

DRAFT

REPORT OF FINDINGS

ON IMPROVING THE TECHNICAL, MANAGERIAL AND FINANCIAL CAPACITY OF ALASKA'S PUBLIC WATER SYSTEMS

CITIZEN ADVISORY BOARD TO THE ALASKA DEPARTMENT OF
ENVIRONMENTAL CONSERVATION



Alaska Department of Environmental Conservation

TABLE OF CONTENTS

Executive Summary	i
Glossary of Terms and Acronyms Used in This Report	iv
Introduction to Capacity Development: Safe Drinking Water Act (SDWA).....	1
Challenges that Alaskans Face for Capacity Development.....	2
Alaska’s Citizen Advisory Board.....	4
Section A: Identifying Systems In Need of Technical, Managerial, and Financial Assistance.....	6
<i>Table A.1: Technical Capacity Development Risk Matrix Criteria</i>	<i>7</i>
<i>Table A.2: Technical (T) Capacity Assessment</i>	<i>7</i>
<i>Table A.3: Managerial Capacity Development Risk Matrix Criteria.....</i>	<i>10</i>
<i>Table A.4: Managerial (M) Capacity Assessment.....</i>	<i>10</i>
<i>Table A.5: Financial Capacity Development Risk Matrix Criteria.....</i>	<i>12</i>
<i>Table A.6: Financial (F) Capacity Assessment.....</i>	<i>12</i>
Section B: Factors that Encourage or Impair Capacity Development.....	14
Section C: Recommendations on How the State Can Use Its Authority and Resources to Help Water Systems Improve Capacity	23
Section D: Measuring the Success of Alaska’s Capacity Development Strategy.....	27
Section E: Public Involvement in Preparing the Alaska Capacity Development <i>Report of Findings</i>	29
Appendix A: Citizen Advisory Board Meeting Highlights.....	30
Appendix B: Capacity Development Enhancements and Impairments Not Specifically Included for Strategy Considerations	33

EXECUTIVE SUMMARY

During 1999 and 2000, the Citizen Advisory Board (CAB) to the Alaska Department of Environmental Conservation (ADEC) considered the challenge of improving the technical, managerial, and financial (TMF) capabilities of public water systems. This *Report of Findings* presents the work of the CAB for consideration by the general public and ADEC management. Guidance for the CAB in preparing this report came generally from the Safe Drinking Water Act (SDWA) Amendments of 1996. At the heart of this report are the CAB's recommendations regarding the programs that the ADEC Drinking Water Section could strengthen or establish that would assist water systems in building capabilities to achieve compliance with the requirements of the SDWA.

This document serves as a "report card" as to where agencies can best help drinking water systems in need of assistance. No DWSRF funds will be allocated based upon ranking schemes presented in this report.

The body of the report is presented in five sections, labeled alphabetically. This is an intentional correspondence with the language in the SDWA, which lays out the five elements that a state must consider when preparing a Capacity Development Strategy.

SECTION A: IDENTIFYING WATER SYSTEMS IN NEED OF TECHNICAL, MANAGERIAL, AND FINANCIAL ASSISTANCE

In prioritizing those public water systems needing assistance in building capacity, a risk-based ranking scheme is proposed. The risk rating system is based upon existing assessment routines in which public health protection and compliance with the State drinking water regulations is a primary factor. Water systems failing to comply with regulations are more likely to lack technical, managerial, or financial capacity. Non-complying systems will be assessed to determine the seriousness of the capacity-related problems they are experiencing.

SECTION B: FACTORS THAT ENHANCE OR IMPAIR WATER SYSTEM CAPACITY DEVELOPMENT

Factors operating at the Federal, State, and local level that enhance or impair water system capacity are presented in this section of the report. These factors were drawn from the experience of CAB members.

The CAB identified 164 factors at the Federal, State and local levels that are either enhancements or impairments to drinking water system TMF capacity. Enhancements and impairments were further divided into six categories: Institutional, Regulatory, Financial, Tax, Legal and Other. These are displayed in Table E1.

Only a subset of these factors was chosen by the CAB for consideration as part of the State's Capacity Development Strategy. Seventy-six factors are specifically noted in Section B. The remaining factors were retained as part of the report because it is expected that they may be revisited as experience in capacity development is gained. These factors are noted in Appendix B.

Table E1: Federal, State, and Local Factors that Affect Water System Technical, Managerial, and Financial Capacity

Factors	Enhancements	Impairments	Noted In Findings
Institutional	15	31	26
Regulatory	12	29	15
Financial	16	23	22
Tax	4	13	3
Legal	0	9	5
Other	3	9	6
Total	50	114	77

SECTION C: RECOMMENDATIONS ON HOW THE STATE CAN USE ITS AUTHORITY AND RESOURCES TO HELP WATER SYSTEMS IMPROVE CAPACITY

In developing the conclusions drawn from analyzing the enhancements and impairments noted in Section B, the CAB identified fourteen recommendations as to how the resources of the State and other stakeholders could be utilized to help water systems improve TMF capabilities. The fourteen non-prioritized elements are outlined below, and presented in full within the *Report of Findings*.

1. ADEC should develop and utilize an enhanced sanitary survey that will permit ADEC field staff to periodically collect TMF information about each of the State's regulated water systems, which can be used to determine those systems most in need of TMF assistance.
2. A self-assessment tool should be developed so that water systems can examine their capabilities and determine what type of assistance would provide the most benefit.
3. Training should be provided to water system personnel in fiscal capacity and financial management.
4. The Regulatory Commission of Alaska should continue to work for changes in their statutory and regulatory authorities to improve the manner in which that agency regulates small public drinking water systems.
5. Training in technical, managerial, and financial capacity elements will be needed for drinking water program staff, contractors, consultants, and other service providers.
6. Water metering requirements already contained within Alaska regulation should be enforced so that water systems know how much water they are using. The CAB recommends meters at the treatment plant rather than individual meters.
7. The ADEC should cooperate with boroughs, communities and cities to ensure that public water system capacity issues are actively considered during planning activities.
8. The State Drinking Water Program should enhance its efforts in providing early notice of impending rule changes or new regulatory requirements.
9. When feasible, ADEC should use third party, rather than governmental, studies to show that efficiencies can be gained through consolidation.
10. Consider the possibility of creating a loan guarantee fund to assist small water systems in obtaining private financing for capital improvements.
11. The State of Alaska should change current State statutes to reflect the national trends that private water providers be eligible for appropriate DWSRF loan funds and grants. The CAB offered possible conditions and benefits to such legislation.
12. The ADEC should encourage cooperation among State agencies and between Federal, Tribal, and local levels of government on matters affecting drinking water systems at every reasonable opportunity.
13. The ADEC should take a proactive approach in educating the public with regards to TMF. The CAB recommended six ideas in which the ADEC could improve public involvement and enlightenment.
14. The overall success of the State's Capacity Development Strategy will depend in part on the Drinking Water Program's acquisition of appropriate financial and personnel resources to design, promote and deliver TMF assistance programs. The CAB proposed ideas on how it could assist in this process.

SECTION D: MEASURING THE SUCCESS OF ALASKA'S CAPACITY DEVELOPMENT STRATEGY

In designing its *Report of Findings*, the CAB noted in Section D how the ADEC might assess the performance of capacity building efforts. Three general measures of success were developed:

1. The ADEC could note changes in compliance performance, both statewide and on a system-specific basis. Using the prioritization scheme outlined in Section A, ADEC should rank all public drinking water systems within the first two years of the Capacity Development Strategy. By monitoring changes in these water system rankings over time, positive changes in TMF capacity should be observed.
2. The ADEC should keep detailed records of assistance programs designed to assist water systems in improving capacity using means such as: the number of enhanced sanitary surveys conducted; site visits for technical assistance; tally of specified training events, attendance, and tracking continuing education units (CEUs); number of certified operators; and the number of water systems that request self-assessment tools.
3. The ADEC could keep track of the number of water systems that prepare water system plans, emergency plans, and other activities that contribute directly to enhanced capacity.

SECTION E: PUBLIC INVOLVEMENT IN PREPARING THE ALASKA CAPACITY DEVELOPMENT REPORT OF FINDINGS.

The final section of the CAB's *Report of Findings* provides recommendations on how the broadest possible involvement by citizens and stakeholders could be obtained in gathering information, opinions, and ideas on how to build the capacity of drinking water systems.

GLOSSARY OF TERMS AND ACRONYMS USED IN THIS REPORT

ADEC: Alaska Department of Environmental Conservation – This agency is responsible for administering the drinking water standards in Alaska through a primacy agreement with US EPA.

CAB: Citizen Advisory Board – This advisory group is composed of drinking water stakeholders from both the public and private sectors and was created to provide ADEC with recommendations in formulating a Capacity Development Strategy for the State of Alaska.

Capacity: Refers to the capabilities required of a public water system in order to achieve and maintain compliance with the drinking water rules. It has three elements:

Technical: Technical capacity or capability means that the water system meets standards of engineering and structural integrity necessary to serve customer needs. Technically capable water systems are constructed, operated, and maintained according to accepted standards.

Managerial: Managerial capacity or capability means that the water system's management structure is capable of providing proper stewardship of the system. Governing boards or authorities are actively involved in oversight of system operations.

Financial: Financial capacity or capability means that the water system can raise and properly manage the money it needs to operate efficiently over the long term.

CCR: Consumer Confidence Report – An annual water quality report required by the 1996 SDWA amendments, which summarizes information on source water, levels of any detected contaminants, compliance with drinking water rules, and educational material.

CEU: Continuing Education Unit – Formal credit for participation in education and training programs, often necessary for maintaining certification or licensing status.

DWSRF: Drinking Water State Revolving Loan Fund – Congress authorized this fund in 1996. The Alaska Department of Environmental Conservation administers the DWSRF.

EFC: Environmental Finance Center at Boise State University – An organization that operates under a US EPA charter to provide assistance to States and communities on matters concerned with financial management and access to financial assistance.

RCA: Regulatory Commission of Alaska – This State agency has regulatory responsibility for many drinking water systems that are privately owned and operated.

SDWA: The Safe Drinking Water Act – Passed by the US Congress in 1974 and amended in 1986 and 1996.

SNC: Significant Non-Compliance – A list of drinking water systems which, in a manner specific to various drinking water rules, have been out of compliance for a significant period of time as per EPA regulations.

TMF: Technical, managerial, and financial – This abbreviation is used to save space in the report and avoid frequent repetition of these terms, defined previously as capacity.

US EPA: US Environmental Protection Agency – This federal agency oversees State primacy programs and provides financial support. One of US EPA's functions is to determine when a State's capacity development program is in compliance with the Safe Drinking Water Act.

INTRODUCTION TO CAPACITY DEVELOPMENT: SAFE DRINKING WATER ACT (SDWA)

Water system capacity is the ability to plan for, achieve, and maintain compliance with applicable drinking water standards. Based upon the research and technical assistance efforts of water works professionals, capacity is defined as having three components: technical, management, and financial. Adequate capability in all three areas is necessary for a successful public water system.

Capacity development is the process of water systems acquiring and maintaining adequate technical, managerial, and financial capabilities to assist them in providing safe drinking water. The Safe Drinking Water Act's (SDWA) capacity development provisions provide a framework for States and water systems to work together to help ensure that systems acquire and maintain the technical, managerial, and financial capacity needed to meet the SDWA's public health protection objectives.

The 1996 SDWA Amendments include requirements for States to obtain authority to assure that new systems are viable, to develop a strategy to address the capacity of existing systems, and to ensure that potential Drinking Water State Revolving Fund (DWSRF) recipients have sufficient technical, managerial, and financial (TMF) capacity prior to receiving loan funds (or that the loan funds will allow them to achieve capacity). The SDWA outlines several items to include in states' capacity development strategies for existing systems; however it is not mandated that States *must* include each of these items, but rather that they *must consider* each of the items in developing the strategy. Clearly, including each of the required elements produces a comprehensive capacity development program for the State and addresses all of the necessary issues. However, each state must examine each of the issues and determine those elements that best fit the needs of the State.

SDWA §1420(c)(2) addresses the requirements of strategies developed by each State to improve the technical, managerial, and financial capacity of public water systems under their jurisdiction. The development of the State's strategy is directly related to the level of financial resources available to help pay for water system improvements. A State that does not develop and implement a Capacity Development Strategy will receive only 90 percent of the DWSRF allotment it would otherwise receive in FY 2001, 85 percent of its scheduled allotment in FY 2002, and only 80 percent of its scheduled allotment in each subsequent fiscal year.

In developing and implementing a Capacity Development Strategy, SDWA §1420(c)(2) (A-E) requires States to "consider, solicit public comment on, and include as appropriate" five elements:

- Methods or criteria to prioritize systems [§1420(c)(2)(A)]
- Factors that encourage or impair capacity development [§1420(c)(2)(B)]
- How the State will use the authority and resources of the SDWA [§1420(c)(2)(C)]
- How the State will establish the baseline and measure improvements [§1420(c)(2)(D)]
- Procedures to identify interested persons [§1420(c)(2)(E)]

The Alaska Citizen Advisory Board chose to prepare a comprehensive *Report of Findings* that includes consideration of all SDWA-required Capacity Development Strategy elements.

CHALLENGES THAT ALASKANS FACE FOR CAPACITY DEVELOPMENT

There are numerous outside factors that create exceptional challenges in the provision of safe drinking water in Alaska. Demographic considerations unique to Alaska include the lack of transportation opportunities due to the small number of roads throughout the state, limited road access, and road closures due to weather. These situations regularly force Alaskans to rely on alternate methods of travel such as flying or ferries. However, these alternatives are not always available, and individuals can be stranded for days. Geographical constraints include very high mountains and permafrost; extreme winters with sub-zero temperatures and high snowfall; and unpredictable weather which leads to poor flying conditions. Poor flying conditions cause flights to be cancelled, thus stranding individuals indefinitely. These aforementioned demographic conditions have led to a general remoteness of cities, towns, villages, schools, restaurants, etc. throughout the State. Such isolation causes unique problems in and of itself.

Alaska's drinking water systems are very complex and require greater education for the system operators. Water purveyance varies dramatically throughout the State. Seventy-five percent of Northern Alaska is supplied by groundwater, whereas seventy-five percent of South-central Alaska utilizes surface water as a drinking water source. Southeast Alaska's surface water is treated by such means as coagulation, settling, filtration, and disinfection, which require filter media, pumps, settling chambers, and the like. As you move northward in the State, public water systems begin utilizing ground water sources in addition to surface water. Surface water throughout the State requires treatment techniques similar to those used in Southeast Alaska. However, Northern Alaska systems must take into account the added burden of freezing temperatures, which reach extremes of seventy degrees below zero (Fahrenheit). This added element requires additional complexity for distribution systems in terms of water recirculation to prevent water lines from freezing.

From the latitude in which the Municipality of Anchorage falls and northward, continuous water sources are unavailable due to freezing in winter months. This condition forces many drinking water systems to rely on a "fill-and-draw" technique to obtain drinking water. These systems must collect and treat a year's worth of drinking water during a timeframe of just a few weeks. Problems associated with this technique include keeping chlorine levels stable to prevent bacteria and algae growth, preventing excess use of water by patrons, and preventing loss of water due to leaks. The possibility of running out of water before the spring thaw is a reality that these systems must deal with continually.

Northern Alaska systems that utilize ground water are not without their own unique set of problems. In the high-density population area of Anchorage, contamination, such as nitrates, is a problem. As one goes further north, difficulties with water hardness, arsenic, and iron increase. This region of the State has the challenge of purveying drinking water from lands covered by permafrost. Stagnant water and salinity problems plague these areas. Water that is found under permafrost is generally poor quality and requires treatment. Permafrost can lead to freezing of the well. Additionally, the wells can thaw the permafrost, which can cause additional problems.

Statewide, drinking water systems are plagued with the problem of getting their water samples to designated labs for testing within the timeframes allotted for them due to the aforementioned demographic issues. Failure to submit water samples within these timeframes is a common factor that places systems in non-compliance, even if the drinking water itself meets compliance standards. Alaska has granted a waiver for systems to submit samples within 48 hours rather than the original 24 hours, and later amended to a 30-hour timeframe. Some drinking water systems are still unable to submit bacteria samples on time due to logistical considerations.

In addition to logistical constraints, Alaska is also faced with unique cultural issues that affect TFM capabilities. English is not the first language of many rural individuals. Thus, written and oral communication using English can be ineffective. Municipal and economic organizations are not as well developed as more urban areas. Furthermore, rural residents sometimes rely on traditional water sources and avoid classical water systems due to the different taste caused by treatment. As a result, State regulations relating to

compliance issues are often not understood and/or ignored.

Clearly, Alaska is presented with numerous challenges not found in the lower 48 states. The vast size of the State poses logistical restrictions. There are limited transportation opportunities throughout the area. Climatic conditions often present difficulties for substantial portions of the year. Also, the culture of Alaska's rural communities is unique and diverse. These factors all present substantial barriers to providing TFM capacity in Alaska.

ALASKA'S CITIZEN ADVISORY BOARD

The Alaska Citizen Advisory Board, (CAB), an important assembly of drinking water stakeholders, began work toward developing this *Report of Findings* in March of 1999. In addition to the CAB members listed below, other individuals and organizations were invited to participate in this work. An extensive mailing was conducted to solicit interest in serving with the CAB. The purpose was to form a stakeholder group that would represent the broadest possible spectrum of interested parties while at the same time respecting the need to keep the group small enough to function efficiently. Additionally, a number of individuals who were not formally appointed chose to voluntarily attend the CAB meetings and were able to contribute materially to the CAB's work. Provisions were made to expand the public involvement process by the following means:

- A mailing list of persons or organizations was developed so that periodic updates could be provided.
- A decision was made to present the initial recommendations of the group to the public through a series of public workshops.
- Organizations that publish newsletters were asked to convey information about the CAB's activities.

These measures, taken together, helped to ensure that the public would have multiple opportunities to learn about and provide input to the capacity development activities. A record of the CAB's work is found in Appendix A.

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SECTION A: IDENTIFYING SYSTEMS IN NEED OF TECHNICAL, MANAGERIAL, AND FINANCIAL ASSISTANCE

Background

The key issue in designing the State's Capacity Development Strategy is identifying and prioritizing those public water systems that are most in need of improving TMF capacity to deliver safe drinking water to the public. At the core of this discussion is this question: "What information about water systems does the ADEC or other stakeholders have that helps identify problems that need to be addressed?" Care was taken to identify and consider the variety of sources for information about the TMF conditions of water systems. Ultimately, the CAB determined the following:

- The best and most current information (consistent and verifiable) for providing an indication of the capabilities of public water systems is the technical compliance information maintained by the ADEC. Some financial and management capacity information is maintained by the ADEC. The Regulatory Commission of Alaska maintains financial and managerial information for 68 regulated systems.
- The State drinking water program already has well defined mechanisms in place for dealing with acute risks to public health. Public notification, boil water advisories where appropriate, and immediate corrective actions are all undertaken when pathogenic organisms or high levels of chemical contaminants are detected in a water supply. Consequently, the Capacity Development Strategy will not be expected to deal with these emergency situations.
- A pattern of non-compliance will often serve as an indication that a water system lacks TMF capacity. Failures to monitor, frequent recurrences of coliform bacteria in the distribution system, variations in water quality leaving treatment facilities and other symptoms of this nature should trigger an

assessment of a water system's TMF capabilities.

- An overwhelming majority of violations of the drinking water rules occur in very small drinking water systems (serving 500 or fewer individuals). System size was not a basis for prioritization. Larger systems in general are not on the SNC list.
- The purpose of the prioritization scheme was not to decide which systems would or would not receive assistance, but was aimed more at determining the order in which systems would be given attention. Because the Capacity Development Strategy will become an ongoing element of the State's drinking water program, it should be possible to eventually serve all systems that truly need capacity assistance.
- There is a need to collect additional information about the water systems to determine TMF capacity in order to deliver specific assistance to meet T, M or F capacity deficiencies.

Identification and Prioritization

As a result of the considerations identified above, the ADEC Drinking Water Program staff developed a matrix system for prioritizing drinking water system problems that might be identified. The matrix system is founded on risk factors relative to compliance problems. Comparative rankings of risks generated through the matrix system allows the ADEC to most effectively use limited resources.

The nature of the specific assistance offered under the capacity development program should be determined only after an assessment of the technical, managerial, and financial capacity of the water systems that achieve the lower scores can be ranked as "at risk." The following Tables help to explain the risk matrix system:

RISK LEVEL ASSESSMENT BASED ON RISK TYPES

Table A1: Technical Capacity Development Risk Matrix Criteria

TECHNICAL CAPACITY		
Source Water Adequacy	Infrastructure Adequacy	Technical Knowledge & Implementation
Source Quality	Infrastructure Condition	Operator Certification
Source Protection	Life Expectancy	Operation & Maintenance Program
Source Reliability	Capital Improvement Plan	

Table A2: Technical (T) Capacity Assessment

Assessment Type	High 5 Points	Medium 3 Points	Low 1 Point	G. Relative Weighting Factors	Total Points
A. Monitoring and Reporting				4	
B. Operation & Maintenance Program				3	
C. Sanitary Survey Results				3	
D. Operator Certification				2	
E. Operation Approval				1	
F. Water Rights				1	
				Subtotal (T)	

A. Monitoring and Reporting

(Relative Weighting Factor = 4)

Low:

- The water system is on the SNC list for total coliform bacteria and/or nitrates, and/or;
- The water system has submitted less than 50 percent of the required operator reports over the last three years.

Medium:

- The water system has submitted more than 50 percent, but less than 90 percent of the required operator reports over the last three years, and/or;
- The water system has not sampled for Volatile Organic Compounds, Synthetic Organic Compounds, Inorganic Compounds, radionuclides, copper, or lead.
- The water system could be on the SNC for failure to sample for one of the above noted contaminants.

High:

- The water system is in compliance with State monitoring and reporting requirements.
- The water system has submitted over 90 percent of the required operator reports over the last three years.

B. Operation & Maintenance Program

(Relative Weighting Factor = 3)

Low:

- No operation & maintenance plan has been incorporated into the daily operation of the water system. No supplies, tools, and/or spare parts are available to operate vital system components.

Medium:

- The existing operation & maintenance plan exists but is not used. Maintenance logs not kept; equipment failures due to failure to utilize operation & maintenance plan.

High:

- The existing operation & maintenance plan has been incorporated into the daily operation of the water system. Sufficient supplies, tools, and spare parts are available to operate vital system components.

C. Sanitary Survey Results

(Relative Weighting Factor = 3)

Low:

- The owner of the water system has not scheduled the required sanitary survey.

Medium:

- The owner of the water system has had the required sanitary survey completed. However, no written record of deficiencies found during the last sanitary survey being addressed.

High:

- The owner of the water system has had the required sanitary survey completed. There is written record of the deficiencies found during the last sanitary survey being addressed.

D. Operator Certification

(Relative Weighting Factor = 2)

Low:

- The operator has no training and is either not certified or qualified. The number of operators is not sufficient to operate the existing water system.

Medium:

- The operator is either certified or qualified but not at the level required by the existing water system. The number of operators is not sufficient to operate the existing water system.

High:

- The operator is either certified or qualified at the level required by the existing water system. The number of operators is sufficient to operate the existing water system.

E. Operation Approval

(Relative Weighting Factor = 1)

Low:

- Water system was installed without obtaining written approval of construction drawings.
- Owner, operator or Professional Engineer did not obtain final operation approval; as a result water system is being operated without obtaining final operation approval.

Medium:

- Water system was installed after obtaining written approval of construction drawings and specifications. However, is operating without obtaining final operation approval.

High:

- Water system was installed after obtaining written approval of construction drawings and specifications. Final operation approval has been issued.

F. Water Rights

(Relative Weighting Factor = 1)

Low:

- Water rights are either non-existent, they have been invalidated, or the owner has not applied for water rights.

Medium:

- The owner of the water system has applied for water rights and they are in the process of being granted.

High:

- Water rights have been granted.

G. Relative Weighting Factors

A relative weight factor was created to compare the severity of risk types. For example, the relative risk of *Monitoring and Reporting* is significantly greater than *Water Rights* issues. Therefore, a point scale was developed to achieve that balance.

Table A3: Managerial Capacity Development Risk Matrix Criteria

MANAGERIAL CAPACITY		
Ownership Accountability	Staffing & Organization	Effective External Linkages
Ownership identification	Identification of operator/manager	External resources
Management information systems	Training and education	Intersystem communications
	Qualified staff	Customer communications
	Appropriate staff	Communication with regulators
	Procedures and policies	
	Regulatory knowledge	

Table A4: Managerial (M) Capacity Assessment

Assessment Type	High 5 Points	Medium 3 Points	Low 1 Point	F. Relative Weighting Factors	Total Points
A. By-laws, Ordinances, or Tariffs				3	
B. Organization (includes identification of owner and operator)				2	
C. Staffing (does not include operator)				2	
D. Policies				2	
E. Effective Linkages				1	
				Subtotal (M)	

A. By-laws, Ordinances, or Tariffs

(Relative Weighting Factor = 3)

Low:

- No by-laws, ordinances, or tariffs exist for the operation of the existing water system.

Medium:

- By-laws, ordinances, or tariffs for the operation of the existing water system are being drafted.

High:

- By-laws, ordinances, or tariffs for the operation of the existing water system are used and regularly updated.

B. Organization (includes identification of owner and operator)

(Relative Weighting Factor = 2)

Low:

- No organization structure exists.
- No clear identification of owner, operator, and all other water system staff. There is no clear and legal record defining who is responsible for the operation and maintenance of the existing water system.

Medium:

- Organization structure exists, but is unclear.
- Identification of water system owner and other personnel is unclear. Some legal records exist but are not complete.

High:

- A clear organization structure exists.
- Clear identification of owner, operator, and all other water system staff has been provided.
- There is a very clear and legal record defining whom is responsible for the operation and maintenance of the existing water system.

C. Staffing (does not include operator)

(Relative Weighting Factor = 2)

Low:

- There are no clearly defined and written job descriptions for staff. No training has been provided to water system staff.

Medium:

- Although there are clearly defined and written job descriptions for each staff member, they are not being used. Limited training has been made available for water system staff.

High:

- There are clearly defined and written job descriptions for each staff member and they are being followed. Training has been made available for all water system staff.

D. Policies

(Relative Weighting Factor = 2)

Low:

- No written policies covering personnel, customer service, and risk management.

Medium:

- Written policies covering personnel, customer service, and risk management do exist, but are not being used.

High:

- Written policies covering personnel, customer service, and risk management do exist and are activity used and modified.

E. Effective linkages

(Relative Weighting Factor = 1)

Low:

- No one knows which agencies and private sector firms provide assistance or regulate public water systems.

Medium:

- Although different staff know which agencies and private sector firms provide assistance and regulate public water systems, this knowledge cannot be shared.

High:

- There is a written policy covering which agencies and private sector firms provide assistance and regulate public water systems.

F. Relative Weighting Factors

A relative weight factor was created to compare the severity of risk types. For example, the relative risk of *By-laws, Ordinances, or Tariffs* is significantly greater than *Effective Linkages* issues, therefore a point scale was developed to achieve that balance.

Table A5: Financial Capacity Development Risk Matrix Criteria

FINANCIAL CAPACITY		
Revenue Sufficiency	Credit Worthiness	Fiscal Management & Controls
Revenue vs. expenses	Credit rating	Books and records
Rate structure	Access to capital	Budgeting and reporting
Billing and collection	Financial ratios	Accounting practices
Revenue for depreciation and interest	Bonds and assurances	Asset valuation
Cost of service studies	Debt to equity ratio	Capital facilities plan
		Management revenues
		Investment strategy

Table A6: Financial (F) Capacity Assessment

Assessment Type	High 5 Points	Medium 3 Points	Low 1 Point	F. Relative Weighting Factors	Total Points
A. Accounting Practices				3	
B. Annual Budget: Completed, Approved, and Filed				3	
C. Water System Rates				3	
D. Accounts Payable and/or Receivable				2	
E. Periodic Budget Reports / Balance Sheets				2	
				Subtotal (F)	

A. Accounting Practices
(Relative Weighting Factor = 3)

Low:

- Standard accounting principles are not being used to account for water system operations. Additionally, either no financial audit has been performed, or if an audit was performed, an adverse opinion was issued.

Medium:

- Some type of standard accounting practice is being used, however, the owner cannot accurately track funds. There has been a financial audit within the last five (5) years, but it resulted in a qualified auditor's opinion or a management letter noting some exceptions.

High:

- The water system is using the Universal System of Accounts and is regulated by RCA. Financial audits have been conducted in the past five (5) years resulting in an unqualified audit opinion.

B. Annual budget
(Relative Weighting Factor = 3)

Low:

- No annual budget.

Medium:

- Annual budget completed, but does not meet the demands of operation, maintenance, and regulatory requirements.

High:

- Annual budget is completed, approved, and filed as required by the water system ordinances/tariffs/by-laws.

C. Water System Rates
(Relative Weighting Factor = 3)

Low:

- Water system rates were set, but did not include all types of users (residential and commercial users).

Medium:

- Water system rates were set, but did not examine the sustainability and viability to all users groups, or;
- Water system rates have not been reviewed within the past five (5) years.

High:

- Water system rates were set assuring sustainability and viability to all users while under direct over site from a regulatory agency or through public comments.

D. Accounts Payable and/or Receivable
(Relative Weighting Factor = 2)

Low:

- Accounts payable and/or receivable of any type are delinquent. A lien on assets is present.

Medium:

- No more than 50% of accounts payable and/or receivable of any type are more than six months behind.

High:

- All accounts payable and/or receivable are current.

E. Periodic Budget Reports/Balance Sheets
(Relative Weighting Factor = 2)

Low:

- Periodic budget reports/balance sheets are neither produced nor approved.

Medium:

- Informal periodic budget reports/balance sheets are produced but are not approved.

High:

- Periodic budget reports/balance sheets are produced and approved.

F. Relative Weighting Factors

A relative weight factor was created to compare the severity of risk types. For example, the relative risk of *Accounting Practices* is significantly greater than *Accounts Payable* issues. Therefore, a point scale was developed to achieve that balance.

SECTION B: FACTORS THAT ENHANCE OR IMPAIR CAPACITY DEVELOPMENT

Background

Considerable attention was given to addressing Section 1420(C)(2)(B) of the SDWA Amendments of 1996. The Act requires each state to identify the factors that either encourage or impair the technical, managerial, and financial (TMF) capacity of public water systems. States are required to identify institutional, regulatory, financial, tax, and legal factors. A sixth factor category, "other," was added to capture issues outside of the prescribed categories.

The factors operating at the federal, state, and local level that impair or enhance water system capacity are presented in this section of the report. By definition they are:

- *Institutional – Intergovernmental, cultural, procedural or relationship issues that either enhance or impair the ability of water systems to acquire and/or maintain TMF capabilities*
- *Regulatory – Federal, State or local rules and regulations that affect TMF capacity*
- *Financial – Financial practices, policies or conditions that affect TMF capacity*
- *Tax – Federal, State or local taxation practices, policies or attitudes that affect TMF capacity*
- *Legal – Federal, State or local statutes, interpretations of laws and court decisions that affect TMF capacity*

These factors were drawn from national studies, from the experience of CAB members and from knowledge gained by the ADEC in administering the drinking water program over the years. The CAB identified 163 factors at the federal, state, and local levels that are either enhancements or impairments to public water system TMF capacity. Table B.1 itemizes the factors by major category.

Those factors that should receive special consideration in the drafting of the State's Capacity Development Strategy are shown in Tables B7a –c. Factors that were identified but not chosen for consideration are listed in Appendix B.

Table B1: Federal, State, and Local Factors that Affect Water System TMF Capacity

Factors	Enhancements	Impairments	Noted In Findings
Institutional	15	31	26
Regulatory	12	29	15
Financial	16	23	22
Tax	5	13	3
Legal	0	9	5
Other	2	9	6
Total	50	114	77

1. Federal Factors that Enhance or Impair Public Water System TMF Capacity

A. Federal Enhancements to TMF Capacity

Institutional Enhancements:

- There are several different entities that are involved with providing services, thus providing more channels to provide help to systems.

Regulatory Enhancements: None identified for inclusion in *Findings*.

Financial Enhancements:

- Federal financial assistance (grants and loans) are necessary for bringing systems into TMF compliance.

Tax Enhancements: None identified for inclusion in *Findings*.

Legal Enhancements: None identified for inclusion in *Findings*.

Other Enhancements: None identified for inclusion in *Findings*.

Table B2: Federal Factors that Affect Water System TMF Capacity

Factors	Enhancements	Impairments	Noted In Findings
Institutional	2	4	4
Regulatory	3	7	4
Financial	3	4	5
Tax	1	4	0
Legal	0	2	1
Other	1	1	0
Total	10	21	13

B. Federal Impairments to TMF Capacity

Institutional Impairments:

- There are several entities that are involved with providing services, resulting in lack of communication and an uncoordinated distribution of grant funds.
- Operations and the support of public water systems have traditionally not been viewed as a high priority.

Regulatory Impairments:

- Federal regulations that Alaska is mandated to adopt do not always make sense for the State. These national standards can be appealed at times through changes or waivers, but not always.
- New regulations are developed without accounting for the physical and social constraints of Alaska, nor are they adequate for private systems. Such regulations add to the financial and managerial burden of drinking water systems.

Financial Impairments:

- There is not enough funding to solve all of the problems found in existing drinking water systems in Alaska. Only a small portion of the systems will benefit, resulting in a lack of incentive to participate.
- The Federal government is encouraging piped water systems to be constructed. However, the long-term cost of operating and maintaining these systems has not been factored into the design and construction of these systems. As a result, a large majority of these systems are out of compliance with

monitoring requirements and are in need of major repairs within several years.

Tax Impairments: None identified for inclusion in *Findings*.

Legal Impairments:

- There is a problem with unresolved sovereign and tribal status. EPA has double standards for capacity assessment, which has led to confusion as to who makes the laws.

Other Impairments: None identified for inclusion in *Findings*.

2. State Factors that Enhance or Impair Public Water System TMF Capacity

A. State Enhancements to TMF Capacity

Institutional Enhancements:

- Alaska is a small state in terms of population, and has a system of well-developed unofficial communications. There are considerable outstanding State training programs and related items such as the operator certification program; training and technical assistance provided by Remote Maintenance Workers and Rural Utility Business Advisor Program; National Rural Water Association; The Universities of Alaska – Sitka, Anchorage, and Fairbanks all provide training and research possibilities; the Utility Management Training Materials Project; the training coalition calendar; the Job Corps Center in Palmer; and Alaska Vocational and Technical Education Center in Seward.

Regulatory Enhancements:

- A uniform system of accounts should be adopted for use throughout the state.
- Any funding sources that may become available to help drinking water systems comply with the new regulations should be made available not only to members of the Alaska Manufactured Housing Association, but to the private industry as a whole.

Financial Enhancements:

- The State has an excellent financial position and provides hands-on assistance when requested. Public systems can apply for funding assistance when they need help.
- The State has capital improvement grants, low cost loan programs, and DWSRF set-asides as available funding sources. Small grants to fund minor but critical upgrades are important and available through the State.
- The Power Cost Equalization (PCE) program has definitely helped all public water systems by subsidizing the utilities cost of operating the public water system.

Tax Enhancements:

- There is not a State tax on utilities, thus relieving them of some financial burden.

Legal Enhancements: None identified for inclusion in *Findings*.

Other Enhancements: None identified for inclusion in *Findings*.

Table B3: State Factors that Affect Water System TMF Capacity

Factors	Enhancements	Impairments	Noted In Findings
Institutional	10	14	16
Regulatory	7	14	7
Financial	10	7	12
Tax	2	4	1
Legal	0	3	1
Other	0	3	2
Total	29	45	39

B. State Impairments to TMF Capacity

Institutional Impairments:

- There are a multitude of agencies and institutions with the same responsibility for drinking water, which makes navigation of bureaucracy difficult. These duties could be combined or streamlined.
- The people of the State view water as a free resource and place little value on its use. Most people find it hard to believe that Alaska water is not always clean and drinkable.
- There is a lack of coordination of information obtained from different Divisions within

ADEC due to poor internal communications. Poor communication between entities is also a problem. Additionally, there is inconsistent plan review between areas performed by the same agency.

- The State does not mandate coordination between entities operating within a community. Schools operate most often as a “private business” within the community. Heavy users in villages are not always hooked up as part of the system, so in essence there can be three separate systems running as one.
- The operations and support of the water systems are traditionally not viewed as a high priority.

Regulatory Impairments:

- The State does not have a public outreach system to help systems fill out forms, notify systems regarding new and/or changing regulations, educating systems on TMF capacity building requirements and consequences, etc. A need exists for a central clearinghouse for technical information and training resources.
- RCA has not always been effective.
- Statutes are not updated for private systems, and the regulations are inadequate for private systems. Under SDWA privates are eligible for loans; however, under the State they are not.

Financial Impairments:

- If the Power Cost Equalization program is removed, all rural water systems will be in trouble.
- There are no incentives for privately owned public water systems to participate in TMF.
- The State is encouraging piped water systems to be constructed. However, the long-term cost of operating and maintaining these systems has not been factored into the design and construction of these systems. As a result, a large majority of these systems are out of compliance with monitoring requirements, and are in need of major repairs within several years.

- State’s lack of funding for local governments – there are declining resources and funds are being used up.

Tax Impairments: None identified for inclusion in *Findings*.

Legal Impairments: None identified for inclusion in *Findings*.

Other Impairments: None identified for inclusion in *Findings*.

3 Local Factors that Enhance or Impair Public Water System TMF Capacity

A. Local Enhancements to TMF Capacity

Institutional Enhancements: None identified for inclusion in *Findings*.

Regulatory Enhancements: None identified for inclusion in *Findings*.

Financial Enhancements:

- Availability of matching funds for ADEC grant program.

Tax Enhancements:

- Local taxes help to support public owned systems.
- Taxes cannot be used to support a private system; however, taxes may be used to buy a private system and make it part of the public system (consolidation).

Legal Enhancements: None identified for inclusion in *Findings*.

Other Enhancements: None identified for inclusion in *Findings*.

Table B4: Local Factors that Affect Water System TMF Capacity

Factors	Enhancements	Impairments	Noted In Findings
Institutional	3	13	6
Regulatory	2	8	4
Financial	3	12	5
Tax	2	5	2
Legal	0	4	3
Other	1	5	4
Total	11	47	24

B. Local Impairments to TMF Capacity

Institutional Impairments:

- Alaska is a vast area with a large amount of land that is not regulated. The State is divided into different entities. Local government control does not exist. Most of the State is governed by the Legislature, resulting in unusual accountability factors. Platting and zoning is not used in all boroughs and there is little chance of establishment.
- Land ownership is not something that locals worry about. If someone needs land, they seek verbal permission to use it. It is difficult to elicit locals to put the time into creating legal title and site control documents because they do not see the need for such things.
- There is a lack of communication and cooperation between cities/tribes/non profits.
- A lack of, or frequent turnover in, leadership and management positions exists.
- The operations and support of public water systems is traditionally not viewed as a high local priority.

Regulatory Impairments:

- Platting and zoning are too often politically motivated. Organized areas can be regulated through local government. Villages have no regulation. Some planning of the layout of new villages would be beneficial.
- Enforcement of local water ordinances, either by the tribe or a city, is an expensive undertaking. The cost of police, inspectors, and processing citations is something that small local governments cannot afford. However, it is the local water ordinances that

have the greatest chance of affecting change in the residents because they are created and commented upon at the local level.

- There is very little positive stimulus being put forward as to reasons the community should comply with regulatory requirements. Education explaining that compliance with the regulations creates a safe and healthy environment appears to be an afterthought. The main reasons given for the need to comply are – to avoid fines, which they cannot or will not pay anyhow; to obtain grants to build systems, that they cannot afford to maintain; or so that the State can be awarded the full amount of loan funding from the federal government (most communities do not use the loan program anyway). More education on the TMF capacity building requirements and consequences will be needed.

Financial Impairments:

- No economy of scale exists. There is a lack of money in city government. Some systems are unable to qualify for DWSRF loans.
- Some small communities tend to view jobs as a way to distribute money within the community. They will often create a lot of job sharing to employ several people. This reasoning is also used to refuse contracting some services such as payroll, billing, etc. that could be performed at a lower cost and more efficiently by a contractor. Hiring a contractor would mean eliminating a paycheck for someone in the community.

Tax Impairments: None identified for inclusion in *Findings*.

Legal Impairments:

- Land ownership can be complicated. Native allotments, ANCSA 14(c) claims, corporation selections, and townsites – many of which have not been finalized and surveyed – cause problems for construction that must be done at the present time.
- Site control problems such as confusing responsibility for the system between city/tribe/agencies versus local responsibility.

- Unorganized areas outside of boroughs (villages) cannot tax for system operational costs.

Other Impairments:

- Language barriers.
- The isolation of many communities from equipment and material suppliers makes it expensive to operate a water system. Isolation from other water systems reduces the options for sharing equipment and makes it expensive for the operator.
- Only a small labor pool is available.

Table B51: Factors that Enhance or Impair Capacity at the Federal Level

Factor	Description	Enhancement	Impairment
Institutional	Many entities are involved with providing services.	Yes	Yes
	Operations and support of system traditionally not viewed as a high priority.		Yes
	Uncoordinated distribution of grant funds – too many federal agencies without a plan.		Yes
Regulatory	Federal regulations that the State is mandated to adopt do not always make sense for Alaska. These national standards can sometimes be appeased (changed, waivers accepted, etc.) but not always.		Yes
	New regulations.		Yes
	Regulations inadequate for privates.		Yes
	Regulations developed without accounting for Alaskan physical and social constraints.		Yes
Financial	DWSRF appropriations.	Yes	
	Feds provide the funding necessary to comply with TMF.	Yes	
	Low cost loan programs.	Yes	
	Not enough funding to solve all the problems found in existing water systems in Alaska – small portion of the system will benefit – no real incentive to participate.		Yes
	Piped water systems are being encouraged; however, the costs associated with these systems have not been factored into their construction.		Yes
Legal	Unresolved sovereign and tribal status – EPA has double standards for capacity assessment.		Yes

Table B52: Factors that Enhance or Impair Capacity at the State Level

Factor	Description	Enhancement	Impairment
Institutional	Training programs.	Yes	
	Operator certification program.	Yes	
	Small state with unofficial communications well developed.	Yes	
	Training and technical assistance provided by Remote Maintenance Workers, Rural Utility Business Advisory Program, National Rural Water Association and others.	Yes	
	Utility Management Training Materials Project.	Yes	
	Training coalition calendar.	Yes	
	Training programs available from University of Alaska – Sitka for operators and managers, Job Corps Center in Palmer, Alaska Vocational and Technical Education Center in Seward.	Yes	
	The University can do more in researching and summarizing alternative solutions. It may be that we must accept that they will be imperfect and that there should be waivers under controlled circumstances. Perhaps we need to look harder at the middle ground for many of the smaller villages, which cannot afford, or maintain big systems. For example, we do not expect the third world to pay for modern plumbing, but simple sun ovens have made a huge difference to some sub-Sahara countries. University of Alaska Fairbanks and University of Alaska Anchorage can work to draw existing information and find ways to think outside the box.	Yes	
	Multitude of agencies and institutions with same responsibility for drinking water – makes navigation of bureaucracy difficult.		Yes

	The people of the State view water as a free resource and place little value on its use.		Yes
	Most people find it hard to believe that Alaska water is not always clean and drinkable.		Yes
	Lack of coordination of information obtained from different Departments.		Yes
	Communication between entities.		Yes
	State does not mandate coordination between entities operating within a community. Schools operate most times as a "private business" within the community.		Yes
	Operations and support of system traditionally not viewed as a high priority.		Yes
	Sometimes ADEC does not communicate internally.		Yes
Regulatory	RCA sets rates necessary to operate effectively.	Yes	
	Any funding sources that may become available to help drinking water systems comply with the new regulations should be made available not only to members of the AK Manufactured Housing Association, but to private industry as a whole.	Yes	
	State does not have a public outreach system.		Yes
	Inconsistent plan review between areas performed by same agency.		Yes
	RCA has not always been effective.		Yes
	Statutes not updated for privates.		Yes
	Regulations inadequate for privates.		Yes
Financial	State has excellent financial position.	Yes	
	The Power Cost Equalization (PCE) program has definitely helped all public water systems by subsidizing the utilities cost of operating the public water system.	Yes	
	Public systems can apply for funding assistance when they need help.	Yes	
	SRF set-asides.	Yes	
	Capital improvement grants.	Yes	
	Low cost loan programs.	Yes	
	Small grants to fund minor but critical upgrades are important.	Yes	
	No incentives for privately owned public water systems to participate in TMF.		Yes
	If the Power Cost Equalization (PCE) program disappears, all rural water systems will be in trouble.		Yes
	Not all systems are regulated by RCA.		Yes
	The State in the past has encouraged piped systems to be constructed. Some of these systems (specifically vacuum systems or those with lots of lift stations) are very high electric users. Some of these systems continue to be planned and constructed. In the cost accounting for these systems, the subsidy provided by the Power Cost Equalization (PCE) program has usually not been figured in (i.e. it is assumed that the PCE subsidy will continue). The State has annually cut PCE and has seriously debated the merits of continuing the program at all. In some systems (vacuum), this subsidy could amount to 1/3 the total operating costs of the utility.		Yes
	State's lack of funding for local governments.		Yes
Tax	No State tax on utilities.	Yes	

Legal	Non-notification of changing regulations.		Yes
Other	More education on the TMF capacity building requirements and consequences will be required.		Yes
	Alaska needs a central clearinghouse for technical information and training resources.		Yes

Table B53: Factors that Enhance or Impair Capacity at the Local Level

Factor	Description	Enhancement	Impairment
Institutional	Platting and zoning not used in all boroughs – little chance of establishment.		Yes
	Land ownership is not something that locals worry about. If somebody needs land, they seek verbal permission to use it. It is hard to get them to put the time into cleaning up and creating legal title and site control documents because they don't see the need.		Yes
	Communication between entities.		Yes
	Lack of cooperation between city/tribe/non profits.		Yes
	Lack of or frequent turnover in leadership positions.		Yes
	Operations and support of system traditionally not viewed as a high local priority.		Yes
Regulatory	Platting and zoning too often politically motivated.		Yes
	Enforcement of local water ordinances, either by the tribe or a city, is expensive to do. The cost of police, inspectors, and processing citations is something that small local governments cannot afford, but it is the local water ordinances that have the most chance of affecting change in the residents because they are created and commented upon at the local level.		Yes
	There is very little positive stimulus being put forward as reasons the community should comply with regulatory requirements. Education that compliance with the regulations creates safe health environments is almost an afterthought. The main reasons given for need of compliance are: to avoid fines, which they can't/won't pay anyway; to get grants to build systems that they can't afford to maintain; or so the State can get the full amount of loan funding from the federal government, which most communities don't use the loan program anyway.		Yes
	More education on the TMF capacity building requirements and consequences will be required.		Yes
Financial	Availability of matching funds for ADEC grant program.	Yes	
	No economy of scale.		Yes
	Inability to qualify for DWSRF Loans.		Yes
	Lack of money in city government.		Yes
	Small communities tend to view jobs as a way to distribute money within the community. They often will create a lot of job sharing to employ several people. This is not what you would do if you wanted to run the system most efficiently. This same reason is used to not contract some services such as payroll, billing, that could be done cheaper and better by a contractor. But that would mean eliminating a paycheck for somebody in the community.		Yes
Tax	Local taxes help support public owned systems.	Yes	
	Taxes cannot be used to support a private system – taxes may be used to buy a private system and make it part of the public system.	Yes	
Legal	Land ownership can be complicated. Native allotments, ANCSA 14(c) claims, Corporation selections, Townsites,		Yes

	many of which have not been finalized and surveyed, cause problems for construction that must be done now.		
	Site control problems – confusing responsibility for system between city/tribe/agencies vs. local responsibility.		Yes
	Unorganized areas outside of boroughs (villages) cannot tax for system operational costs.		Yes
Other	Language barriers.		Yes
	The isolation of many communities, from equipment and consumable suppliers makes it expensive to operate. Isolation from other water systems reduces the options for sharing and makes it expensive to operator.		Yes
	Small labor pool.		Yes

SECTION C: RECOMMENDATIONS ON HOW THE STATE CAN USE ITS AUTHORITY AND RESOURCES TO HELP WATER SYSTEMS IMPROVE CAPACITY

Following its work of identifying and discussing the factors that encourage or impair capacity development, the CAB directed its attention to forming a set of recommendations for program elements designed to address the need for improving the TMF capabilities of regulated public water systems. The CAB's recommendations take into consideration the following

- Fourteen non-prioritized recommendations.
- The program elements are suggested in response to significant TMF enhancements and impairments identified in Section B of this *Report of Findings*. These program elements represent efforts the State of Alaska, its cooperating local governments; and public, not-for-profit, and private partners can undertake to improve TMF capabilities.
- Generally, the impairments to TMF are problems that need to be addressed by public water system regulators and the regulated community. The programs listed in this section of the report are suggested to overcome TMF capacity problems in public water systems.
- The suggested program elements are presented without specific schedules for implementation or ranking. The purpose of this section of the report is to present programs for improving TMF capabilities without regard to implementation demands. The program elements presented do not include specific recommendations regarding responsibility for implementation by the ADEC Drinking Water Program or other stakeholders. Ultimate responsibility for implementation of selected program elements remains with the ADEC as the primacy agency for the State of Alaska. However, it is expected that the ADEC will seek assistance from other stakeholders and service providers in improving the TMF capabilities of drinking water systems.

Program Recommendations: Fourteen Elements for Improving the Technical, Managerial, and Financial Capabilities of Public Water Systems:

1. Enhanced Sanitary Survey. ADEC should develop and utilize an enhanced sanitary survey that will permit ADEC field staff to periodically collect technical, management, and financial information about each of the State's regulated water systems. This information could then be used in a strategic sense to identify those water systems most in need of assistance to improve TMF capabilities.
2. TMF Self-Assessment Tool. It is recommended that a self-assessment tool be developed and provided to public water systems. This tool could then be used by water systems prior to (or in the interim period between) an ADEC enhanced sanitary survey to identify strengths and weaknesses of TMF capability. The self-assessment tool would be based upon common criteria for TMF capacity similar to those used in the review of Drinking Water State Revolving Loan applications.
3. Fiscal Capacity and Financial Management Measuring Tool. Several states require public water systems to develop and submit for agency review a water system business plan. However, many small water systems do not have information about the need for business planning or a resource or guide to constructing a business plan. Many problems associated with management capacity and financial planning could be offset through the implementation of water system plans, especially among the majority of private, not-for-profit systems. A business planning guidebook, provided to all public water systems by the ADEC would be an effective resource for building TMF capabilities.

4. Change in RCA Regulation of Small Private Systems. The Regulatory Commission of Alaska is encouraged to examine whether its current regulation and oversight activities encourage the support and development of TMF capacities. Consideration should be given to identifying, recommending and /or implementing required changes in statutes and Commission rules. In addition, the RCA should consider changes necessary for regulated systems to meeting the capacity standards applicable to municipal and other self-regulated water systems. [Note: TMF information may need to be collected to demonstrate the need for RCA regulatory changes.]
5. Finance & Management Training for Drinking Water Systems. Fiscal capacity and financial management are two of the key components of the financial capacity. Adequate funding of water system operations is essential to the current and future need to provide safe drinking water to the public. Training opportunities to review rates is important to sustaining the fiscal health of the water system. Yet, the majorities of small water systems in the State of Alaska do not routinely review and adjust water service charges to keep pace with revenue demands. It is recommended that water system rate setting and financial management training and technical assistance be provided to water systems as well as State and federal agency personnel in order to improve financial and management capacity.
6. Enforcement of Requirements for Use of Water Metering Devices. Achieving and maintaining technical capacity of a water system is closely tied to managing the water resources available for public consumption. The usage of metering devices per water source (e.g., wellheads or intake manifolds) enable water system managers to track overall system capacity performance. The CAB recommends the use of meters adequate to accurately reflect water system use. Given the direct relationship between full cost pricing of water and financial capacity, it is recommended that the State actively enforce its rules relative to water meter use.
7. Incorporating Drinking Water Capacity Issues into Local Planning Activities. The identification of enhancements and impairments to capacity of public water systems prompted the CAB to investigate intergovernmental relationships that affect water system regulation and oversight. This led to consideration of the land-use decisions of local governments and how those decisions could encourage the proliferation of drinking water systems in the State. ADEC should act as a technical resource to help boroughs, communities, and cities acquire the information they need to understand drinking water capacity issues and incorporate these in their planning efforts. This would include considering opportunities for consolidation of existing systems and assurance of adequate capacity in new ones. This is especially relevant in developments occurring in unincorporated areas adjacent to the existing municipal, not-for-profit, and RCA-regulated public water systems. Making better use of existing facilities when development occurs yield better economies of scale in water system operations.
8. Dissemination of Information. The State Drinking Water Program should provide information to public water systems that is proactive, accurate, and understandable. In running their operations like businesses, it is important for public water system managers to know about prospective changes in statutes and regulations that have a direct bearing on their TMF capabilities. There are benefits associated with water systems knowing about important changes in statutes and regulations; in providing operators, managers, board members and the customers with understandable timelines for regulatory implementation; and, for "common sense" interpretations and guidance on important public water system requirements.
9. Use of Independent Studies. ADEC should provide data gleaned from third parties to illustrate how consolidation can save drinking water systems money, in addition to the efficiencies that can be gained as a result. The use of non-government studies will help expel the impression that ADEC is dictating that systems consolidate.

10. Loan Guarantee Program for Private Financing of System Improvements. Funding capital improvements to not-for-profit and privately owned public water systems has often required system owners to secure loans with their personal assets. The banking community often requires this collateral as risk protection for the provision of capital. Since current and future needs for capital resources will exceed the moneys available from the Drinking Water State Revolving Fund (DWSRF), the Committee believes that private capital resources should be better leveraged through the use of a private financing loan guarantee program. This program, secured through state appropriations, DWSRF interest earnings, or other means, would encourage commercial banks and other local lenders to participate in the financing of public water system improvements. The State of Alaska is encouraged, when implementing the proposed loan guarantee program, to give top priority in the use of the fund to those not-for-profit and private systems seeking to consolidate operations with other like-minded public water systems. [Note: Innovative financing programs, such as “linked deposit” programs currently utilized by some states for wastewater facility financing should also be investigated for applicability for private, not-for-profit water systems.]
11. Statutory Change Regarding Private System DWSRF Loan Eligibility. The State of Alaska should change State statutes to reflect the national trends that private water providers be eligible for appropriate DWSRF loan funds and grants. At present, 34 states make these monies available to private water systems. One possibility would be to provide these funds only to private utilities that are economically regulated by the RCA. Providing funding to private systems could also serve as a tool to assist the ADEC in enforcement activities by providing monetary incentives for desired TMF activity and other compliance.
12. Improving Intergovernmental Relations for TMF Capacity-Building. The ADEC Drinking Water Program is not alone in building the TMF capacity of public water systems. Within the agency itself, the Division of Facility Construction and Operation (FC&O) provides loans to municipal owned systems and grants to native owned public water systems. The process that FC&O uses in determining which applicants are awarded grants/loans does include TMF elements. The Department of Natural Resources is a key to systems accessing the quality (technical capacity) of water available for use by the water system. Several agencies within the Department of community & Economic Development are actively involved in providing financial and managerial capacity oversight and assistance to public water systems. For example, the Regulatory Commission of Alaska regulates water utilities by certifying qualified providers of water; and by ensuring that they provide safe and adequate services and facilities at just and reasonable rates, terms, and conditions. The Municipal and Regional Assistance Division provides the following services in support of local government efforts: assistance with general local government administration and operations (managerial capacity), community financial management assistance (financial capacity), training & publications, an special projects (managerial and financial capacity), Rural Utility Business Advisor (RUBA) program (managerial and financial capacity), and financial assistance for communities (financial capacity). Another State Department that was not present during the drafting of this *Report of Findings*, that in the future will become involved, is the Department of Education in regards to the construction and operation of public water systems serving schools throughout the State (technical, financial, and management capacity). The State Fire Marshall and the Department of Labor are involved in enforcing State fire, building and safety codes that impact water system operations (technical and financial capacity).

Given the intergovernmental and interagency issues involved in providing safe drinking water, the ADEC should consider fostering on-going discussions and entering into Memorandums of Understanding relative to interagency responsibilities in overseeing drinking water systems. At every reasonable opportunity the ADEC should encourage cooperation among State agencies and between levels of government on matters affecting drinking water systems.

13. Proactive Public Education. A significant theme identified in the process of discovering the impairments to TMF capacity of public water systems was the need to improve the knowledge of drinking water protection rules among operation and management personnel. Often rules and regulations are produced in forms that are difficult for small system operators and managers to interpret. The CAB felt that information provided to operators regarding current rules and future regulation development should be improved. Additionally, water systems that have limited managerial capabilities have difficulty in tracking regulatory changes from their inception as proposed rules to their adoption as actual State standards. The following items were suggested as possible responses to this recommendation:

- Offering Continuing Education Units (CEUs) for: hands-on field training of system operators; anyone attending management and administration courses; and/or attendance at rules hearings or meeting, meetings on regulations, serving on committees, etc.
- Mailing of an annual rules status update to all water system operators, owners, engineers, etc.
- An effort to improve management capacity through on-site board member training using the Alaska Municipal League, National Rural Water Association, etc. Special focus would be placed on long-term planning for the system, financial management and full cost financing for the system, and regulatory environmental and financial controls.

- Move toward creating a website that contains current information and links to relevant agencies, sites, etc.
- Incentives for schools to include water treatment and supply as a curriculum topic.
- Requiring consistent definitions of regulations and policies between federal agencies, State agencies, etc.

14. Availability of Program Resources. For numerous years, the Drinking Water Program of ADEC has been burdened with having to deliver a State drinking water protection program with limited resources. The scope of the drinking water protection program has been dramatically increased due to the last two amendments to the Safe Drinking Water Act in 1986 and 1996. The perception of the CAB is that personnel resources have not kept pace with the new responsibilities of the State program. The CAB recommends that assessment of current and future program resource needs provide information needed to overcome this perception and allow the CAB and other stakeholders to support the financial and staffing resource needs in the Drinking Water Program. The CAB recognizes that the proper implementation of a TMF capacity strategy is tied directly to the availability of program resources. The CAB, as concerned stakeholders, believes that it (as well as the public) should be involved in examining existing program resources and what supplements might be needed to implement the strategy. Additionally, the CAB could work on behalf of the public water systems that would benefit from TMF programs to help persuade policy makers to provide appropriate resources for strategy success. While the public review of the State's implementation plan for the strategy is expected at some point, the CAB believes that its early involvement in the process is important.

SECTION D: MEASURING THE SUCCESS OF ALASKA'S CAPACITY DEVELOPMENT STRATEGY

This *Report of Findings* offers the CAB's suggestions about how the ADEC might develop a strategy for improving the technical, managerial, and financial capabilities of public water systems. In developing that strategy, the CAB suggests that the ADEC measure the success of its capacity development efforts in three ways:

1. Compliance Tracking

In accordance with the prioritization matrix presented in Section A, the first criterion in selecting water systems for attention under the Capacity Development Strategy is compliance history – the assumption is that a history of non-compliance reflects a lack of capacity. The ADEC should consider tracking the compliance of systems that are chosen for assistance under the strategy. Statewide trends in compliance, such as might be indicated by the triennial report to the US EPA on systems with a history of non-compliance, are complicated by a large number of contributing factors which may not relate to system capacity. System-specific compliance tracking will more accurately measure the effectiveness of the capacity building efforts carried out under the strategy.

The CAB recommends that the goal of ADEC during the first two years of the Capacity Development Strategy be to rank all public drinking water systems using the aforementioned priority matrix. By tracking the changes in water system rankings over time, ADEC should notice a positive shift in TMF capacity.

2. Outreach and Assistance

The ADEC should keep careful records of assistance programs aimed at assisting water systems in improving capacity. The CAB has recommended a range of efforts of this kind in Section C of this report. Examples include, but are not limited to:

- a) Decrease in number of deficiencies found through sanitary surveys.

- b) Reduction in number of emergency calls for technical assistance.
- c) Tally of specified training events, attendance, and tracking CEU's.
- d) Number of systems with properly certified operators. Water system operators are essential to the management capacity of any drinking water system. Monitoring the proper staffing of water system operations could be an important tool in measuring management capabilities of water systems.
- e) Number of water systems that request self-assessments for improvement. Comparison of assessments taken before and after receiving assistance would be particularly useful.
- f) Reduction of systems on the SNC list.

A count of the activities carried out under the Strategy is an indicator of the magnitude of the effort, but only indirectly a measure of effectiveness. Whenever possible, the ADEC should follow capacity assistance efforts with some type of system specific assessment at a later date to determine if the assistance was effective and the results that were obtained had lasting value.

The US EPA State Drinking Water Information System would be a good place to track capacity assessments, assistance, and follow-up efforts. A consumer survey could be developed for use in soliciting feedback from systems that have received assistance under the Capacity Development Strategy. This survey would be mailed to the system within a few weeks of the time that assistance was given. Results from these surveys, and from other tracking activities, would be used to modify the strategy over time, placing emphasis on those elements that are successful and trimming activities that prove to be less useful.

3 Planning Activities

The number of water systems that prepare business, and/or financial plans or complete capacity self-assessments each year would be a good indicator of the success of the Strategy because it would reflect growing knowledge about, and interest in, capacity issues on the part of public water systems in the State. ADEC hopes to have all public water systems scored using the prioritization matrix presented in Section A within two years.

SECTION E: PUBLIC INVOLVEMENT IN PREPARING THE ALASKA CAPACITY DEVELOPMENT REPORT OF FINDINGS

The ADEC called upon its CAB to provide a sounding board on issues for developing a set of findings for improving capacity that could then be presented to the general public. CAB members, by combining their varied backgrounds and different perspectives, deliberated to ensure that the group's *Report of Findings* would be balanced and comprehensive.

However, the CAB could not possibly encompass in its membership all organizations and individuals within the State who might have an interest in this subject. In its first meeting, the CAB examined the question of who else should be involved in the process of preparing a drinking water Capacity Development Strategy. They concluded that certain key interest groups, beyond those already represented, should be encouraged to participate with the CAB if at all possible. Additionally, other interested persons and organizations were invited to provide information regarding their position through an interview process or in writing. Finally, the public at large was engaged to the greatest extent possible through a series of public involvement initiatives. A questionnaire was developed to facilitate public input.

Other Public Involvement Initiatives

The CAB agreed that their recommendations should be presented to the public at large, with an opportunity for comments and suggestions. Various methods were considered, including public announcements being sent to both the public and the purveyors; providing an Internet site for those outside of Anchorage; public announcements on radio, newspaper and cable television; publication notice in *Northern Flows* January newsletter; making a copy of the customer response form for the purveyors available to customers; and public forums and workshops within the major cities as well as four regional workshops outside of the major cities. A public hearing will take place in Anchorage for a review of all comments in 2000, and will be incorporated into a final *Report of Findings*.

APPENDIX A: CITIZEN ADVISORY BOARD MEETING HIGHLIGHTS

The Citizen Advisory Board (CAB) met seven times during 1999 to consider developing a Capacity Development Strategy for public water systems. Meeting times and locations were made available to CAB members, ADEC personnel, other interested organizations, and the general public through mailings and postings on the ADEC website. There is a public record associated with these meetings. Persons wishing to obtain a more detailed record of the proceedings may do so by contacting the Alaska Department of Environmental Conservation staff at (907) 279-7696.

Highlights of the Alaska CAB

March 9, 1999

The first meeting of the CAB was held in Anchorage. Bill Jarocki of the EFC presented the CAB with an overview of the 1996 Amendments to the SDWA and what it entailed the States to complete in terms of capacity development. Keven Kleweno then described to the CAB what actions ADEC had already taken towards New Systems Rules. The CAB then began work on 1420(c)(2)(E), identifying a list of stakeholders that should be part of the strategy process. A substantial list of organizations and agencies was compiled. The CAB then moved on to 1420(c)(2)(A), the methods or criteria that the State will use to identify and prioritize the public water systems most in need of improving TMF capacity. A list of existing methods or programs that already track public water systems was compiled. The CAB agreed that the following list should cover 90 – 95% of water systems that are in need of improving TMF:

- EPA / State Significant Non-Compliance list
- Certified Operator list
- Water Rights issued by Department of Natural Resources vs. ADEC AREV database inventory of public water systems
- RCA trouble utilities list

Discussion continued as to how information from the four sources would be used. The CAB agreed that since ADEC was trying to work on the

strategy, that agency should also be one of the primary agencies to determine TMF of existing systems. ADEC requires public water systems to complete a sanitary survey once every five years, so that agency may be responsible to start collecting the information and ranking public water systems in need of TMF, perhaps through a revised sanitary survey form. The meeting adjourned after the CAB determined the schedule for the rest of the meetings.

April 28, 1999

The meeting took place in Juneau and was divided into two sections. The first section took place as part of the AWWMA Conference. Bill Jarocki presented an overview of capacity development as part of the conference, and then handed out worksheets pertaining to 1420(c)(2)(B), factors that enhance or impair TMF at the federal, state, and local level. Participants were asked to identify factors under the categories of Institutional, Regulatory, Financial, Tax, Legal, and Other. A short meeting of the CAB took place that evening. The majority of the discussion centered on how to approach capacity development in Alaska given the rural and village aspects that are uncommon to other states. These issues were very strong concerns among the CAB members. Suggestions included breaking the strategy into three parts – villages, small /medium cities, and large cities. It was agreed that the CAB would continue this discussion at the next meeting. Utilizing baseline data from an enhanced sanitary survey was also discussed. Lastly, CAB members were asked to consider 1420(c)(2)(B), and identify factors that enhance or impair TMF under the categories of Institutional, Regulatory, Financial, Tax, Legal, and Other at the federal, state, and local levels.

May 20, 1999

The meeting took place in Fairbanks. Bill Jarocki presented an overview of capacity development to the CAB members. Keven Kleweno then provided the CAB with an overview of the status of the State Capacity Development Program. The CAB then spent the rest of the meeting working on 1420(c)(2)(C), a description of how the State will use the authorities and resources of the SDWA or other means to assist public water

systems in compliance efforts, encourage partnerships between suppliers to enhance the TMF viability of the systems, and assist suppliers in the training and certification of operators. The CAB was posed with the question: "What has happened, or should happen, in Alaska to improve water system capabilities?" The CAB identified seven items and one issue for villages and eleven items and four issues for small non-municipal community systems. Time ran out before the CAB could discuss urban systems.

July 7, 1999

The meeting took place in Anchorage. Bill Jarocki presented an overview of capacity development, what it entails, what the State of Alaska had accomplished thus far, and what was still left to be completed. Keven Kleweno then covered the status of the State's Capacity Development Program for new systems. The CAB then looked at ways that other states have divided existing public water systems. Several CAB members mentioned that education is very important to capacity development for all water systems, and everything must be kept in plain English. Sanitary surveys were looked at as a tool that could be used to determine if an existing public water system does not have TMF. The CAB then examined what agencies that provide money and services to villages were doing to ensure TMF. The CAB then resumed its discussion from the previous meeting on what should happen in Alaska to improve water system capabilities. CAB members determined that public water systems in Alaska would need to be divided into different groups based upon such items as needs, location, size, funding availability, and ownership. The members believed that the systems should be classified into three groups – villages, small non-municipal community systems, and municipal systems. Municipal water systems were then discussed. Several items and issues were identified. A subcommittee was formed to start work on drafting the *Report of Findings*. Lastly, CAB members recommended that the ADEC try to get EFC staff out in the field to see rural/remote/village public water systems. EFC staff agreed that it would be beneficial in writing the *Report of Findings* to have witnessed these systems first hand.

August 4, 1999

The meeting took place in Anchorage. The subcommittee that was formed in July met the previous day and discussed 1420(c)(2)(A-C). It was determined that ADEC would use a matrix system based upon the matrix developed by the State of Oregon to determine how to prioritize water systems in Alaska, as outlined by 1420(c)(2)(A). The subcommittee then continued on with 1420(c)(2)(B), factors that encourage or impair capacity development, and selected those factors from the entire compilation of Alaska factors that they deemed most worthy of inclusion in the *Report of Findings*. Item 1420(c)(2)(C), recommendations on how Alaska can use its authority and resources to help water system capacity, was then briefly covered, with the majority of the discussion covering urban systems. During the course of these discussions the subcommittee agreed that new regulations might be needed to ensure consistency between State and federal agencies that deal with public water systems. All items covered by the subcommittee were then presented to the full CAB the following day. Bill Chamberlain of EPA Region 10 also addressed the CAB and allowed members to express concerns relating to EPA and Capacity Development. The CAB further discussed 1420(c)(2)(C) and began covering 1420(c)(2)(E), public involvement in the preparation of Alaska's Capacity Development Strategy. Upon recommendation of the CAB, Symantha Zeimet of the EFC flew to the villages of Stony River and Shageluk on August 5th and drove to Glennallen on August 6th in an effort to better understand the unique problems facing Alaska's water systems.

October 21, 1999

The meeting took place in Anchorage. The subcommittee met on October 20 and discussed the prioritization matrix for item 1420(c)(2)(A) in greater detail in terms of how best to score the various components. The group then brainstormed on 1420(c)(2)(E), involving the public on capacity development. The subcommittee then presented their outcomes to the CAB the following day. The CAB also determined what components should compose the *Report of Findings*. The CAB agreed to examine what other states have chosen for consideration in their *Report of Findings* in relationship to 1420(c)(2)(C).

December 9, 1999

The meeting took place in Anchorage. Keven Kleweno presented the CAB with a draft form of the matrix for item 1420(c)(2)(A), prioritizing systems in need of capacity development. The CAB examined each item and made comments/additions/deletions as needed. The CAB then moved on to item 1420(c)(2)(C), recommendations on how the state can use its authority and resources to help water system capacity. The CAB identified several items for inclusion in the *Report of Findings*. The CAB then discussed 1420(c)(2)(D), measuring the success of the State's Capacity Development Strategy. Three areas of were considered – compliance tracking, outreach and assistance, and planning activities. Sheila Selkrigg, Director of the USDA Rural Development spoke briefly with the CAB to inform the group of a similar process that was occurring in that agency with regard to rural Alaska utilities. It was hoped that the two committees would keep one another abreast of

their developments in an effort to avoid conflicting outcomes. Upon recommendation of the CAB, Symantha Zeimet of the EFC flew to Haines on December 8th in an effort to better understand the unique problems facing Southeast Alaska's water systems.

APPENDIX B: CAPACITY DEVELOPMENT ENHANCEMENTS AND IMPAIRMENTS NOT SPECIFICALLY INCLUDED FOR STRATEGY CONSIDERATIONS

Several factors were identified relative to enhancements and impairments to technical, managerial, and financial capacity, which were not specifically included for strategy consideration in this *Report of Findings*. The tables in this appendix display these factors at the federal, state and local levels. The Citizen Advisory Board considered all of these factors during its deliberations. In the final analysis, it was determined for a variety of reasons that the factors listed would not receive specific emphasis in this report. These reasons included the practical, operational, political, and institutional barriers to addressing the impairments. The enhancements identified, while notable, were determined to need little or no practical action by the Drinking Water Program.

Persons reviewing these factors are invited to comment regarding any impairment and enhancement factors that they believe should be included for further consideration by the Alaska Department of Environmental Conservation. For more specific explanations of any of the factors listed, please contact the Environmental Finance Center at Boise State University at (208) 426-1567.

Factors that Enhance or Impair Capacity at the Federal Level Not Noted in Report of Findings

Factor	Description	Enhancement	Impairment
Institutional	AmeriCorps.	Yes	
	Agencies trying to build empires.		Yes
Regulatory	Force better managed and operated water systems.	Yes	
	The new TRB process (technology review board) has potential to help the implementation of new technologies.	Yes	
	Try to reduce federal water quality standards for Alaska.	Yes	
	The feds talk cooperation and carry a big hammer (funding).		Yes
	Unfunded mandates.		Yes
	Statutes not updated for privates.		Yes
Financial	Statutes not updated for privates.		Yes
	Regulations inadequate for privates.		Yes
Tax	PILT payments (Payment in Lieu of Taxes) helps support municipalities. Many municipalities use this money to support sanitation services.	Yes	
	PILT payments (Payment in Lieu of Taxes) are not available to non-municipal entities.		Yes
	Lack of tax break for research and development.		Yes
	Lack of grant money for research and development.		Yes
	Lots of non-taxable land (federal or tribal).		Yes
Legal	State's lack of recognition of tribes.		Yes
Other	May help in forcing better cooperation between state agencies.	Yes	
	Non-notification of changing regulations.		Yes

Factors that Enhance or Impair Capacity at the State Level Not Noted in Report of Findings

Factor	Description	Enhancement	Impairment
Institutional	No major entrenchments.	Yes	
	University of Alaska Fairbanks/Alaska Cooperative Extension will hire an ADEC Liaison position to summarize and help focus existing and future Water Quality research, chase grant dollars, and make the University more accessible.	Yes	
	Lack of or frequent turnover in leadership positions.		Yes
	Interagency conflicts.		Yes
	Internal agency conflicts.		Yes
	Many entities that are involved with providing services.		Yes
	The State does not have an overall plan on how, or which, small communities will develop. They basically leave it up to the community. There is no unified priority of assistance given for sanitation, roads, schools, public facilities, airports. Thus each funding agency spreads its funds out by a different priority system. There is no thought that some of these communities won't make it in the long term, and that "investing" capital construction resources in them is not an "investment" at all.		Yes
	Agencies trying to build empires.		Yes
	Regulatory	Plain English Guide to Regulations.	Yes
Compliance with TMF required to obtain funding.		Yes	
Try to reduce State water quality standards for Alaska.		Yes	
The new TRB process (technology review board) has potential to help the implementation of new technologies.		Yes	
Manufactured housing communities should be treated as single family housing and be billed the flat rate and not the metered rate.		Yes	
Increasing filtering and testing requirements.			Yes
New regulations.			Yes
ADEC continually underfunded by Legislature.			Yes
Lack of interest in new technology.			Yes
Lack of understanding by rural government bodies.			Yes
The regulatory arms within State agencies do not always coordinate very well with those agencies providing services. This can result in adoption of regulations that inhibit the most effective way of providing assistance, or in some cases coming to loggerheads with them. Some regulations are written in a bureaucratic isolation that too often results in regulations that are realistically impossible for a community to meet.			Yes
ADEC Programs (Water / Wastewater) disagree over interpretation of regulations.			Yes
TMF is a great place to start, but it lacks a human relationship component.			Yes
Manufactured housing communities may not be able to meet the new standards in hooking up to their local water utility. Manufactured housing communities are not billed as single family dwellings but as multi-family housing. Single family swellings are charged a flat rate for water while multi-family housing is charged on a metered basis. It will be uneconomical for many members to switch to their local utility.		Yes	
Financial	DWSRF set asides.	Yes	
	Rural Utility Business Advisory Program.	Yes	
	Department of Community and Economic Development's model financial record keeping system.	Yes	

	Revolving loan funds not available to privates.		Yes
	Large sums of money allocated to rural Alaska.		Yes
Tax	No tax issues.	Yes	
	Payroll tax.		Yes
	Lack of tax break for research and development.		Yes
	Lack of grant money for research and development.		Yes
	No State tax – one source of funding other than legislative appropriations.		Yes
Legal	Inconsistent enforcement.		Yes
	Different enforcement within same agency.		Yes
Other	Any new state program is viewed as an infringement on individual rights in Alaska.		Yes

Factors that Enhance or Impair Capacity at the Local Level Not Noted in Report of Findings

Factor	Description	Enhancement	Impairment
Institutional	Platting and zoning, where it exists, can be a benefit.	Yes	
	Make one local person accountable for all TMF in each community (or regionally).	Yes	
	We need to try much more oral and visual representation. For example, using humor has been proven to cut through Native Alaskan/Caucasian prejudice and distrust.	Yes	
	Unwilling to pay for things previously provided for free.		Yes
	High cost of training due to travel expenses.		Yes
	Resistance to filtration due to lack of illness in the past.		Yes
	Resistance to disinfection due to esthetics and health concerns with chlorine.		Yes
	Government organizations have been telling locals for years that clean water is a right. This has built an expectation that it will be provided, and the “Cadillac” systems will be built. These same organizations have not built the same expectation that locals will be expected to pay Operation and Maintenance costs.		Yes
	Lack of customer ownership of the system.		Yes
	Caucasians are unable to place themselves in Native Alaskan shoes.		Yes
Regulatory	Plain English Guide to Regulations.	Yes	
	Platting and zoning could be used to promote TMF.	Yes	
	Unwilling to pay for “unfunded mandates.”		Yes
	Lack of interest in new technology.		Yes
	There seems to be a disconnect between regulation, Alaska Native Culture and geography. Regulation, especially with bettering inadequate enforcement makes lots of sense. Unless improvements are affordable the cost will overwhelm communities – that is unless we can couple them with money generating opportunities. For example, the Navy could look at villages to provide programmers. Closer coordination with Rural Development entities remains crucial. Once money is generated there is an option to extract it, but not before.		Yes
Financial	We cannot make all Villages comply.		Yes
	Privates have access to capital unavailable to municipals.	Yes	
	Public systems can receive funds to carry out TMF goals.	Yes	
	Cost structure/rate payer base in rural Alaska makes funding typical water systems difficult.		Yes
	Private systems, with a change in State law, would compete with public systems for limited funds to carry out		Yes

	TMF.		
	Lack of financial cooperation in communities between tribe/city/village corporations.		Yes
	In small remote communities, lack of economic development to provide jobs to customers.		Yes
	Cost of initial system.		Yes
	Cost of operation.		Yes
	Lack of cash economy.		Yes
	Enterprise fund accounting not implemented properly.		Yes
Tax	"Fish Tax" not being used to offset fisheries impacts to utilities in coastal communities.		Yes
	Property tax caps.		Yes
	Payroll tax problems.		Yes
	Little economic base to tax, so taxes are little more than user fees and harder to collect.		Yes
	Too small of a local tax base to support system.		Yes
Legal	Justify the purchase of a proprietary unit.		Yes
Other	Try to consolidate resources in each community – keep things simple.	Yes	
	It is valid to protect and use traditional water sources. They should be cataloged and monitored. The Alaska Native Village Water Program Outreach effort recently funded by EPA Region 10 will begin that process. There will be a pilot registry and follow-up water testing/education.		Yes
	Turnover of staff both in management and operators.		Yes