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Restructuring Manual

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A Training Manual for State Drinking Water Personnel as They Meet the Challenges of the 1986 Safe Drinking Water Act Amendments

Introduction: You Can Make a Difference

You can do something about non-viable water systems.

Non-viable systems lack the technical, financial or managerial capabilities to comply with drinking water regulations. You know these systems. They cause you continual distress. They take up much of your time, yet their problems are never really solved.

State drinking water personnel often feel that they don't have the resources or the authority to resolve the problems of non-viable drinking water systems. But, you can do something about them. You can start today, but you must be willing to take enforcement actions that will give the non-viable system an incentive to consider major changes in the way it does business. You have to make it clear that compliance is not optional; doing nothing is not an alternative for non-viable, non-compliant systems. You also must be willing to work with local citizens' groups and other organizations to plan and implement changes. Consider the following case study.

A Case Study: North Lakeport, California

Just north of the City of Lakeport, California, in 1985, 80 percent of the small systems in the area were having problems meeting water quality standards.[1] Both the ground water and the lake were poor sources of supply. The ground water contained iron, manganese, and high levels of dissolved solids. In some wells the concentrations of arsenic and barium also were high. Clear Lake, the local surface water source, is eutrophic; periodic algae blooms can last as long as seven months and cause serious taste and odor problems. In addition, turbidity in the lake ranges from 3 NTU to more than 90 NTU during winter storms.

[1]As cited in *North Lakeport Water Supply Feasibility Study*, Culp, Wesner, & Culp, June 1985.

The county became interested in the area's water problems because:

1. The county wanted to build a jail in that area and was deciding how to obtain safe water for it. They couldn't build if the water was unsafe or if there wasn't an adequate supply.

2. A juvenile hall in the area was having severe water quality problems.

3. A developer began a subdivision for 100 homes, but the well went dry after only 8 houses were completed. Development would stop if a solution to the dry well couldn't be found.

4. People in the area were complaining about their water.

The result of the county's interest was a feasibility study, which examined 8 major options to solve the area's water problems. The study defined the proposed service area; surveyed existing, planned, and proposed developments to determine interest in the area-wide project; examined alternative sources of supply; examined financing options; and investigated water supply plans ranging from developing a basic system capable of serving just the proposed jail and the juvenile hall (equivalent to 240 residential connections) to developing a large system for the entire area (equivalent to 3,300 residential connections). In the end, Lake County voters approved the formation of a County Service Area (CSA) and decided to build a new treatment facility. A total of 51 small water systems and approximately 500 individual connections were joined together into a single water system in December 1990. The new treatment facility used coagulation and sedimentation, and for the taste and odor problems, ozonation and granular activated carbon.

One system that merged into the newly formed CSA is Countrywood Mobile Home Park. Countrywood drew its water from Clear Lake and had 24 connections. In 1988 and 1989, the system experienced multiple turbidity and coliform MCL violations. Very few of the required analyses were submitted; for example, according to FRDS, turbidity sampling violations totaled 6 in 1987 and 3 in 1988. There is only one record of public notification in the file: a boil water notice dated October 5, 1989. There is no record of chlorine residual levels, or chemical and radiological tests (other than those mentioned). Before becoming part of North Lakeport, the system was issued a Notice of Violation (NOV) by EPA Region IX, and a citation by Lake County Department of Health.

Regulators play a special role in promoting restructuring.

The regulators in California did not play a large role in initiating the solution; however, they had documented incidences of non-compliance so well that they could help the county's case for receiving funding through the 1986 Safe Drinking Water Act (SDWA) Bond Law. When the State prioritized areas to receive assistance through the SDWA Bond Law, North Lakeport ranked approximately 5 out of 1,500 cases. In addition to making a strong plea for funding, the regulators used enforcement to convince systems that they had to make a change. And, once the feasibility study was conducted, they offered their assistance in implementing a solution.

Most people, including regulators, community residents, and developers, supported the decision to form a CSA. Because residents had experienced the effects of poor water quality, there was heightened public awareness about the issue. Even though some residents were told that they may have to pay $10-12 more a month, they agreed to the solution.

The entire process took nearly 5 years. Most of this time was for preliminary planning. The feasibility study was completed; there were many meetings to discuss how the CSA would be implemented; and there were several discussions about how to finance the project. Once plans and specifications were approved, however, it took slightly longer than a year to complete construction.

Restructuring benefits regulators and consumers.

The benefits of this restructuring are numerous. Regulators are pleased because there are fewer systems to worry about: instead of having fifty regulated systems in the area, they now have one. They also are guaranteed that the new CSA system will provide better quality water, thereby reducing the burden of answering citizen complaints and taking enforcement action against non-compliers. Customers are satisfied because they now have a safe, reliable supply of water, and, in some cases, are paying lower water bills. The county is able to build its jail and maintain the juvenile hall. The developer can complete the housing project. And, the system will provide high quality water for all future development in the area.

The Role of Restructuring

Although many States have used restructuring successfully, few have adopted aggressive regulatory policies to encourage it. Restructuring will not work for all non-viable systems, but it can work for many of them. Restructuring should be viewed as an option that can provide a permanent solution to small systems problems. It can ensure that these systems will come into compliance and stay in compliance for the long term.

This manual will show you how to accomplish small system restructuring. Part 2 of this report defines restructuring options and describes the benefits of various types of restructuring. Part 3 explains, step by step, how to implement restructuring. Part 4 is specifically tailored for drinking water staff and describes the role of the drinking water regulator in restructuring. And Part 5 is a trouble-shooting guide to overcoming barriers to restructuring.[2] Appendix A provides additional case studies of restructuring.

[2]This is not a policy document for State drinking water administrators. There are, however, three reports that provide an excellent policy background on solutions to the problem of non-viable systems. See U.S. Environmental Protection Agency, *Ensuring the Viability of New, Small Drinking Water Systems*, EPA-570/9-89-004, April 1989 and *Improving the Viability of Existing Small Drinking Water Systems*, EPA 570/9-90-004, June 1990. Also see *State Initiatives to Address Non-Viable Small Water Systems in Pennsylvania*, prepared by Wade Miller Associates, Inc.

Small Systems, Non-Viable Systems

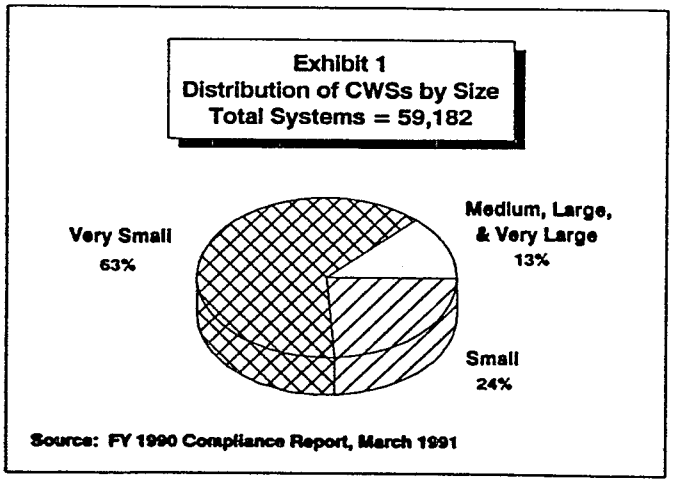
Small systems represent 90 percent of all CWSs in violation and 88 percent of all SNCs.

Nearly 90 percent of all community water systems (CWSs) are small (defined by the U.S. Environmental Protection Agency [EPA] as those serving fewer than 3,300 people). Often characterized by low revenues, lack of technical and management expertise, and inability to obtain capital, small systems frequently violate State and Federal drinking water regulations. In FY 1990, small systems represented more than 90 percent of all CWSs in violation and 88 percent of all significant non-compliers (SNCs). Implementation of the 1986 Safe Drinking Water Act (SDWA) Amendments will only make the problems of small systems worse. National compliance costs for the new drinking water regulations are estimated at $1.8 billion per year; over 69 percent of these costs are estimated to be for small systems. Installing new treatment equipment, while complying with increased monitoring and reporting requirements, will be terribly difficult for these systems.

Some small systems are non-viable, and most non-viable systems are small.

It should be noted that although EPA defines a small system as one that serves fewer than 3,300 people, most small systems actually serve fewer than 500 people (or roughly 100 connections). These systems, considered to be "very small" by EPA, represent 63 percent of all CWSs. (See Exhibit 1.) Not only do these systems make up the bulk of small systems, they also account for over half of all drinking water violations. (See Exhibit 2.) This is not to say that all small systems are non-viable; some small systems are non-viable and most non-viable systems are small.

The problems that small systems cause for regulators are evident in Washington state. A small water system in Washington is defined as having fewer than 1,000 service connections, but 95 percent of these have fewer than 100 service connections. Small water systems account for over 60 percent of all monitoring/reporting violations. Regulators are concerned that with implementation of the SDWA Amendments, these violations will only increase. The problem is made worse because of the enormous costs associated with ensuring small system compli-

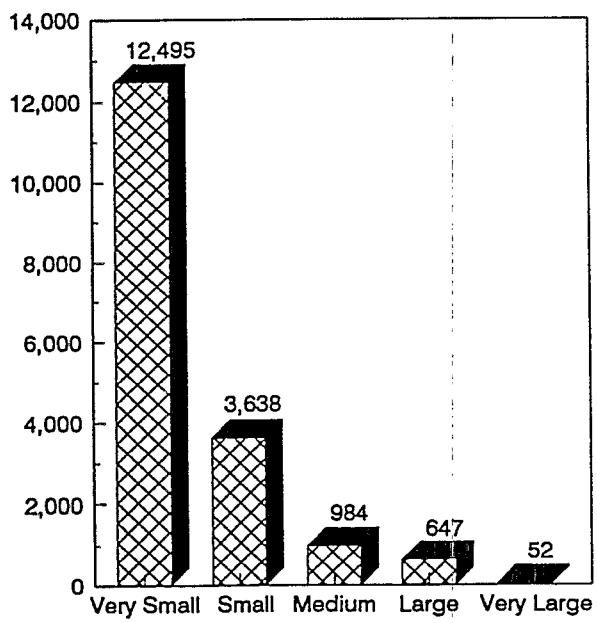


ance. As Exhibit 3 illustrates, the Washington Department of Health (WA DOH) has estimated the cost of implementing the SDWA Amendments for small systems at $130 million. This places an enormous burden on DOH. The department has estimated that it will need to hire 43 new staff, most of whom will be devoted to small system problems.

WA's estimated cost of implementing SDWA for small systems is $130 million.

Not only will ensuring compliance for small systems create a burden on WA DOH, but it will have a tremendous impact on small water system customers in Washington. For a typical groundwater system serving fewer than 100 connections, the annual per household cost for drinking water is expected to increase between $117 and $245.[3] For systems requiring more sophisticated treatment, the cost could rise to over $500 more per household. And, the annual cost for a typical surface water system with fewer than 100 connections could rise to more than $1,100 per household.[4]

Exhibit 2
CWS Violators of M/R and MCL Requirements
FY 1990*



*The number of CWSs in violation equals 15795. The chart shows the number to equal 17,816 (when adding the violations for the five size categories) because some systems are both M/R and MCL violators.

Source: FRDS 19B (1/15/91).

[3]This estimate assumes costs for additional monitoring and disinfection.

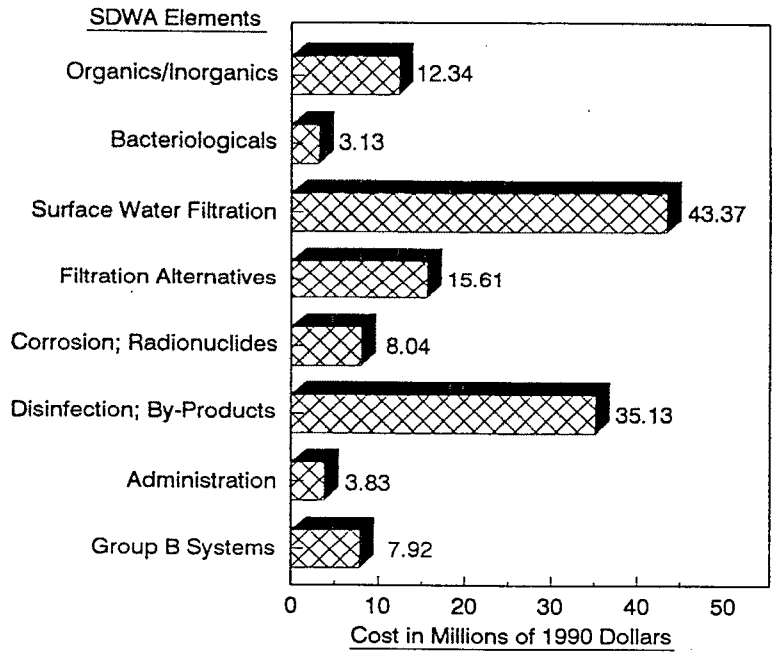
[4]*Small Water Systems: Problems and Proposed Solutions.* A Report to the Legislature. Washington State Department of Health. January 1991.

The bottom line is that small systems, particularly those serving fewer than 500 people, tend to be non-viable. Non-viable systems have the following characteristics:

- they are not self-sustaining;
- they do not have the necessary financial, managerial, and technical capabilities.

These systems have the most difficulty complying with drinking water regulations; consequently, they are the black hole into which State drinking water program resources disappear.

Exhibit 3
Total Projected Costs For Small System Compliance with 1986 SDWA Requirements in Washington



Source: "Small Water Systems," A Report to the Legislature, January 1991.

Part 2: What is Restructuring?

Definition of Restructuring

Restructuring refers to solutions that address non-viable systems' lack of economies of scale.

Central to the problem of non-viable small systems is their lack of economies of scale. All systems incur costs for O&M, management, and investment in plant and equipment. Because small systems cannot purchase goods or services in large amounts, they must pay relatively high unit prices.

Restructuring refers to solutions for non-viable systems that address their lack of economies of scale. The three major categories of restructuring are:

- contracting for O&M services, with or without capital infusion,
- mergers and acquisitions, and
- creation of a new water system.

By contracting for O&M services, a small water system may take advantage of the economies of scale already achieved by a large firm that provides O&M services to many clients. Contracting for O&M with capital infusion is similar, except a firm provides working capital for daily operations or for facility improvements or construction. In a merger or acquisition, a small system (or group of small systems) becomes part of a larger system, automatically taking advantage of the acquiring system's economies of scale. A new water system usually is created when a government entity, such as a county, decides to enter the water business. This is what happened in the North Lakeport example used in the introduction.

It is critical to note that mergers and acquisitions and the formation of a new system involve a transfer of the assets of the entities involved; contract O&M, with or without capital infusion, does not.

Contract O&M may be provided by:

- a private firm that specializes in these services, or
- a large water utility that provides these services as an ancillary business function.

Contract O&M with capital infusion usually is provided only by specialized private firms. Because this type of service is relatively new, few such firms are currently in operation. Also, these firms' clients tend to be medium-sized systems. This could change, however; demand for O&M with capital infusion is expected to grow rapidly.

There are two categories of mergers and acquisitions and of created water systems. The distinction depends on the ownership of the acquiring or new system. The system can be:

- a privately owned utility, or
- a publicly owned utility.

Variations in Terminology

Industry professionals may use many terms to describe the restructuring options described above. While regional usage varies substantially and many different "terms of art" have developed, the underlying concepts usually are the same. For example:

Many terms are used to descibe restructuring options.

- Contract O&M may be referred to as satellite management, third-party operator, service contract, turn-key operation, and privatization.
- Contract O&M with "capital infusion" generally refers to the provision of O&M services with working capital or new capital investment. Capital infusion involving working capital may be called "affermage." Under this approach, an operator performs routine O&M and provides working capital required for a system's daily operation. Capital infusion requiring new capital investment may be called "concession." Under this approach, an operator finances all costs for the installation of the system (new works and renewal) as well as the working capital for daily operations.
- A "big brother" arrangement is contract O&M provided by civic-minded large water systems that may, or may not, charge for these services.
- Acquisitions and mergers may be called satellite ownership, takeovers, buyouts, consolidations, regionalization, privatization, spaghetti systems, or consecutive/secondary systems.

Pay particular attention to some subtle distinctions in terminology.

Some differences in terminology are subtle.

> Satellite management is a form of contract O&M where the contractor is a large water utility. Satellite ownership refers to an asset transfer: a large utility acquires a small utility, but does not interconnect the two systems.

Privatization can refer to either contract O&M or to mergers and acquisitions, so long as the provider of services or the acquiring entity is privately owned.

Benefits of Restructuring

Restructuring enables systems to provide safe water and to comply with drinking water regulations.

Restructuring can be used to benefit drinking water systems, their customers, and State drinking water programs. (See Exhibit 4.) By increasing economies of scale, restructuring enables systems to improve compliance with drinking water regulations and provide better quality water to their customers. For example, in a merger or acquisition, a small system, or group of systems, becomes part of a larger one, thereby gaining the acquiring entity's economies of scale. The small system's problems are solved more easily by the larger system, which can afford to make necessary improvements.

Restructuring is often the lowest-cost route to compliance and safe water for system customers. Restructuring can reduce systems' long-term operation costs and can save State resources used for monitoring, inspection, and enforcement.

Restructuring eliminates non-viable water systems.

From your standpoint, the most important benefit of restructuring is that it eliminates a non-viable water system. Non-viable systems are persistent compliance problems. Enforcement may bring them back into compliance; but before long, they are out of compliance again. For example, enforcement of operator certification may ensure that a certified operator is in charge of a non-viable system, but there may be turnover in that position soon thereafter.

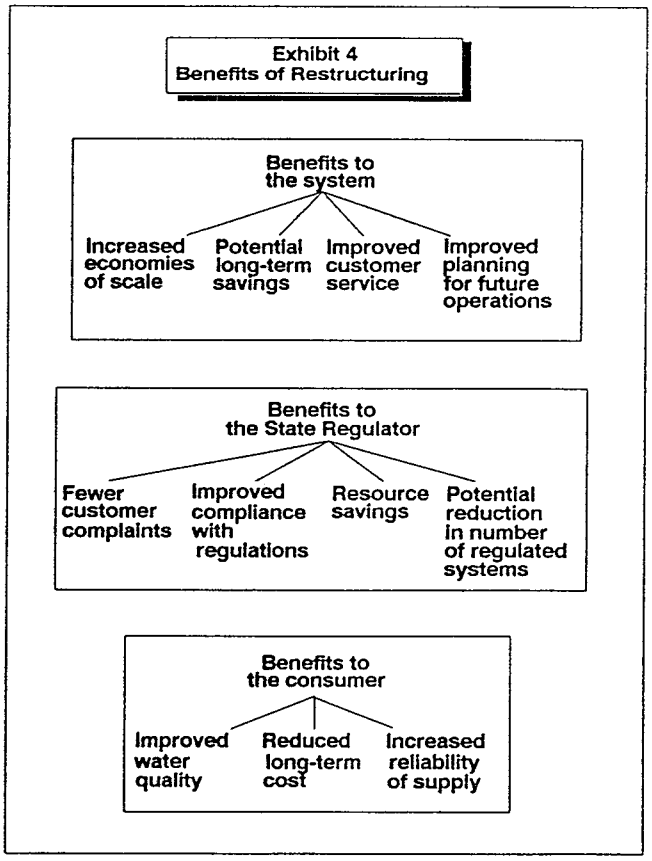


Exhibit 4
Benefits of Restructuring

Non-viable systems drain State drinking water program resources year after year. Their problems are never completely solved. The Washington State example illustrates how time-consuming and difficult it is to ensure small system compliance. Restructuring can remove non-viable systems from your inventory.

Part 3: How to Do It

State drinking water regulators can encourage and facilitate restructuring, but usually do not actually implement it. Instead, regulators rely on a local "champion" of restructuring (e.g., a utility, a citizens group, etc.) to promote it. Nevertheless, regulators must understand how restructuring works, so we have prepared the following step-by-step guide.

Step 1: Define the Problem

Define the problem as broadly as possible.

Everyone knows there is a problem. A system is not complying with Federal and State drinking water regulations. It is useful, however, to define the problem as broadly as possible, since this often stimulates more creative solutions.

For example, assume that the immediate problem is a system serving fewer than 100 customers that has an inadequate or contaminated source. In many areas, there may be nearby systems that have similar problems. Their problems may not be as severe; they may not require immediate attention; but in the long run, a solution that encompasses all of the potential problems in a region is more likely to be successful and win widespread public support.

Step 2. Conduct a Feasibility Study

A feasibility study should examine all possible solutions to an area's water problems.

A feasibility study may be called many different names (e.g., "preliminary engineering report"). It is more than just the plans and specifications for a system's design, however. A feasibility study should include an examination of all possible solutions to an area's water problems. It also should include estimates of what each solution would cost. The impetus for a feasibility study varies from State to State. In general, these studies are funded by the State, FmHA, technical assistance providers such as RCAPs, and local agencies.

Feasibility studies examine many issues such as:

- Physical condition of a facility. If a facility is substandard in design or otherwise inadequate, physical interconnection or acquisition without interconnection may be needed.

- Geography. Interconnection of a non-viable system with a viable neighbor may be unlikely if the distance between systems is too great and interconnection too costly.

- Adequacy of supply. If the current source is not providing an adequate water supply, some other source must be found. This might require substantial investment or an interconnection with a neighboring water system.

- Availability of contract O&M. Depending on the nature of the problem, contract O&M may be a desired restructuring option.

- Availability of systems that might acquire or merge with the problem system. A feasibility study may determine whether there are utilities that would merge with, or acquire, a problem system.

- Prospects for the formation of a new water system. The feasibility study may determine that nobody in the area is willing to take over a non-viable water system. The study might investigate the possibility of forming a new publicly owned system. This can mean that a county decides to enter into the water business or that the community decides to form a public service district or its equivalent.

A typical feasibility study, such as the one done for North Lakeport, will discuss:

- the boundaries and population of the service area;

- water supply requirements for existing populations and possible new developments;

- adequacy of existing systems, including treatment, storage and distribution;

- adequacy of supply and alternatives for new sources, including the potential for interconnection;

- financing alternatives, such as grants, low-interest loans, and opportunities for merger; and

- a recommended water supply plan.

Feasibility studies are useful for many reasons. First, they compare the costs for a system to comply with regulations by remaining independent with the costs of restructuring. A system can be presented with the hard facts: either the system looks at restructuring options, or it pays. The system will do what is in its

best interest. Second, feasibility studies can determine which restructuring option would be most effective. For example, the study can indicate whether contract O&M or a merger or acquisition should be promoted.

A champion is a person or organization who proposes, endorses, pushes, and defends a restructuring proposal.

Step 3. Find a "Champion"

It is often difficult for the State regulatory agency to be the major force behind a restructuring proposal. It is far better (if possible) to find another person or organization who can become the proposal's "champion." This person, preferably a local representative, can propose, endorse, push, and defend the restructuring proposal.

A natural champion, such as a citizens' committee, may emerge out of the problem that created the need for restructuring. If not, the State regulator can encourage the emergence of another person or group as the champion. This could be a technical assistance provider, a county government, or a system interested in acquisition. Possible champions include:

- The owner/operator of the local system in trouble. This person has a clear interest in the solution if the system is in trouble. The more serious the enforcement pressure, the more likely this person will emerge as a champion of restructuring.

- The owner/operator of the acquiring system (in the case of a merger of acquisition). This is a second-best alternative since the owner/operator of an acquiring system may be seen as an outsider. Nevertheless, it may be an asset to have this person actively supporting the change.

- A county or regional government. In States with strong county or regional governments, a non-viable small system may be seen as a threat to a whole region. In such cases, the county or regional government may step forward as a champion of reform. This occurred in the North Lakeport example.

- A citizens' committee. If the problems with the non-viable system are severe, citizens may organize for change. This is an ideal source of support for restructuring.

- Volunteer support groups. These groups, which can be effective advocates, include: the League of Women Voters; service organizations such as the Rotary Club; and economic organizations such as the Chamber of Commerce.

- A technical assistance provider. Examples are State Rural Water Associations or Rural Community Assistance Program affiliates. These groups understand water system problems. If they are convinced that restructuring is required to cure the

problems of a non-viable system, they can be effective advocates for change.

- A financial aid program. Money talks. State loan programs and the State Farmers Home Administration (FmHA) do not like to lend to non-viable systems. They will withhold support unless a more permanent solution to a system's problems is found. Thus, they can be effective allies in promoting restructuring.

Choosing a restructuring option has technical, administrative, and political dimensions.

Step 4. Choose a Restructuring Option

The most appropriate restructuring solution should come out of the feasibility study. (If no feasibility study has been conducted, this section will help you decide which options might be most effective.) Choosing the most appropriate restructuring option has technical, administrative, and political dimensions. Each situation is unique, and this manual can only provide general guidelines to help you think through the choices in each case. Often, options will be chosen with the full participation of the "champion" and other local officials. (See Exhibit 5 for a list of advantages and disadvantages for each option.)

Technical Dimensions relate to the physical characteristics of the system.

Technical Dimensions relate to the physical characteristics of the system. For example, if the problem simply is a lack of a qualified operator (while the physical condition of system is adequate), then contract O&M is the logical choice. The remaining issue would then be to locate an appropriate provider of contract O&M services and to determine whether the non-viable system can afford these services.

If the problem is greater than the lack of a qualified operator, then the issues become more complicated. In general, as the problems become more severe—a water supply of inadequate quantity or quality, a deteriorated physical plant, significant lack of managerial or technical capability—some form of merger or acquisition becomes more likely. Once merger or acquisition is chosen, the questions are:

- What form of merger or acquisition is most appropriate?
- Is interconnection feasible?
- If interconnection is not feasible, will managerial consolidation be successful?

Exhibit 5
Advantages and Disadvantages to Each Restructuring Option

OPTION	ADVANTAGES	DISADVANTAGES
Contract O&M	Increases economies of scale Allows for local control Increases level of technical expertise Allows for flexibility of service	May be expensive Cannot remedy severe system problems Availability of service companies varies
Contract O&M with Capital Infusion	Solves more severe system problems Increases access to capital Allows for some local control	May be expensive Availability of service companies varies
Satellite Management	Increases economies of scale Allows for some local control Increases level of technical expertise Allows for flexibility of service	May be expensive May not remedy severe system problems Availability of service companies varies Communities may fear loss of local control
Public Mergers/ Acquisitions	Increases economies of scale Increases level of technical expertise Solves more severe system problems Increases access to capital May increase eligibility for public funding Reduces size of regulated community	Loss of local control Formation of new system can be complex Financial disincentives may deter Existing franchises and service areas may impede Compensation for acquisitions may be inadequate
Private Mergers/ Acquisitions	Increases economies of scale Increases level of technical expertise Solves more severe system problems Increases access to capital Reduces size of regulated community	Loss of local control Formation of new system can be complex Financial disincentives may deter Ineligible for public funding Existing franchises and service areas may impede Compensation for acquisitions may be inadequate

Making these decisions often requires that you refer to studies that may have been done by or for the problem system. For example, you may be interested in recent engineering studies that identify the design and operational problems facing the system. Other data that may be useful include:

- local land use plans and studies,
- analysis of water quantity (particularly if you are in one of the Western States), and
- agreements between systems that may bear on the choice of a solution (e.g., a joint service agreement between this system and a neighboring system or a franchise or exclusive service area agreement).

Administrative Dimensions refer to your authority and ability to influence the outcome of restructuring. As we emphasized earlier, your enforcement capabilities give you great power to get a system's attention. At a minimum, you can get them to listen to alternatives. In some cases, you can make continued operation of a system so uncomfortable that the owner/operator will willingly entertain restructuring alternatives.

Administrative Dimensions refer to your authority and ability to influence the outcome of restructuring.

Other types of authority vary by State. Connecticut, for example, can compel the takeover of systems that have persistently failed to comply with drinking water regulations. Washington State can ask a county water district to provide satellite management or satellite ownership solutions.

Political Dimensions refer to the willingness of an independent water system to consider alternatives that might threaten its independence. Contracting for O&M services is a fairly minor change, and most systems will not view this type of restructuring as a threat to their autonomy.

Political Dimensions refer to the willingness of an independent water system to consider alternatives that might threaten it's independence.

In a recent EPA-sponsored survey of State officials' experience with restructuring, 79 percent of the respondents cited "ideological/political opposition" as the greatest impediment to restructuring. (See Exhibit 6.) Seventy-five percent of the respondents cited "concern over loss of control" as an impediment.[5] State officials all know stories of situations where local autonomy is so important that some systems will not accept help from a neighboring system even when this help is offered free of charge. In Western States, loss of autonomy is also often linked to the loss of water rights that may attach to a system.

[5]Mary Ann Hill, *A Study of Managerial and Operational Changes for Small Water Systems to Improve Long-Term Compliance with Drinking Water Regulations*, a paper submitted to the U.S. EPA, Office of Drinking Water, April 9, 1991, p. 24.

Another political dimension is inertia. Most citizens do not perceive the need to take action to improve their water systems. Safe drinking water is often taken for granted. If there are no serious outbreaks of acute illness, and if there are no problems with taste, odor, or color, most citizens feel that no action is needed. In the survey of State officials cited above, 67 percent cited "no perception of problems now" as an impediment to restructuring.

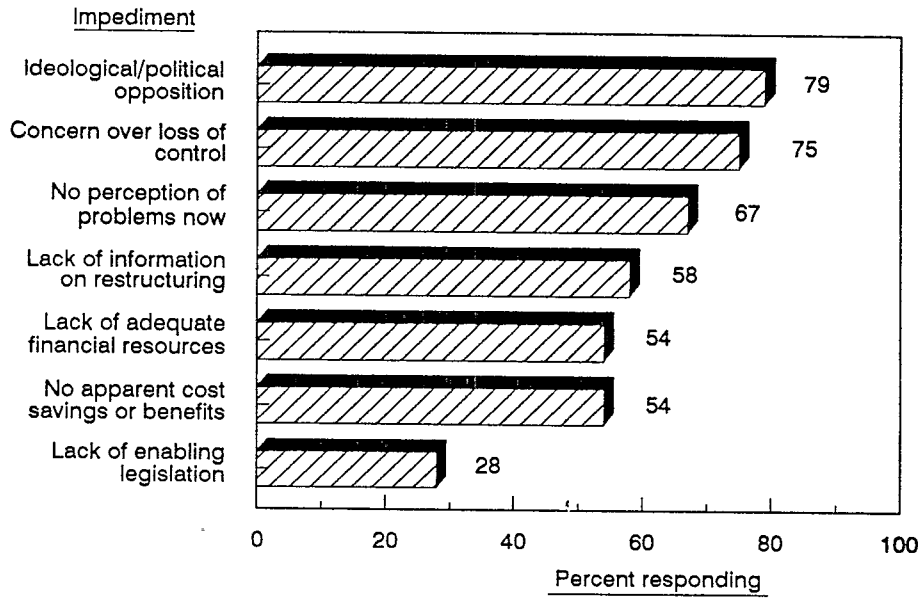
The importance of these impediments means that your role in promoting restructuring is not limited to presenting options. You also must be able to understand and analyze the barriers to change so that you can develop a plan to overcome them.

You must understand and analyze barriers to change, so you can develop and plan to overcome them.

Step 5. Develop a Plan to Sell the Concept

Once an option has been chosen, there must be a plan to get the change adopted. Inevitably you will encounter some resistance to the restructuring solution. This resistance can be overcome by a thoughtful plan that is carefully implemented by a local "champion" with the State drinking water program's support.

Exhibit 6
Impediments to Small System Restructuring



Source: Report prepared by Ms. Mary Ann Hill, April 9, 1991.

There are generic strategies for dealing with three of the most common barriers:

- political or ideological opposition,
- concern over loss of control, and
- lack of concern about the problem.

The first step is to convince the system owners, operators, and customers that there is a problem.

Convince system owners, operators, and customers that a problem exists.

1. There is a serious public health problem. Mergers or acquisitions are not proposed unless there are serious problems with the water system. The system must be a persistent violator of State regulations. Even if this has not resulted in outages, or in problems of taste, odor, or color, there must be a serious public health problem. That problem must be communicated to the public in terms of concrete, tangible issues that citizens can understand. The State drinking water program could help by designing a risk communication program for the system.

2. Failure to act has costs. Compliance is not optional. Fines and penalties might be imposed for persistent violations of State regulations. Also, there are costs of inaction—e.g., loss of grants or loans that might be forthcoming or a higher cost for fire insurance if restructuring is not adopted. These costs may be passed on to consumers in the form of higher water bills.

3. Failure to act can affect homeowners and buyers. Most real estate loans require a review of the status of the water supply as a condition of loan approval. A home that is served by an inadequate water system may have to be sold at a reduced price, and the purchaser may be restricted in obtaining financing. This concern is particularly relevant to homeowners served by small water systems. Frequently, they discover their system is out of compliance when their houses are put up for sale.

The second step is convincing the owners, operators, and consumers that restructuring has benefits.

Convince system owners, operators, and customers that restructuring has benefits.

1. Restructuring may result in a long-term cost reduction. Restructuring almost always means that non-viable systems are able to increase their economies of scale. For this reason, restructuring is often the most cost-effective way to meet new and existing requirements. It should be stated again that compliance with State and Federal regulations is mandatory; therefore, the question is how can a system comply without a severe increase in costs. Customers might face higher water

bills, but the bills will be less than if restructuring had not occurred. Some customer costs that could be reduced because of restructuring are the cost of fire insurance and, in some cases, the expense of bottled water.

2. Restructuring results in safer drinking water. Tell the public about the safer drinking water. Explain the reduction in risk. (See the discussion of risk communication, above.)

3. Restructuring increases the reliability of service. For people who have experienced water leaks or outages, this is especially important. Restructuring can enhance customer service and ensure a dependable supply of water.

Address concerns over political differences or loss of autonomy.

The third step is addressing the concerns over local political differences or loss of autonomy.

1. If these concerns are significant, take steps to address them. Get the local officials to define the problem—to explain what a loss of autonomy means.

   - Is it loss of jobs? Often a guarantee by the acquiring entity to retain personnel will solve the problem.

   - Is it a loss of control over rates? A rate agreement with the acquiring entity may help to ease these concerns.

   - Is it fear of a loss of political control? Sometimes a seat (or seats) on the board of directors of the acquiring entity will assure citizens that their locality will still have a voice in the future of their water system.

2. Make the loss of autonomy more acceptable through grants, loans, and other tangible benefits. Some loss of control is inevitable in a merger or acquisition. The trade-off, however, is clear. Control is exchanged for a better, more professionally managed water system, often at lower cost.

   - If your State has a grant or loan fund, try to persuade the fund directors to offer grants or low-interest loans to the system. These grants or loans should be contingent on successful adoption of the restructuring options being proposed.

   - If the acquiring entity is privately owned, and if the existing water system has any value, there may be a one-time payment for the existing system.

- There are benefits for when a community has a reliable source of safe drinking water. As previously mentioned, some mortgage companies (particularly Federally insured lenders) require proof of a system's compliance with all applicable State and Federal regulations. A viable water supply system therefore can make it easier to buy and sell property. Consequently, homeowners may provide valuable support.

- Restructuring may result in long-term savings for system customers. The new rates, however, must be compared with the rate increases that would have occurred if the restructuring had not taken place. Again, stress that compliance is not optional. In most cases, rates would increase as a result of the 1986 SDWA Amendments. The initial rate may go up, but in the long-term, the increase will be far less than if there had been no restructuring. This argument needs to be refined and carefully communicated to the public by the advocates for restructuring.

Part 4: Role of the Drinking Water Regulator

The drinking water regulator plays an important role in restructing.

The drinking water regulator plays an important role in encouraging restructuring. Generally, the regulator will not act as the "champion," who proposes a restructuring, endorses it, pushes it, and defends it. However, the regulator can assist the champion in a number of ways. By examining the PWSS inventory, for example, the regulator can rank the systems that need restructuring and determine which restructuring options would be most effective. The regulator also can suggest that a feasibility study be conducted and can, in most cases, set the specifications for the study (e.g., determine the most cost-effective way to interconnect system X with system Y). And probably the most important job of the regulator is to aggressively enforce drinking water regulations. When non-viable systems are told that non-compliance is simply not an option, they will be more likely to consider restructuring.

The following are some specific ways that regulators can encourage restructuring.

Look at compliance trends and determine which restructuring options might solve your problems.

Step 1. Analyze the Nature of Compliance Problems to Determine Which Restructuring Options Might Be Effective.

We assume that, as a regulator, you are responsible for some group of water systems in a county, district, or region of your State. You need to look at the systems in your jurisdiction and analyze their problems. Look at compliance trends and ask the following types of questions:

- Are there areas where many systems violate State drinking water regulations?
- Are there clusters of systems with problems?
- What are the most common types of violations?
- What types of violations are of most concern to you? Monitoring and reporting? MCL? Public health or sanitary code violations?
- Is non-compliance higher for ground-water systems or for surface-water systems?
- How many systems are publicly owned? How many are privately owned? Are compliance problems associated with ownership type?
- What percentage of small systems are mobile home parks? What percentage are homeowners associations or cooperatives? Are compliance problems associated with either type of system?

- Are non-compliance problems concentrated in rural areas, or suburban areas?
- What causes non-compliance? Inadequate system design? Inadequate maintenance? A lack of qualified operators?
- Which systems will be most affected by implementation of the SDWA Amendments?

The answers to these questions will, in part, determine which restructuring options are best suited to your area.

Step 2. Use Your Influence to Have a Feasibility Study Conducted.

Help promote and shape a feasibility study.

As discussed in Part 3, a feasibility study may be crucial to the success of restructuring. You can suggest that a feasibility study be conducted and you can help determine what information will be included in the study. Be sure the geographic area covered by the study is broad enough; you will want to look at more than a few systems. You also can work to obtain funding for a study; funds may come from the State, FmHA, or groups such as RCAPs or NRWA.

You will need to consider several factors to determine what type of restructuring would work best in a particular situation. Some of these factors will be examined in a feasibility study. They include:

- Physical condition of the facility,
- Geography,
- Adequacy of supply,
- Technical expertise,
- Grants and Loans[6],
- Availability of contract O&M,
- Availability of systems that might acquire or merge with the problem system,

[6]If fixing the system's problems will require major capital investment, and if grants or loans would facilitate the system's viability, check Federal grant programs and your State grant or loan program (if one exists). Most grant and loan programs fund publicly owned systems. If this is the case in your State, acquisition by a publicly owned system or the formation of a new publicly owned system would enhance the prospects of success. Contract O&M with capital infusion is another option you might explore in this case.

- Prospects for the formation of a new water system, and
- Existence of franchises or exclusive service areas[7].

Be prepared to use enforcement to encourage restructuring.

Step 3. Use Your Enforcement Authority to Promote Restructuring Options.

In general, the authority to promote restructuring is basic to your role as a regulator. You have the authority to make it clear to systems that non-compliance with State and Federal regulations is not an option. You must be willing to use enforcement. The threat of enforcement can be a powerful incentive to the system to consider new ways of doing business. The success of the State depends, in part, on its willingness to enforce against a non-viable system.

Promoting restructuring requires the use of incentives and penalties (often called the "carrot and stick" approach). Incentives could be the benefits of restructuring described in Part 3. An important penalty is the threat of enforcement. This threat has to be made credible by a willingness to use enforcement when necessary.

Types of actions that you can use to persuade the system and its customers of the need to consider a restructuring option include:

- Notices of violation. This is the first step in the formal enforcement process. It should get the attention of the system, and if it is pursued in conjunction with public notification (where applicable), it can also get the attention of the community that is served by the system.

- Fines and penalties. This is the result of any formal enforcement process. They are easier to impose if your State has an administrative penalty authority, but even if authority is not available, there still are ways to impose fines and other penalties. (This should be used only after proper notification and time to correct violations.)

- Other enforcement measures. One enforcement action, commonly used in areas of rapid growth, is a ban on new hook-ups. This mechanism is usually available to all State drinking water personnel. One of the most common weaknesses of non-viable systems is inadequate source of supply. If the source or distribution system is inadequate, it certainly will not support new hook-ups. This measure should not be used unnecessarily

[7]If there is an existing franchise or exclusive service area where the non-viable system operates, the PUC may need to determine if it is necessary to transfer the rights to provide service to the new entity.

to coerce a system; however, once action is taken, promoting restructuring may become easier.

Maintaining enforcement pressure is likely to make a system more willing to consider various restructuring options.

Step 4. If You Need More Authority to Promote Restructuring, Ask for It.

Various types of authority will help you promote restructuring.

There may be types of authority that would be useful to promote certain types of restructuring. Most States, for example, do not have explicit authority to order a merger or acquisition when a system is non-viable. Most States do not have the financial incentives to encourage counties or other sub-State governments to provide satellite management or satellite ownership services. Most States do not have public utility commissions (PUCs) that have established legislation to ensure privately owned water systems an adequate return on their investment if they acquire a non-viable system. (Such legislation should be considered to provide the proper authority.)

Other components of State drinking water programs may help promote restructuring, even though that is not their primary purpose. For example, operator certification regulations that extend to all public water systems will promote the use of contract O&M. Small systems that heretofore did not need a certified operator will suddenly find that they need one. Since they can't afford one full time, they are likely to contract for O&M services. Another example is administrative penalties. Systems that must pay administrative penalties may take enforcement more seriously and may consider restructuring sooner than those that do not face such penalties.

How to get the authority you may need is beyond the scope of this report.[8] Remember, however, that while these types of additional authority may be useful, they are not always necessary. Much can be accomplished while you are waiting for additional authority.

The bottom line here is simple: be creative. Don't assume that you don't have the authority. Many of your counterparts in other States, with no more authority than you, have achieved substantial results for the systems in their jurisdictions. Try it.

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[8]For more information on State authority to promote restructuring, see *Ensuring the Viability of New, Small Drinking Water Systems*, (EPA-570/9-89-004) *Improving the Viability of Existing Small Drinking Water Systems*, (EPA-570/9-90-004).

Promote Restructuring among local officials, citizens, and water systems.

Step 5. Discuss Restructuring with System Owners, Boards of Directors, and Citizens' Groups

As a State regulator, it is appropriate for you to meet with different groups to build support for actions that will improve compliance. This may require that you meet with the owner(s) of the system, boards of directors, town councils, or citizens' groups. Any one of these may be the critical group that will lead the fight for restructuring.

At these meetings, you can discuss the benefits of restructuring. Be sure to emphasize the effects of poor water quality on real estate. Most real estate loans require a review of the status of the water supply as a condition of loan approval. A home that is served by a troubled water system may have to be sold at a reduced price and the purchaser may be restricted in obtaining financing. Discussing this may create enough public support to evoke a change, which could come in the form of restructuring.

The PUC can be a strong ally in promoting restructuring.

Step 6. Work with the PUC to Promote Restructuring.

You should work closely with your State PUC to encourage restructuring. Most PUCs have jurisdiction over investor-owned systems and publicly owned systems serving outside their municipal boundaries. The number of PWSs under PUC jurisdiction varies by State.

PUCs have different methods of convincing systems to restructure. The threat that they will not grant rate relief (i.e., grant petitions for rate increases) and, in some cases, the threat of certificate revocation is their form of "enforcement." PUC audits are a powerful force to drive systems to restructuring, particularly contract O&M.

PUCs also can make mergers or acquisitions more attractive. Privately owned systems might consider this option if they feel they can earn the necessary return on their investment. The PUC should consider an acquisition adjustment or a slightly greater rate of return as an incentive for privately owned water systems to acquire other troubled systems.

Step 7. Implement the Change.

You can be a great help to a system when it comes to implementing the solution.

The final step is implementation. It consists of the standard tasks used in implementing any new facility plan. These include:

- Obtaining the necessary approvals. If any of the systems involved in the restructuring are privately owned, State PUC approval may be required. Also, if construction is required, the State drinking water program will require approval of the engineering plans and specifications.

- Obtaining financing. Restructuring may be facilitated by grants or loans. An important step in the process is investigating all financing sources to minimize the impact on the local ratepayer.

- Helping systems approach funding sources. As a State official, you are more likely to know the procedures for approaching funding sources. If an important funding source is a State grant or loan program, you may be able to influence funding decisions by explaining how restructuring promotes compliance.

- Approving plans and specifications. If part of the restructuring involves engineering changes—e.g., securing a new source, making changes to plant or equipment, and so forth—a plan review is usually required. Facilitating this review will enhance the probability of success for the restructuring.

- Finding sources of technical assistance. The technical assistance providers in your State (such as the NRWA and RCAPs) may be willing to help in the restructuring effort.

- Supporting regional planning activities. As a State official, your presence at community meetings to resolve small system problems will be greatly appreciated and might persuade people that restructuring is an attractive option.

Part 5: Trouble Shooting

Each system is unique. Each State is unique. Given these conditions, this how-to manual must necessarily be general in scope. We cannot anticipate every problem that might arise. Nevertheless, we can consider several issues that have been faced by your counterparts in other States. For each, we will present suggested solutions.

Barrier

Liability Issues. For example, the available O&M service providers fear that they will be held liable for non-compliance if their customers do not implement their recommendations.

Solution

Because tort law is different in each State, liability issues will vary; every case is different. Some O&M service providers have a standard indemnification clause. This clause, when inserted into their contract with all customers, will mitigate or remove the threat of liability. For a sample clause, see Appendix B. O&M service providers who remain concerned about this issue should seek legal counsel.

Barrier

Historical Antagonisms. Tiny Rock has a publicly owned non-viable system. The optimal solution is a hook-up to the publicly owned system in Big Rock. Tiny Rock and Big Rock are historical football rivals. Their teams play each other on Thanksgiving. The towns dislike each other.

Solution

This is not a trivial problem. It can be a substantial barrier. Explore the extent of the dislike. Would each town prefer to spend substantial additional resources just to maintain their independence? If so, is there an alternative for Tiny Rock that does not involve Big Rock? Perhaps Huge Rock could consolidate with Tiny Rock. Huge Rock may not be the best solution, but it may be better than having Tiny Rock remain independent.

Barrier

Fear of Losing Local Control. A community may be interested in restructuring, but fears losing local control. People in the community are reluctant to allow an "outsider" to run their water system.

Solution

Sometimes a system's problem can be corrected by using contract O&M, or other options that do not involve a loss of local control. However, if the restructuring solution would mean some loss of control, you should: convince the community that there is a serious health threat; convince the community that failure to act has costs and that restructuring can result in many tangible benefits; and address the specific concerns related to loss of control (e.g., if the community is worried about a loss of jobs, reassure them that jobs will not be lost).

Barrier

Fear of Development. Some groups prefer to have non-viable water systems. So long as the problems are tolerable—no persistent outages or problems with taste, odor, or color—a non-viable system may prevent additional hook-ups and thus slow development.

Solution

The linkage between infrastructure and development is clear. Restructuring, however, need not involve a massive investment in infrastructure that would encourage development. If a fear of development is paramount, one could develop a solution that would limit source capacity in such a way that the source was adequate for current customers, but not for additional hook-ups.

customers, but not for additional hook-ups.

Barrier

Rate Increases: Public Reaction. A system may be non-viable because its owners or managers kept rates so low that they could not afford necessary improvements or maintenance. In such a case, restructuring may lead to a rate increase.

Solution

Compliance is not optional. The system is in violation of Federal and State regulations. Explain that the system must comply and that the question is how to do so most cost effectively. Then explain the benefits of restructuring. (Usually, it is the least costly option.)

Barrier

Rate Increases: PUC Resistance. If a non-viable system requires substantial investment to make it viable, and if the previous owner was not using full-cost pricing, the privately owned acquiring entity may need a substantial rate increase. Most PUCs have concern over "rate shock"; they are concerned about the magnitude of the increase (i.e., the percentage), rather than the actual size of the water bill.

Solution

This is a complex issue for PUCs. For example, should the existing customers of the acquiring system be forced to subsidize the investment required to fix the acquired system? Drinking water regulators should work with the PUC to find an equitable solution. From the standpoint of the regulator, subsidy by existing customers of the acquiring system may be reasonable and could be encouraged. Alternatively, the PUC might be encouraged to agree with the acquiring entity on a long-term phase-in for large rate increases. Such a phase-in would avoid rate shock while ensuring the acquiring system an adequate revenue stream to fund its debt service for the improvements.

Barrier

Valuation of a System for Acquisition and the Rate Problem. If the acquiring entity is privately owned, its procedures for valuing the assets of an acquired entity are probably regulated by the PUC. For a variety of reasons which are too complicated to discuss here, the acquisition may result in a rate base that will not support the necessary investment in the non-viable acquired system. Alternatively, if the acquiring system is allowed to recover the costs of the necessary capital investments, this may be seen as being inequitable for old or new customers.

Solution

This is a complicated issue. There are many types of solutions. In general, the PUC should be encouraged to enable the acquiring entity to recover the costs of repairing a non-viable, acquired system.[9]

Barrier

Valuation of a System for Acquisition: Paying Too Much. If the acquiring entity is a publicly owned system and the non-viable system is privately owned, most acquiring systems are unwilling to pay high prices to an owner who clearly has shirked his responsibility.

Solution

State drinking water regulators can help to solve the problem. Enforcement pressure on the non-viable system will enhance the bargaining power of the acquiring system.

[9]For more information on the problem and potential solutions see Patrick C. Mann, G. Richard Dreese, and Miriam A. Tucker, *Commission Regulation of Small Water Utilities: Mergers and Acquisitions* (Columbus, Ohio: The National Regulatory Research Institute, October, 1986), pp. 4-9.

Barrier

Resistance from Consulting Engineers. Some consulting engineers are professionally oriented toward structural solutions and may not be familiar with restructuring options. Consequently, they may be inclined to recommend technical solutions involving construction. Also, they may not be paid enough to examine institutional alternatives such as restructuring.

Solution

State drinking water regulators must be aware of this potential problem. Many systems see their consulting engineer as a trusted advisor on a variety of issues. The perspective of the consulting engineer must be explained to the system. In rare cases, you may want to recommend changes in contracting procedures whereby work on a feasibility study renders the consultant ineligible for work on design or construction work, on the grounds of conflict of interest.

Barrier

Bankruptcy. Most State regulators are unfamiliar with bankruptcy proceedings. Nevertheless, the solution to a non-viable system problem may lie in participation in these proceedings.

Solution

Seek assistance from the U.S. Trustee in your jurisdiction. The U.S. Trustee is a Department of Justice official who is responsible for bankruptcy administration. He has a legal obligation to protect the public interest, and there is a clear public interest in creating and maintaining a viable system that will provide safe drinking water. He can explain bankruptcy proceedings to you, and he has standing to petition the bankruptcy court on behalf of the public.

Barrier

Loss of Municipal Revenue. Some towns use the revenues from their water systems for other town services. If the municipally owned system is non-viable, and if the only solution is acquisition by another system, the town will lose the revenue from that system.

Solution

First, if the system is non-viable, the town may be convinced that the system is a headache. In such a case, the loss of revenues is offset by the loss of a problem. Second, if the acquiring system offers to pay for the assets of the non-viable system, there may be a substantial one-time payment to the town, converting a liability into a liquid asset.

Barrier

Fear of Land Use Planning or Annexation by County. Residents served by non-viable systems often are very independent. Their systems are non-viable, in part, because they are opposed to government interference in their affairs. One of the most common forms of acquisition—regionalization by a county or regional government—is an anathema to these people.

Solution

This is a difficult case. First, you can look for alternatives that avoid the threat of regional planning or annexation. For example, you can suggest the combination of two or more small, non-viable systems into a single, larger, viable system. Second, you can point out the enormous cost if a non-viable system tries to go it alone.

In this case, there may be no restructuring. Some citizens are willing to pay a high price for their independence. If they are willing to spend what is necessary to create a viable system, the problem is solved.

Where to Go for Help

References

If you get a start on restructuring and run into problems, you may wish to telephone someone with more experience. What follows is a list of people experienced with restructuring who have agreed to share this experience with you. For general information about restructuring, you should call the EPA Mobilization Manager in the Enforcement & Program Implementation Division of OGWDW, Roger Barnes, at 202-260-4194. Other people to call are:

Mr. Rick Albani
Director of Rates/Engineering
General Waterworks
2004 Renaissance Blvd.
King of Prussia, PA 19406
215-278-6000

Specialty: Contract services for water systems and PUC restructuring efforts in Connecticut.

Mr. Gary Brown
Utilities Director
County of Lake
255 N. Forbes
Lakeport, CA 95453
707-263-2273

Specialty: Restructuring efforts in California, particularly Lake County.

Mr. Dick Coddington
Consultant
4850 Riva Ridge Road
Rapid City, SD 57702
605-348-7905

Specialty: A State regulator's perspective on restructuring.

Mr. Steve Schmidt
Vice President
American Commonwealth
Management Services Company
P.O. Box 460
Hershey, PA 17033
717-531-2721

Specialty: Contract services for water systems and restructuring efforts in Pennsylvania.

Mr. John Squires
Director
Community Resource Group
2705 Chapman Road
Springdale, AR
501-756-2900

Specialty: A technical assistance provider's perspective on restructuring.

Mr. Bill Thatcher
Utilities Director
Utilities Department
212 W. Main St.
Inverness, FL 32650
904-726-2777

Specialty: Restructuring efforts in Florida from a system operator's perspective.

Mr. Steve Walden
Chief, Surveillance and Technical Assistance Branch
Texas DOH
Division of Water Hygiene
1100 West 49th Street
Austin, TX 78756
512-458-7497

Specialty: A State regulator's perspective on restructuring, particularly efforts in Texas.

Risk Communication

One of the issues that arose many times in this manual is risk communication. Several EPA programs have already established a substantial body of literature on this subject. For more information, call the EPA Risk Communication Hotline at 202-260-5606.

Appendix A

Ramifications of Annexation

By Larry Brown

INTRODUCTION

Consolidation is the buzz-word heard throughout the country as the ready answer to compliance and management related problems of rural water systems. This is particularly true of the federally financed, nonprofit rural water systems created to provide water service to rural communities under the Consolidated Farm and Rural Development Act. Due to low population density, expansive infrastructure, current and impending regulation, and diminishing sources of financing, consolidation seems to be the answer to providing a central water system for improving efficiency and economy of water service in rural areas. And while small system mergers typify the consolidation concept, annexation of small systems by municipal corporations might seem to be the ultimate means of centralizing operations to overcome deficiencies in rural water operations. The purpose of this article is to analyze the feasibility and ramifications of municipal annexation of rural water systems.

DEVELOPMENT OF PROBLEMS IN RURAL WATER SYSTEMS

In 1961, Congress authorized the Farmers Home Administration to extend low interest water facilities loans and grants to non-farm rural residents. One purpose of this legislation was to lower the costs per user by establishing a larger customer base per system, thereby further securing federal loans. The primary vehicle for such rural water development was the nonprofit water system which includes member owned associations, corporations and cooperatives. Once such funding was authorized, a proliferation of rural nonprofit, member owned water systems followed.

Although the customer density of these expansive rural systems was generally not conducive to good economy, low interest loans and grants were available to make up the difference. Subdivision of rural lands into housing and commercial/industrial developments further enhanced financial management, making the rural water system a viable means of meeting the service needs of the rural community throughout the 1960's and 70's. Then times began to change. The federal government began to realize the severity of the national budget deficit problem. Federal loan and grant programs for rural development were among those programs targeted for cuts in order to reduce the federal deficit. Consequently, loan and grant allocations were reduced, and loan interest rates were increased for rural community development projects, thereby further reducing the economic feasibility of many rural water systems. These funding problems were compounded by the enactment of the Safe Drinking Water Act Amendments of 1986. These amendments came with the promise of increased regulations certain to impose higher administrative, capital, and operational costs on rural water customers.

Aside from spreading problems on the national level, local issues continue to offer challenges to the integrity of rural water system economics. One of the most significant challenges to rural water systems continues to be municipal encroachment.

ANNEXATION

Annexation is a term used to describe the process by which municipal corporations acquire additional tax base. The process of annexation involves the extension of municipal territorial boundaries into outlying rural areas. Due to economic considerations, municipal corporations usually only annex areas where there is sufficient financial support for services to be provided, i.e. more densely populated residential or commercial/industrial areas. This financial support is generally provided by the additional tax and utility rate base acquired as a result of annexation.

Rural development was greatly stimulated by the provision of water and electricity. And because people living in urban areas have sought a better quality of life, many have moved to the rural areas to escape the hustle and bustle of urban living. Most of the movement into the rural areas occurs adjacent to the urban work centers, creating significant growth and development for rural water systems. This growth provided many rural water systems with improved economies of scale, the same type of growth and development that ultimately attracts municipal annexation. So the conflict exists. Rural water systems have developed higher density service areas proximate to municipal boundaries, thereby enhancing the rural system's economy. Municipal systems recognize these areas proximate to their boundaries as a beneficial supplement to their existing tax and utility customer base. Therefore, municipal encroachment became a potential problem as municipal corporations took prime service areas from rural water systems thereby reversing the systems' efforts to enhance their economic viability.

ENCROACHMENT -vs- TOTAL ACQUISITION

In order to analyze the effects of annexation upon rural water systems we must first recognize that annexation generally occurs in one of two ways. A municipal corporation may take only parts of a rural system through the annexation process or may acquire the entire system by annexation or some other similar control measure. This imparts similar benefits or problems to the rural system as does total annexation. For the purposes of this article, the term used to describe partial annexation is encroachment and total annexation/control is acquisition.

CASE STUDIES

The following examples were selected as a means of demonstrating the effects of:

1) Total acquisition of a rural system by a large municipality as opposed to total annexation;

2) Encroachment of a large municipality on a rural water system where no compensation was provided.

Each of these cases are unique. They do, however, demonstrate the affects of annexation in terms of typical benefits and detriment.

Case Study No. 1

Municipal corporation: population approximately 50,000

Rural water system: approximately 300 connections

Area of contention: total system

Method of valuation: outstanding indebtedness

Results: Due to lack of quality water supplies and extensive costs of supply alternatives, the rural water system sold its system to the municipal corporation.

Analysis: The rural water system's initial alternatives included extensive treatment of existing groundwater sources, participation in a regional wholesale surface water supply corporation, or the sale of its system to the large neighboring municipality. Prior to acquisition, the municipality was not willing to sell water to the rural water system because of the municipality's desire to control growth and development on its boundaries. The rural water system chose to sell its entire system and turn its operation over to the municipality. The advantages gained by the rural system were as follows:

a. The rural system avoided significant delays in obtaining alternative sources or treatment of water.

b. The system gained the benefit of a larger and better qualified personnel resource and maintenance support facility.

c. The system gained the advantage of a large, highly rated financing program, which included low interest rate tax exempt bond packages.

d. The system gained the consistency of supply provided by a stable surface water supply and elevated storage.

e. Although the system is operated independently of the municipal system, rates were immediately stabilized by pooled resources,

such as supply facilities, maintenance facilities, administrative overhead, etc.

Disadvantages of this acquisition were:

a. Loss of control.

b. Uncertainty about long-term stabilization of rates as the system is annexed piecemeal.

If total annexation had occurred in this example instead of the system acquisition, the rural water system customers would have immediately become municipal constituents, gaining representation in the municipal government. However, the rural service area would have also been subject to new facilities standards, requiring provision of fireflow capability.

Annexation would have also made the rural customers subject to municipal taxes. Costs would have increased slightly to all municipal water customers to meet new facility standards with gain of no significant benefit in domestic water service to the rural community. The independent acquisition and operation of this rural water system by the municipality actually provided a tangible benefit to the rural customers who would have been slightly negatively affected by total annexation.

Case Study No. 2

Municipal corporation: population approximately 50,000

Rural water system: approximately 400 connections

Area of contention: 31 connections, densely associated

Methods of valuation: two alternatives offered for system appraisal:

a. First cost method — total original cost of facility in question, plus 10 percent administrative add-on, plus the value of the debt interest paid over the expended life of the facilities in question.

b. Replacement cost method — cost of facility's installation at today's costs of labor and materials, plus 10 percent administrative add-on, minus today's cost of installation depreciated (straight-line method over 40 year useful life) over expended life of existing facilities.

Results: The rural water system accepted Method No. 1 for a cash settlement of approximately $19,000.

Analysis: The system received $19,000 to apply to outstanding debt or use for capital improvements. The system lost a prime, densely populated service area which could not be immediately replaced. The loss of a relatively low maintenance per customer service area raised the average cost of operations and maintenance per customer. The total revenue lost from the 31 connections over the remaining 20 years of FmHA indebtedness was approximately $175,000 assuming no immediate replacement of users in similar service conditions. Future growth potential for the lost service area was not considered in determining lost revenues.

Case Study No. 3

Municipal corporation: population approximately 80,000

Rural water system: approximately 500 connections

Area of contention: 105 connections, densely populated

Methods of valuation: none

Results: The municipality and the rural water system attempted to negotiate a settlement for the loss of 105 rural customers to municipal annexation. Due to local politics and extenuating circumstances, the municipal corporation ultimately took the 105 rural customers without compensating the rural system.

Analysis: Prior to annexation, the 105 customers lost were immediately adjacent to the municipal boundaries. The service area for these 105 customers constituted only 14 percent of the system's distribution facilities and were located such that pumping costs were lower than for the rest of the system. Within this low cost service area, 20 percent of the rural system's customers purchased 25 percent of total water produced by the system. The

effects of this municipal encroachment were as follows:

a. The system's highest density, lowest cost and highest revenue-producing service area was lost. No appreciable reduction in operating costs was realized from loss of facilities.

b. The rate impact on the remaining customers based only on existing lost revenue was $3.75 per month per customer projected over the remaining debt term of 20 years.

c. Future growth revenues for this service area were lost and indeterminable.

d. The rural system spent in excess of $100,000 in legal fees in opposing this annexation.

Because of these kinds of case studies, the rural water industry has gained a more acute sense of the severity of this problem, which ultimately led to clarification and reinforcement of federal statutes protecting federally funded water systems. Such awareness also led to state legislation in Texas which provides for compensating factors in such cases. Because of the significant impact municipal encroachment can have on rural water systems, federal and state statutes are worthy of discussion.

PROHIBITION OF IMPAIRMENT

The Consolidation Farm and Rural Development Act provided for extension of funding to non-farming rural residents in order to improve the economy of rural water systems. Congress also recognized that rural systems would have to make significant investments in facilities as rural areas developed and populated near municipal boundaries. At that time, federal funding through the Farmers Home Administration was the only feasible means of financing such projects. And due to experience with municipal encroachment into service territories of rural electric cooperatives as early as the 1930's, Congress provided a curtailment or limitation of service prohibition clause which protects federally funded rural water systems from competition. The Act provides this protection through 7 U.S.C. 1926 (b) and has been tested in various district courts and upheld through two recent Appellate Court cases, the most significant of which is **City of Madison, Miss. v. Bear Creek Water Association,** 812 F.2d 1057, 1059 (5th Cir. 1987) District No. 2. This federal protection prevents any public body from encroaching on the service territory of a rural system for as long as the rural system is indebted to the federal government.

In 1987 state legislation in Texas was passed which, in the absence of federal protection, provided an administrative process whereby municipalities could annex territory. Non-profit water supply corporations could be adequately compensated for the loss of territory as such loss relates to the impact on the existing indebtedness of the rural utility and its ability to repay its debt. Also considered were:

1. the value of personal property and real property of the rural utility located within the area in question;
2. the impact on future revenues;
3. expenses of the retail public utility;
4. other relevant factors.

Following the Bear Creek decision, the National League of Cities began to seek support for amending federal law to follow language similar to the Texas law as a compromise to the restrictions imposed by 7 U.S.C. 1926 (b).

CONCLUSIONS

Congress recognized the need to provide federal protection against annexation for federally funded non-profit rural water systems. Without this protection, annexation of prime service areas could impair the rural water system's ability to meet its federal debt obligations. Although any small system will generally benefit from association with larger systems, careful consideration must be given to the impact of such an association. Each rural water system maintains an obligation to represent its consumer's interests to ensure that the short and long term effects are beneficial. We may conclude from experience that total annexation or acquisition of small systems by larger municipal systems is usually beneficial. However, partial annexation of prime service areas can be detrimental if the compensation is not adequate to offset all potential losses.

Larry Brown is Program Manager for Texas Rural Water Association.

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Boone County, MO

By Bill Robinson

Boone County, Missouri, is shaped somewhat like the State of Illinois and located in the central part of the state. Columbia, Missouri, is located in the center of Boone County with Interstate 70 dividing the county and running east and west. Boone County is an extremely fast growing area. The population of Boone County is now in excess of 100,000.

Several Small Districts Organized In Boone County

Public Water Supply Districts were first organized in Boone County in the mid 1960's. By 1968 there were nine districts in operation and the tenth Public Water Supply District was in the formation stage. Five of the ten districts border the city limits of Columbia, Missouri. Each water district started out small, usually in the 200 to 300 customer range, and often started operation out of the water district clerk's home or a small office located within another business. This worked for a while, but it soon became more difficult to maintain these offices on a part-time basis. As the water districts grew in numbers of customers, the need for a full time office became evident.

Finding An Alternate Method

The Farmers Home Administration supervisor for Boone County was Charlie Baldwin. He had a desire to see Public Water Supply Districts established throughout the county. Mr. Baldwin soon became aware of the office and management problems facing the water districts and the need to work together to solve these problems. Mr. Baldwin was already working with all the water districts on an individual basis. He brought several of them together to discuss the idea of establishing a central service company office for the water districts of Boone County.

In June of 1968 this concept became a reality. The Boone County Public Water Supply Service, Inc. was formed as a Missouri nonprofit corporation. There were four Public Water Supply Districts that initially joined. The President of each water district became a board member of Boone County Public Water Supply Service, Inc. Mr. Baldwin served as the organization's first treasurer. The purpose of the organization, as stated in the original incorporation papers, is as follows: to provide billing, collection, bookkeeping and other administrative duties. This benefits water districts through the unified management in the reduction of overhead expenses.

How It Works

A manager and an office staff were hired to conduct the day-to-day operations. The manager is responsible to the Board of Directors of the service company. The Board of Directors is composed of the presidents of the participating water districts. The Board of Directors is organized each year and a president, vice-president, secretary, and treasurer are elected. The service company currently provides services to Public Water Supply District No. 2 and Consolidated Public Water Supply District No. 1 (formerly Public Water Supply Districts No. 5, No. 6 and No. 8). There are approximately 5,700 customers being serviced by the service company.

The service company is operated on a nonprofit basis. A monthly customer user fee is established each year to cover the operating expenses. The current monthly operating fee is $1.80 per customer.

In 1986, a multi-user computer system was installed by the service company. Each of the

participating water districts contributed toward the purchase of the computer system on a per user basis. The computer system has improved the efficiency of the service company's operation.

How Has It Worked?

The service company concept has worked well. The participating water districts have been pleased with the arrangement of the cost effective service obtained. There is a staff of four to handle the work load. If each District had to maintain a separate office it is estimated that a minimum of six employees would be required to maintain similar functions.

Each District Maintains Autonomy

Even as the water districts join together for office and business management functions, each district maintains its own autonomy. Each district has its own Board of Directors and operates under separate rules and regulations and bylaws. Public Water Supply District No. 2 (650 customers) uses all contract labor for maintenance and installation work. Consolidated Public Water Supply District No. 1 (5,050 customers) has its own crew to handle repairs and installations.

As far as we know the Boone County Water Service Company, Inc. is the only service company performing a combined service of this kind in the state of Missouri. There is not reason why several small systems could not join together to set up a similar organization in order to have a larger and more efficient operation.

Bill Robinson is the manager of Boone County Water Service Company, Inc. in Columbia, Missouri.

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Texas Style!

By Alton Dockrey

The Lamar County Water Supply District has grown from an original service population of 4,400 people in 1969 to approximately 18,000 today. This growth can be attributed to a combination of population growth in the county and mergers with other water corporations.

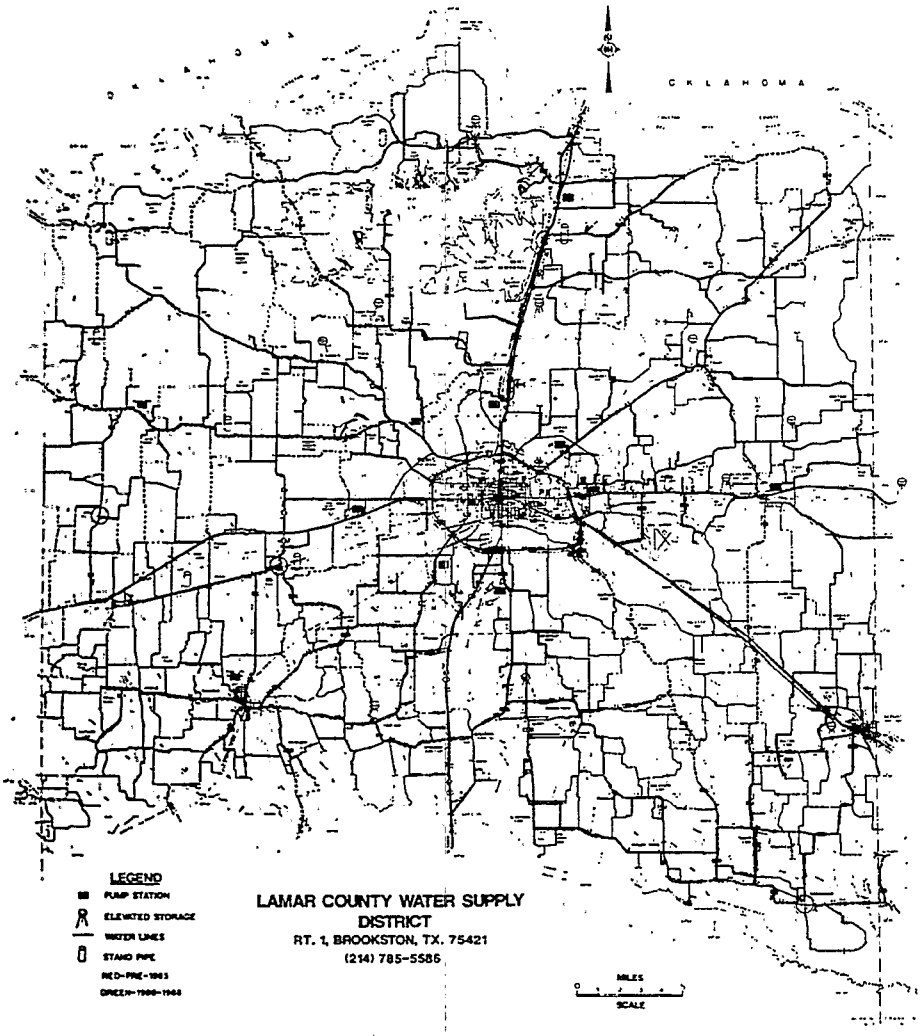
The Lamar County Water Supply system was originally created in 1967 as two separate entities. The "Lamar County Water Supply District" was created to sell wholesale water to existing water systems. The "Lamar County Water Supply Corporation" was created as a not-for-profit corporation to sell retail water to individual customers throughout the rural areas of the county. This dual arrangement was utilized because it maximized the possibilities for grant and loan funding available at that time and in the particular circumstances that existed in Lamar County.

In 1967 there were 10 small water systems operating in Lamar County outside of the city of Paris, Texas. None of these systems had over 300 customers. Several additional rural systems were proposed at that time, which would also have been very small, single community-type systems. It became apparent to County leaders that a proliferation of these small systems would not be the best solution to the County's water needs. The systems were not large enough to support a full-time operator or any type of professional staff and were forced to rely on volunteer help. They also were not financially capable of maintaining the systems or of expanding to serve other areas of the county. Even with all of these systems operating, over 65% of the County's area would have been without water service. Local leaders decided that a master plan and a master system for the county were the answer. Thus, the two systems were created. At that time, the city of Paris provided its own water supply and continues to do so to this day, also acting as supplier for the Lamar County system. There were five small outlying communities in the county which became the initial wholesale purchasers from the Lamar County Water Supply District. Because these cities also offered sewer service and had existing water distribution systems, they continue to this date to operate. At the same time, there were several corporations around the County, six of which were FmHA financed rural water corporations. The six existing corporations were the Petty Water Supply Corporation, the Forest Hill Water Supply Corporation, the Marvin, Jennings and Clardy Water Supply Corporation, the Cunningham Water Supply Corporation, the Pattonville Water Supply Corporation, and the Brookston Water Supply Corporation who became an initial wholesale customer of the District. The other corporations elected to remain totally independent, serving their own existing service areas and utilizing groundwater as their source. Groundwater in Lamar County is limited in quantity and of a less than desirable quality, generally failing to meet several of the Texas Department of Health's secondary drinking water standards.

The initial merger actually occurred with the beginning of the project when the Chicota-Forest Chapel Water Supply Corporation gave up trying to develop a well and redirected their efforts towards the county wide entity. The corporation and district were created, the system was constructed, and was placed on-line in 1969. Because of the size of the overall system in relation to the amount of funding available through FmHA and other sources, construction was done in five phases, during the 1970's and early 1980's. Several years passed with no merger activity.

The next and largest merger occurred in 1984, when the Lamar County Water Supply Corporation was merged into the District. The factors which had initially required two separate entities were no longer present, and it became apparent that a significant reduction could be made in office and overhead costs by merging the two. As with all mergers by the District to date, the District assumed all outstanding corporation liabilities in exchange for all corporation assets.

As the 1980's progressed, the problems associated with running a small system began to compound. In addition to regulatory requirements and environmental regulations, the systems were beginning to age, and repairs were becoming more and more common. Many of the rural customers who had relocated from urban areas were desiring a higher quality of service. In 1986, the Cunningham Water Supply Corporation became the next system to merge



with the Lamar County Water Supply District. The merger was generally prompted by the conditions outlined above and specifically by a desire for a better quality of water.

Later, in 1986, the Brookston Water Supply Corporation became the second system to merge.

In 1987, the Forest Hill Water Supply Corporation merged and in 1988, the Pattonville Water Supply Corporation began to purchase wholesale water from the Lamar County Water Supply District, although it did not merge. Twenty years after the District's formation, only the Marvin, Jennings and Clardy Water Supply Corporation, with about 80 meters, continues to operate independently.

All parties have benefitted from this merger-type growth. Despite the fact that construction projects have been required for some of the mergers, and despite the fact that the District incurred some debt for these expansions, the Lamar County Water Supply District rates are lower than rates for any other similar systems in our area. Each of the merged systems has obtained a quality of water which meets Texas Department of Health standards. They are now operated by a full-time professional staff, on call 24 hours per day. Construction of relief lines and standpipes has improved reliability and quality of service. Finally, they don't have to scramble to find licensed operators and worry about the paperwork required by regulatory agencies.

The creation of the Lamar County Water Supply District has proved to be beneficial to both the corporations who merged and the people these corporations service.

Alton Dockrey is the manager of Lamar County Water Supply District in Brookston, Texas.

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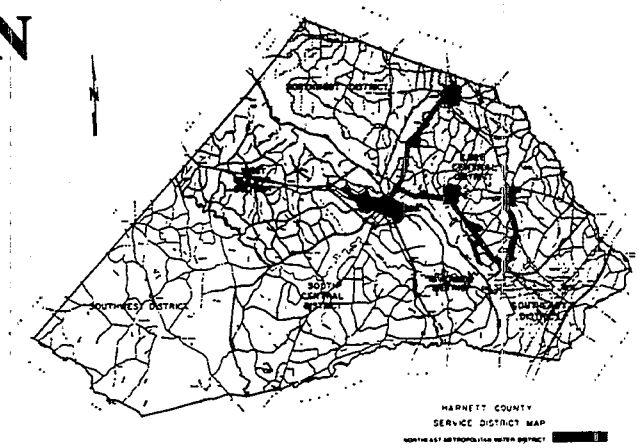
REGIONALIZATION

By Rodney M. Tart



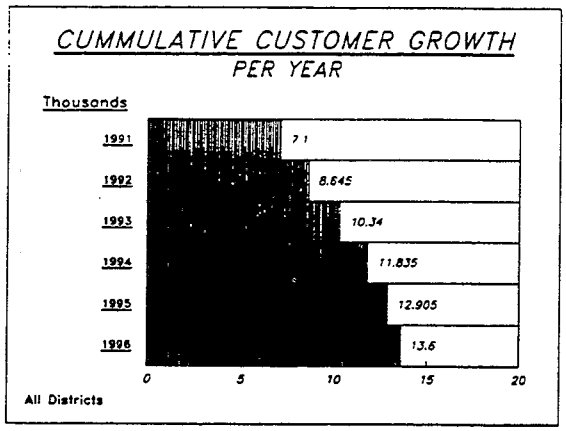
When our forefathers began their vigil of exploring and settling America, they started out living in separate colonies. Geographically, their separation by distance was an attribute to their territorial claim, but also proved to be a barrier in time of need and emergency. Life was simpler then. An important issue in their daily lives was providing the bare essentials for human survival. As time progressed and additional territories were claimed, a sense of interdependence between the colonies became more important.

After our country won final independence from its Mother Country change occurred much more swiftly. And so it was; discovery, inventions, industrial revolution, and modern technology brought man from earthly travel by foot, to supersonic flight into space.

Man has conquered many barriers in his quest for higher learning and understanding, but he has not learned how to produce additional water. He has learned, just as our forefathers, that pollution only lessens this precious resource. With continued pollution water has become endangered both in quantity and quality. Man continues to look for ways to abate water source problems. Just as in the colonial times when interdependence became essential for protection and survival, so have water issues of today become an issue of interdependence. Water rights, impoundments, diversions, and interbasin transfer are all 21st Century "buzz" words in the industry. With the co-operative efforts of local government, along with the assistance of State and Federal financial support, regionalization has created a new vehicle for the provision of drinking water.

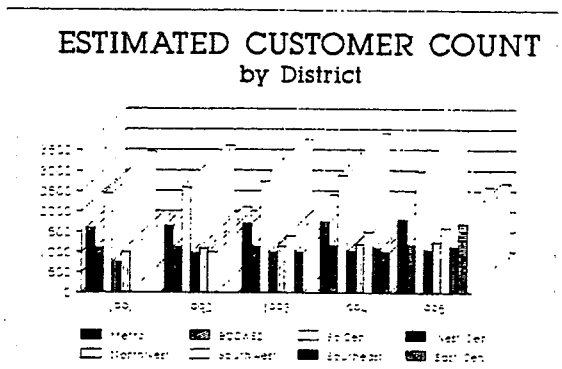
North Carolina has been most supportive to regionalization. In 1972 a state wide bond referendum was held in the amount of $300 million dollars and the citizens approved the first clean water bond issue in history. This funding mechanism provided construction funds in the form of a grant with 25% project eligibility. Many projects were developed that never could have been without this additional revenue source. Subsequent to this bond issue, the State has developed two special grant programs, sales tax levies and currently a revolving loan program. In Harnett County, North Carolina, where I am from, regionalization is the basic concept from which our rural water system began. As a result of a State Statute, the Metropolitan Water District Act gave Harnett County the political vehicle to pursue the development of a rural water system.

In 1975 a county wide bond referendum was defeated simply because only the main areas that were initially being served voted for the issue. Three small towns with less than 500 connections each had voted in favor of the bond. The remaining two larger towns in the county with an aggregate of over 6,500 connections voted against the issue. Other rural areas in the county defeated the bond by only a small margin. The two larger towns were not interested in a county wide regional system because they had no immediate water problems. Failure to pass in the rural areas has attributed to the fact that they would be phased and



immediate service to their areas was not assured in the foreseeable future. In 1976 the Metropolitan Water District Act was implemented through a second bond referendum in the areas where the original service was proposed. It passed by more than a 4 to 1 margin. This was the first regional bond referendum ever passed in our county. This project brought together the three small rural towns and the citizens along the interconnecting corridors which link them together. Construction began in 1977 and was completed and dedicated in January of 1980. This was the beginning of a 10 year process of bringing a county wide rural water system to our area. The second challenge occurred in 1984 when the Metro District expanded its territory through an annexation procedure. After completing the process and passing a $500,000 general obligation bond issue, it was decided that there was a better way to go. Because of the numerous types of funds available, the county wanted to keep control of the system operation and take advantage of those funds. Creating a non-profit association would not allow the correct political vehicle.

Our utility's attorney began researching other political means by which our county could develop subsequent districts. There still was not a county wide commitment for a total regional system. Many who lived in the remote areas ten years after the first referendum felt there would never be water service in their respective areas. There was another statute in our state which provided for the creation of a water and sewer district. This concept made the districts creation move much more rapidly. Our last water district bond referendum will be held during the 1990 May primary. Since April 1976 there has never been



another water or sewer bond issue to fail.

Today, 14 years after the passage of the first bond referendum, we have nine districts created; five are operating, one is under construction, one is under design, and our final district is awaiting bond approval and a loan commitment from FmHA. The first water district serves as a hub for our entire county operation and provides the water source and treatment for the remaining districts.

It took time, fortitude, and perseverance to educate the rural community on a planned program of how our county would develop. Unfortunately for some it took the drought of 1985-86 to prove that their longtime independence would be replaced with a new feeling of interdependence. There is a new sense of pride in our rural county now with the creation of a community water system It has certainly done more to bridge the gap of sectionalism than anything else in our county's history. Through this laborious 14 years of developing Harnett County, it took the salt of the earth type of men and women to make this county wide regional system a reality with the aggressive leadership of our elected officials. Only less that 2% of the remaining population in our county will not have public water by 1995.

And so, it is our quest to continue improving the quality of life for rural Americans. Just as our forefathers enjoyed their independence, there always exists the necessity for interdependence. Developing a regional water system is a true testimony of our mutual interdependence.

Rodney M. Tart is the Director of Harnett County Public Utilities in Lillington, North Carolina.

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Castle Valley

By Darrel V. Leamaster, P.E.

In Utah's Emery County an innovative type of consolidated system has been operating since 1976. The Castle Valley Special Service District was set up under Utah's Special Service District Legislation to provide culinary water, sewer systems, pressurized irrigation water and roads to seven small incorporated communities. These rural towns range in size from 300 to 3,400 people and have a combined population of about 9,000 people.

The towns in this District are located in rough, hilly country on the foothills of the Manti-Lasal Mountain range. The towns are each separated by about 10 miles, and it is about 60 miles from the north to the south end of the District. The water systems in each of these towns are operated and maintained by the regional District. The District operates five surface water treatment plants, two wells, three springs, 120 miles of pipeline and 2,750 connections. The terrain and the distance between towns have created many difficult operational problems for a combined system. However, they have been able to overcome the problems, and have run a consolidated system for the past 13 years.

The initial reason for forming the District was related to growth from energy development in the area. Emery County holds some of the nation's largest low sulfur coal reserves. Energy development of these local coal fields and the construction of two large steam electric generating plants by Utah Power & Light Company resulted in dramatic population increases in the area. The growth and service demands created by the population increase, caused more problems than the towns could handle. The mayors and city councils soon realized that they didn't have the resources available to solve the energy impacts. They joined together with the Utah Power & Light properties to form the Castle Valley Special Service District. This provided the legal mechanism by which the communities could utilize the large tax base of the industry. This industry created the growth problems and the District was the mechanism used to help lessen the impact of the growth and operational concerns in the communities.

The financial resources provided by this Special Service District, allowed them to sell General Obligation Bonds and obtain state and federal grants to upgrade and construct new facilities. They have spent $25 million in capital improvements since 1977.

The District is presided over by an Administrative Control Board of ten members. Each of the seven communities appoints one representative and the other three are appointed at random by the County Commissioners. This Board is the governing authority of the District, setting policy, hiring personnel, establishing budgets, etc.

The benefits to these communities derived from the Special Service District are numerous and varied. It has provided shared management with professional staff, certified operators to operate the plants, combined purchasing, combined equipment usage, additional financial resources (tax revenue), uniformity of services, better planning, and a common forum for the setting of policy and making decisions. In short, it has provided a more efficient and effective system to bring public service to customers.

The District utilizes a centralized management system. The District Manager is a full time, professional engineer, and oversees the day to day operations at all of the systems. He is qualified to assist with many routine tasks faced by the District such as; calculating chemical dosages, trouble shooting instrumentation and control problems, monitoring the Safe Drinking Water Act requirements and planning extensions to the system. The District also has available on a contractual basis; financial consultants, engineering consultants, attorneys and auditors.

The District has been divided into three areas for organization of the work force. Each area has a foreman, who is also a certified operator, and a work crew. They generally work within their own area, but alot of flexibility exists and when an emergency or large work project occurs in one area, crews from the other areas can be brought in to assist. For example, a few years ago a pressure reducing valve failed in the middle of the night and put a pressure surge on the distribution system. The next morning more than 25 leaks were discovered. Crews from other areas in the District were called in to help and within an hour three backhoes and crews were at work repairing leaks.

The plants are staffed by certified operators. These operators may work in two or more plants and they take turns with holiday and weekend coverage to prevent a single operator from being on call or working seven days a week all year long.

One of the main advantages of the District has been its combined use of equipment and facilities. The District has been able to purchase expensive equipment and use it in several towns throughout its area. Some examples are laboratory equipment, road boring equipment, asphalt repair equipment, backhoes, and loaders.

The same shop warehouse facility can be used for two or more towns, and in some cases common treatment systems can be utilized for two or three towns. Rather than each community developing its own water treatment facility, the district can now develop such facilities capable of servicing two or more towns. The cost of purchasing these items is spread over a broader base, and duplication in terms of equipment and facilities is minimized. This has been an efficient way to reduce costs for providing public services.

The purchasing function can also be accomplished more efficiently in the District than in the individual towns. Common supplies such as water meters, pipe and fittings, chlorine and chemicals for the water plants can be purchased in large quantities at reduced costs. Vendors can now deal with one entity instead of seven individual towns. This has also allowed the District to standardize on its purchasing so that interchangeability of parts from one town to another is achieved.

Undoubtedly, the greatest benefit of the District has been financial. The combination of the seven towns and the industrial property into one district has equipped it with the necessary power to issue bonds for capital improvements, and to retire these bonds from collected taxes. Many improvements have been provided that the individual communities could not have afforded. The District has also been able to present unified proposals to State and Federal loaning agencies that have allowed it to obtain grants and low interest loans that otherwise would have been impossible to obtain. The regional taxing district concept has added an additional revenue source to the member communities' rate structures. An operational and maintenance tax has been levied to augment the fee structure and provide a second source of funding. Most of this revenue is used for road and street maintenance, but some is used in the operation of the water and sewer systems.

A common forum or foundation for policy consideration and decision making is now available to each participating town in the district. Information concerning cooperative undertaking can be disseminated to all communities, thereby increasing the likelihood of mutual understanding and cooperation.

In summary, many challenges face small rural water systems in todays world. In many cases these systems can combine into a single cooperative entity and provide a more efficient and effective operation for providing water to the public. The Castle Valley Special Service District in Utah's Emery County has proved that it can be successfully done. They have provided a common management and operational system for seven individual towns. In the process they have found that some of the advantages are: professional management, certified plant operator staff, combined equipment usage, less expensive purchasing, uniformity of services, better planning for future activities and a common forum to disseminate information and make decisions.

Darrel V. Leamaster is the manager of The Castle Valley Special Service District in Castle Dale, Utah.

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Appendix B

Selections from Memorandum of Agreement between a Contract O&M Company and a Water System

Responsibilities

The Contract O&M Company["the Company"] will provide and supervise the services of an operator who possesses a valid Class I certificate of competency issued by the State. The Operator will perform or provide for the performance of water system services as mutually agreed upon and authorized under State Class I Water Distribution certification. Such services are limited to those necessary to consistently satisfy the minimum health standards of the State for community water systems. The services will be provided on a mutually agreed-upon schedule. Additional services may be added to this Agreement from time to time by written consent of the Company, and the System. The owner of the water system will provide guidance and direction to the Operator to the extent necessary for timely decisions and direction on any action, expenditure or work needed to keep the system in compliance with State health standards for community water systems.

The System agrees to take whatever steps are required by federal and State law and regulations to keep the system in compliance with all current and future community water system minimum standards.

The System agrees that the physical plant, assets, liabilities and legal allegations connected with the ownership and operation of the system are its exclusive responsibility and not that of the Company or the operator.

The System acknowledges that insurance coverage desired by the System in connection with this Agreement, including but not limited to errors and omissions coverage, will be the responsibility of the System.

Hold Harmless Agreement

Indemnification. The System will hold harmless and indemnify the Company and its officers, agents, and employees against any claim, liability, or expense incurred by the Company arising out of its work under this agreement, except to the extent that the claim, liability or expense arises out of alleged negligent or intentionally wrongful actions or failures to act of the Company or its officers, agents or employees.