

Despite the evolution and maturing of Nevada's Capacity Development Program, the greatest areas of weakness in rural Nevada continue to be in managerial capacity. Information gathered from the 2011 Capacity Surveys shows that managerial capacity is directly affected by the individual water system operators, managers and board members. Nevada has some very small water systems (31% of the community water systems in Nevada serve a population less than 100 people) and often times there is not even one full time employee. Finding and retaining qualified and experienced water system operators, managers and board members is limited in rural areas and may be attributed to the following causes:

- **Aging Workforce.** There have been several published reports regarding the aging workforce in the water industry and the lack of qualified professionals to succeed those that are retiring.
- **Salaries.** Due to the competition in the marketplace, rural water systems typically do not offer enough money to attract experienced operators and managers. They will usually settle for someone less qualified that will work for a lower wage. This in turn affects the managerial capacity of the water system.
- **Board Members without Utility Backgrounds.** In rural communities, water systems are fortunate to find enough individuals to serve on a board. Many board members in rural areas lack a fundamental understanding of water system operations, finance and management. This can be overcome where an experienced water system manager is in place, but when the manager is lacking experience, this situation can be problematic. Unfortunately, some boards tend to micro-manage water systems, and when they lack

the appropriate background or experience this can lead to a serious decline in the capacity of a water system.

Water systems that are led by a capable, experienced manager, who are supported by a competent and progressive governing board, tend to have high capacity in all areas. On the other hand, water systems that are led by managers with little experience or technical ability who report to an unsupportive or uninformed board tend to struggle with capacity in many areas.

THE FUTURE

As the capacity development program grows and evolves, lessons learned have resulted in a program that continues to improve and better serve the needs of Nevada's water systems. From the beginning of the program, Nevada has maintained that the Capacity Development Strategy is a 'living' document and will be revised as needed. Although the Strategy document, itself, has not been revised, the method of implementation of the Strategy has evolved.

While all systems are unique, the vast majority of water systems in Nevada still need particular assistance with managerial and financial principles and planning. Full cost pricing is required in order for a water system to fully function as it should. Operation and maintenance activities, such as valve exercising and line flushing, are also important to extending the life of the infrastructure.

Proper management of infrastructure assets is critical to sustainability. Although the concept of managing assets is relatively simple, many water utilities do not understand how to design and implement an effective asset management program. Managing a utility effectively requires a proactive approach to managing infrastructure assets. The primary objective of asset management is to manage system assets in a way that meets long-term service requirements reliably and cost-effectively. Future technical assistance efforts will include asset management training and assistance to:

- develop a record of their assets
- schedule required maintenance tasks
- understand their financial situation
- create a tailored asset management plan

There are new requirements and issues that will challenge many Nevada water systems in the coming years. Among them are the Disinfection Byproducts Rule, the Long Term 2 Enhanced Surface Water Treatment Rule, the Groundwater Rule, impacts caused by growing populations, the need to conserve the State's precious water resources and finding qualified professionals in the water industry.

The focus of technical assistance over the near term will be on the critical issues that are identified above. Plans and strategies are already in place to make sure Nevada's water

systems will continue to successfully meet new challenges and build capacity. The Capacity Development Strategy will continue to evolve, but will always focus on the following statement:

“Water system capacity is the ability to plan for, achieve, and maintain compliance with applicable drinking water standards. Capacity has three components: technical, managerial, and financial. Adequate capacity in all three areas is necessary for a system to have capacity.”

APPENDIX A

STATUTORY DEFINITIONS

NRS 445A.817 “Financial capability” defined. “Financial capability” means the ability of a public water system to:

1. Pay the costs related to maintenance, operations, depreciation and capital expenses;
2. Maintain creditworthiness; and
3. Establish and maintain adequate fiscal controls and accounting methods required for the operation of the system.

NRS 445A.827 “Managerial capability” defined. “Managerial capability” means the ability of a public water system to conduct its administrative affairs in a manner that ensures compliance with all applicable standards based on:

1. The accountability, responsibility and authority of the owner or operator of the system;
2. The personnel and organization of the system; and
3. The ability of the persons who manage the system to work with:
 - a) Jurisdictional, regulatory and other governmental agencies;
 - b) Trade and industry organizations; and
 - c) The persons served by the system.

NRS 445A.847 “Technical capability” defined. “Technical capability” means the ability of a public water system to:

1. Obtain an adequate and reliable source of water that is necessary to provide the quantity and quality of water required by the system;
2. Establish and maintain an adequate infrastructure for the treatment, storage and distribution of the quantity and quality of water required by the system; and
3. Employ operators who have technical knowledge and ability to operate the system.

APPENDIX B

NDEP Bureau of Safe Drinking Water – Arsenic Rule Compliance Status List

NDEP Bureau of Safe Drinking Water - Arsenic Rule Compliance Status List - September 20, 2011

	COUNTY	PWS ID#	PUBLIC WATER SYSTEM NAME	ARSENIC (ppb)	POP
Systems with Compliance Timeline Exemptions from the State Environmental Commission					
1	CH	NV0000047	DELUXE MHP	24	37
2	CH	NV0000061	TOLAS PARK MHP	20	54
3	CH	NV0000903	CMC STEEL FABRICATORS DBA CMC JOIST	16	400
4	CH	NV0000052	OK MOBILE HOME PARK	15	90
5	CL	NV0002501	NPS COTTONWOOD COVE	15	1,354
6	CL	NV0000219	SEARCHLIGHT WATER COMPANY	11	760
7	DO	NV0000887	SUNRISE ESTATES	17	91
8	EU	NV0000043	CRESCENT VALLEY WATER SYSTEM	12	350
9	EU	NV0002573	DEVILS GATE WATER SYSTEM GID 2	12	70
10	HU	NV0005069	HUMBOLDT CONSERVATION CAMP NDOP	15	140
11	HU	NV0000907	LONE TREE MINE	15	150
12	HU	NV0000162	MC DERMITT WATER SYSTEM	19	200
13	HU	NV0002528	TURQUOISE RIDGE JOINT VENTURE	20	250
14	LA	NV0000008	LA CO SEWER AND WATER DIST 1 BM	24	3,026
15	LA	NV0000006	LA CO SEWER AND WATER DIST 2 AUSTIN	14	350
16	LI	NV0000185	PANACA FARMSTEAD WATER ASSOCIATION	20	800
17	LY	NV0002595	SILVER SPRINGS CONSERVATION CAMP NDOP	19	144
18	LY	NV0000223	SILVER SPRINGS MUTUAL WATER COMPANY	25	3,000
19	LY	NV0000242	WEED HEIGHTS DEVELOPMENT	18	500
20	LY	NV0000255	YERINGTON CITY OF	19	2,900
21	NY	NV0000009	BEATTY WATER AND SANITATION DISTRICT	24	1,100
22	NY	NV0000237	TONOPAH PUBLIC UTILITIES	13	2,600
23	ST	NV0000878	MASTERFOODS USA	15	140
24	WA	NV0000896	BRISTLECONE FAMILY RESOURCES	12	25
25	WA	NV0004021	SILVER KNOLLS MUTUAL WATER COMPANY	13	120
26	WA	NV0003000	VERDI SCHOOL	13	250
Systems Working to Achieve Compliance Under an NDEP Administrative Order on Consent					
1	CL	NV0000109	EQUESTRIAN ESTATES CO OP WATER ASSOC	36	108
2	CL	NV0000147	FRONTIER VILLAGE MHP	42	60
3	DO	NV0000355	INDIAN HILLS GID	17	5,800
4	DO	NV0000070	TOPAZ LAKE WATER CO	38	40
5	EL	NV0000349	RODEO CREEK GOLD INC	31	30
6	EL	NV0005027	SPRING CREEK MHP	44	4,146
7	ES	NV0000072	GOLDFIELD TOWN WATER	47	350
8	WA	NV0000193	CRYSTAL TP	27	80
Systems Working to Achieve Compliance Under Other NDEP Enforcement Mechanisms					
1	CH	NV0003068	CARSON RIVER ESTATES	28	90
2	CH	NV0000303	OLD RIVER WATER COMPANY	32	300
3	CH	NV0000058	WILDES MANOR	20	70
4	CL	NV0000319	ROARK ESTATES WATER ASSOC.	18	62
5	DO	NV0002046	HOLBROOK STATION RV & MHP	43	180
6	EL	NV0000928	LAMOILLE VALLEY PLAZA	24	25
7	LI	NV0000005	ALAMO SEWER AND WATER GID	36	900
8	MI	NV0000357	HAWTHORNE ARMY AMMO DEPOT	30	300
9	NY	NV0005028	SHOSHONE ESTATES WATER COMPANY	30	240
10	WA	NV0005061	VERDI BUSINESS PARK WATER CO-OP	15	100