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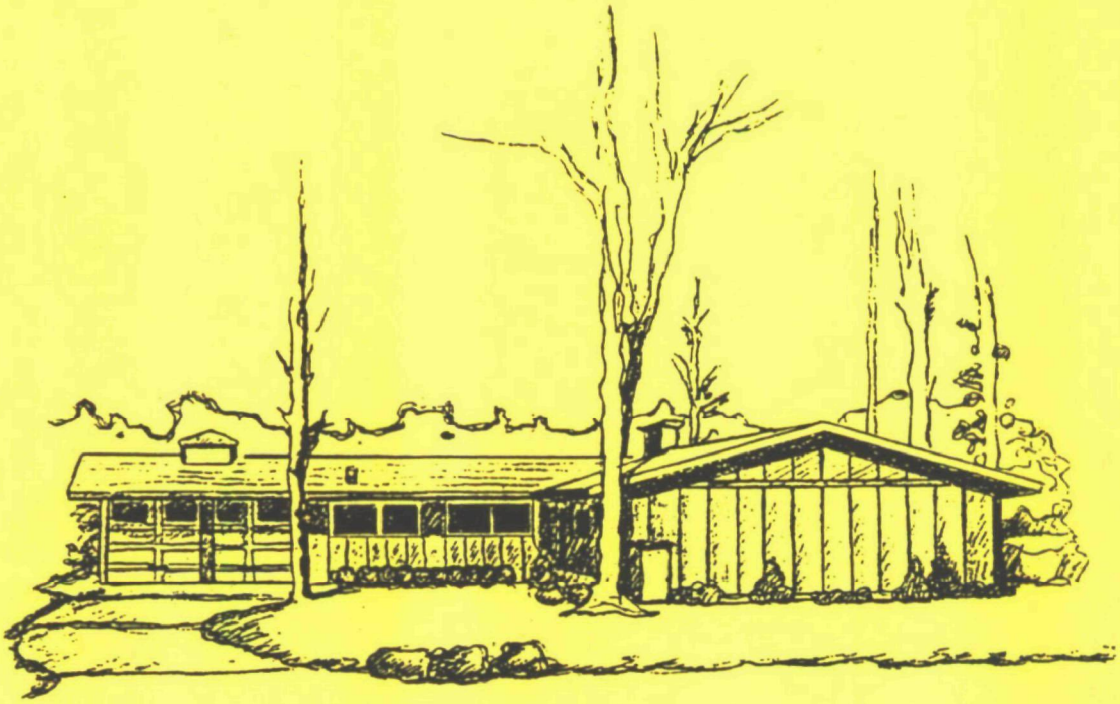
Water System Self-Assessment for Homeowners' Associations



Dear Homeowners' Association President:

You may not think you are a public water system operator. But if you regularly supply water to 15 or more hookups or 25 or more people, that is just what you are.

Many small water systems like yours do not comply with federal and state drinking water regulations. Sometimes associations don't understand the rules or don't know enough about water treatment. Often they can't afford the extra costs involved. If your system is not complying, you may face:

- **fines** from regulatory agencies,
- **lawsuits** from consumers who think their health has been endangered, or
- **financial losses** as a result of poor planning.

Drinking water standards are getting tougher. Depending on your system's particular problems or characteristics, you may have to start doing some or all of these things within the next few years:

- filtering water from surface sources,
- removing heavy metals and organic chemicals,
- monitoring for chemical and microbiological contaminants, and
- controlling corrosion to reduce concentrations of lead and other metals.

The EPA has put together this package to help you understand your financial and managerial problems and get the help you need. Why does EPA care about your system's condition? Because they have found that **only sound systems can provide safe water.**

This package is divided into two parts. A short pamphlet contains questions and worksheets that will let you check whether you need help with planning, financing or operations. A separate booklet, the "Resource Guide for Small Drinking Water Systems," describes organizations and programs that help systems like yours.

This package is for your use only; you don't have to show your answers to anyone outside your system. Even if you think you understand your operation, you should answer the questions and fill out the worksheets. You may be surprised by the results.

Acknowledgements

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The authors wish to thank the many people who assisted them with information and advice, and particularly those who participated in the field test. They are too numerous to name individually, but they constitute a cross-section of the nation's drinking-water community. The organizations with which they are associated include many small drinking water systems, the National Rural Water Association, the American Water Works Association, the Farmers Home Administration, several Rural Community Assistance Programs, the National Regulatory Research Institute, EPA Regional Offices, and State regulatory agencies. In offering their advice they spoke, of course, as individuals and not as official representatives of their organizations. Their help is gratefully acknowledged.

Water System Self-Assessment

for

Homeowners' Associations

Can You Answer These Questions?

- Does your water system comply with federal and state safe drinking water regulations?
- Does the amount you charge for water cover the cost of water system operations and improvements?
- Do you know where and how to get help financing the costs of water system improvements and water quality monitoring?
- Do you know where and how to improve your water system's operations and management?

If you answered "No" to one or more of these questions, you probably need help. This pamphlet can provide it. It is divided into four sections:

A. Planning for Safe Water (page 3)

B. Pricing Your Water (page 5)

C. Getting Financial Help (page 21)

D. Improving Your Operations and Management (page 25)

Some sections contain worksheets to help you gauge your system's financial condition. These worksheets give only a general idea of how your system is doing. They are not a substitute for a careful review of your system's condition by an accountant.

NOTES

A. PLANNING FOR SAFE WATER

1. Do you know where to get free information about public drinking water regulations?

Information on public drinking water regulations is available from Regional EPA offices and state environmental or public health agencies. The attached Resource Guide contains the names and phone numbers of organizations to contact for up-to-date regulatory information.

2. Do you know if the water you distribute meets current federal and state drinking water standards?

If you don't know whether your water meets current standards, ask your state's regulatory officials. They will tell you how to find out. They will also tell you what you need to do to meet the regulations.

If your water already complies with current standards, you need to planning for meeting new requirements of the 1986 Safe Drinking Water Act (SDWA) amendments. Under the upcoming changes, you may see an increase in your operating expenses. Worksheet #1 (page 11) and Worksheet #2 (page 15) will tell you if you will have to raise your water charges or get financial help to meet operating expenses. Worskeet #3 (page 19) will help you prepare a cash flow budget.

If your water does not meet current drinking water standards, call or write your state regulatory office and find out what you must do to comply. (Also, see Question 3 below.) They will help you estimate the costs of needed improvements. Then use Worksheets #1, #2, and #3 to find out whether you need to raise water charges or get financial help.

3. Do you know how to improve your water's quality to meet current standards?

Water treatment is complicated. Sometimes it requires new equipment. Other times it is better to hook up to a new water source. Sometimes changing your operating practices is enough. It may take a trained engineer to tell what treatments will work best or cost least.

Many state drinking water programs employ technicians who can advise small systems like yours on how to improve their water quality. Many of these programs are listed in the accompanying Resource Guide. Often, state personnel will conduct a "sanitary survey" at your request, to spot system problems and suggest solutions. They can also advise you on how to comply with state design and operating standards for water systems.

If your system needs a lot of work, you may have to hire a consulting engineer. Before you sign an agreement with an engineering firm, you may want to check with systems similar to yours that have contracted for similar work. It's a good idea to check the firm's references and make sure it has experience working with small water systems. Also make sure that the firm will consider all possible alternatives, including new water sources and better operating practices, not just new treatment equipment.

You need to make sure that the engineer considers all of the costs involved. For example, treatment equipment will need to be maintained by a qualified operator. Finding a new water supply--such as a new well--requires exploration and testing. Buying water from other systems may require you to build an interconnection line.

The engineer should give you a list of all alternatives for bringing your system up to the standards, and an estimate of each item's cost and on-going operational and maintenance costs. He should also be able to tell you how much the annual payments would be if the improvements were financed by a loan.

4. *Do you keep records of water quality test results?*

By law, results of bacteriological monitoring tests must be saved for five years; monitoring results for other contaminants regulated under the Safe Drinking Water Act must be saved for 10 years. Keeping a notebook of test results will help you determine if water quality has changed. Good records will also let you know whether your treatment practices are working and may be useful if you apply for a variance from the regulations. If you do not know how to interpret your test results, contact your state environmental or public health agency for assistance.

5. *Do your state's environmental or public health agencies or your state homeowners' association (or similar group) give you help or information on water system management?*

These agencies and your state association can give you information on how other homeowners' associations meet drinking water regulations. Many state associations work with environmental agencies on problems of small water systems.

For Further Information See:

Water Utility Management Practices (M5), American Water Works Association, 1980.

Design and Construction of Small Water Systems - A Guide for Managers, American Water Works Association, 1984.

See also your state's minimum standards for design, construction, and operation of small private systems.

B. PRICING YOUR WATER

1. Do you know what your water system's operating expenses are?

You need to find out how much you collect in water charges and what it costs you to take care of day-to-day system operations. To tell whether you need additional funding, use Worksheet #1 to calculate the difference between your system's revenues and expenses. **You might be losing money right now and not even know it.**

2. Are some of your members not paying their bills?

You should not increase rates to make up for association members who regularly do not pay their water bills. If you have members who are not paying their bills, figure out how much money each of them owes. Consider setting up a payment schedule for these members and treating their accounts as delinquent.

3. Do you charge a separate fee for water use?

It will be easier to estimate your system's revenues and expenses if water use fees are separate from other fees that you charge your members. You should also keep your water system's cost records separate from the costs of the rest of your operation. You may find that some state funding programs will not consider your application unless you charge a separate fee for water use.

4. Do you use meters to monitor each member's water use?

Water meters will let you know how much each member uses. Once you have that information, you can set up a rate schedule based on actual water use. Rates based on use may help you increase the amount of money you collect in water charges. You may also find that meters save you money, because they can help you determine if there are leaks in the system.

5. Have your members been able to pay any recent increases in water charges?

Use the worksheets to calculate whether you need to increase rates. If your operating expenses are higher than what you collect in water charges, **Worksheet #1 will help you determine how much to increase rates.** If you are concerned that members cannot afford the amount of increase needed, consider raising the rates gradually--say,

every two years--to give them time to budget for increases. Of course, if your system operates on a cash basis, you may not be able to stretch out receipts from members.

Ask other homeowners' associations in your area how much they charge for water. Your state's drinking water office may be able to refer you to associations that have already faced this issue. When you apply for a rate increase or answer member questions about the rate change, it will help if you know whether your rates are similar to others in the area.

In most states, privately owned water utilities must apply to the Public Utility Commission or Public Service Commission for a rate change. The commission will review your financial condition and ask for information that supports the need for a rate increase. The attached Resource Guide includes addresses and phone numbers for rate reviewing agencies.

For Further Information See:

Managing Water Rates and Finances, American Water Works Association, 1979.

Water Rate: Criteria, Types, Pros, Cons, National Rural Water Association, 1987 (to be revised in 1989).

IS YOUR WATER SYSTEM MAKING OR LOSING MONEY? FIND OUT FOR YOURSELF USING WORKSHEET #1

Instructions for Using Worksheet #1:

Water charges are the main source of revenue for operating and maintaining your system. You should collect enough in water charges to meet your operating expenses. **If you can't meet your expenses, you may need to raise rates or look at ways to reduce operating expenses that won't harm water quality.**

Worksheet #1 is an Income Statement. It calculates income from water system charges and the expenses of running the system. Use information from the past year's financial records to fill out the form. **Use only records relating to your water system, not to other activities of your association.** This Worksheet gives only a rough picture of your system's financial condition; see an accountant for more accurate information.

You should copy this Worksheet (and the others, also) from the manual and work on the copies, not the originals.

I. Operating Revenue:

Water Sales include all money you received for supplying water service, whether you charged at a flat rate or for water actually used.

Fees and Services include all other fees you charge your members.

II. Operating and Maintenance Expenses:

These items are self-explanatory, except for payments to a reserve fund:

Payments to reserve fund are made in order to build up a cash reserve for dealing with extraordinary events. Examples of such events might include repairing serious damage or meeting unforeseen regulatory requirements. A cash account separate from your normal checking account should be set up to accumulate these funds.

III. General and Administrative Expenses:

Most of the items are self-explanatory, but depreciation needs some explanation.

Depreciation refers to the loss in value of property, plant, and equipment over time. The depreciation used in this Income Statement is what accountants call "book" depreciation. It is often different from the depreciation used for calculating your income tax, so don't use your old tax returns as a guide.

If you have *never* included depreciation on your books before, figure your depreciation expense by taking the following steps:

(1) For each building and piece of equipment the system uses:

- Find out (from your records) how much it originally cost, including installation;
- Estimate how many years of useful life it has left; and
- Divide the original cost by the years of useful life left to get the depreciation expense for each item.

Do not include the value of any land in this calculation.

Example: Your system has three items: a pump with attached piping, a pumphouse, and a distribution network. The pump cost $4,000 installed and has 10 years of life left. Its annual depreciation expense is $400. The pumphouse cost $12,000 to build and has 20 years left. Its annual depreciation expense is $600. The distribution system cost $15,000 to install, and has 30 years left. Its depreciation expense is $500.

(2) Add the annual depreciation expenses of all the items to get the total for the year.

Example: For the items in the system described above,

Pump and piping:	$400
Pumphouse:	600
Distribution system:	500
TOTAL depreciation expense:	$1500

If you *have* included book depreciation in the past, follow the same steps but with the following change. For each building and piece of equipment, subtract accumulated depreciation expenses claimed previously from the original installed cost before you divide by the years of life remaining.

IV. Total Operating Expenses:

Add Operating and Maintenance Expenses (total from Section II) and General and Administrative Expenses (total from Section III).

V. Income from Operations:

Subtract Total Operating Expenses (total from Section IV) from Total Operating Revenue (total from Section I).

VI. Other Revenues and Expenses:

Interest Income includes, for example, interest on any deposits that you make in bank accounts.

Interest Expense refers to interest payments on loans or merchant credit accounts. Do not include payments of principal on loans; these should be entered on Worksheet #3.

Miscellaneous Expense includes any expense item not already accounted for. (Again, do not include payment of principal on loans.)

Subtract the expense items from the interest income. Depending on whether income is greater than expenses, you may get a net gain or a net loss.

VII. Net Income:

If Total Other Revenues and Expenses (total from Section VI) shows a net gain, add it to Income from Operations (Section V). If it is a net loss, subtract it from Income from Operations. The result is your net income.

If revenues are less than expenses, your Net Income is negative and you are losing money on your water system. You should consider increasing your water charges to meet your operating expenses. If your Net Income is positive, the water system is operating at a profit.

To keep it as simple as possible, the Worksheet shows Net Income before income taxes. This does not affect the final result about whether your profits are positive or negative.

VIIa. Adjustments to Net Income

The Net Income shown above does not include any expenditures for meeting drinking water standards. If you already meet current standards, this cost will be zero. If you do not meet current standards, you should have a state technical assistance person or a consulting engineer estimate the annual cost of these improvements and use that number here (see Question 3 on page 3). Subtract this amount from Net Income (Item VII) to obtain Adjusted Net Income.

You should consider raising your rates to cover any needed compliance measures as well as current operating expenses.

As new standards are proposed in the future, you should have your engineer estimate their annual costs to you. You can then insert these annual costs in this line to determine their effects on your net income.

NOTES

Worksheet #1

Homeowner's Association Water System
Income Statement

For the year ending _____, 19____

I.	Operating Revenue		
	Water Sales	_____	
	Fees and Services	_____	
	Total Operating Revenue		_____
II.	Operating and Maintenance (O&M) Expenses		
	Salaries, Wages, and Benefits (Operator)	_____	
	Power and Other Utilities	_____	
	Chemicals and Supplies	_____	
	Transportation	_____	
	Repairs/Parts	_____	
	Payments to Reserve Fund	_____	
	Total O&M Expenses		_____
III.	General and Administrative (G&A) Expenses		
	Administrative Salaries and Benefits	_____	
	Office Supplies and Postage	_____	
	Insurance	_____	
	Legal and Accounting	_____	
	Property Taxes	_____	
	Depreciation	_____	
	Total G&A Expenses		_____
IV.	Total Operating Expenses (Total O&M plus Total G&A)		_____
V.	Income from Operations (Op. Revenues minus Op. Expenses)		_____
VI.	Other Revenues and Expenses		
	Interest Income	_____	
	Interest Expense	_____	
	Miscellaneous Expense	_____	
	Total Other Revenues and Expenses		_____
VII.	Net Income		_____
VIIa.	Adjustments to Net Income	_____	
VIIb.	Adjusted Net Income		_____

NOTES

IS YOUR WATER SYSTEM FINANCIALLY VIABLE?
FIND OUT USING WORKSHEET #2

Instructions for Using Worksheet #2:

Worksheet #2 is a Balance Sheet. A Balance Sheet shows the financial standing of your water system. It is used to answer two questions:

1. **Does your system owe more than it owns?** Businesses that have more liabilities than assets often go bankrupt.

2. **Can you afford to replace your plant and equipment when they wear out?**

Banks and government funding agencies will want to know the answers to both of these questions when you ask them for loans.

The Balance Sheet is divided into three categories: Assets, Liabilities, and Net Worth. Using information from your financial records, fill in your Assets (what you own or what you are owed) and your Liabilities (what you owe). The difference is the Net Worth of the system. Balance Sheets are reviewed by loan officers when they make lending decisions and by regulatory agencies when they decide on rate increases.

Some of the items on the Balance Sheet are self-explanatory. Others are explained briefly below.

Assets:

Current Assets are those that are likely to turn into cash within a year. Fixed Assets are long-lived items that are used to produce water (or other goods) for use or sale.

Accounts Receivable are water charges or other bills that you are owed.

Prepaid Expenses include insurance, permit fees, and any other expenses paid in advance.

Plant and Equipment includes the pumping station, distribution pipes, storage tanks, treatment plant, and other buildings and equipment valued at their original installed cost.

Accumulated Depreciation accounts for the reduction in value of plant and equipment over time. If you have never included depreciation on your books before, this number is zero. If you have included book depreciation, this number is the sum of the annual depreciation amounts over all previous years.

Land and Water Rights should be valued at the price originally paid, without any depreciation. Also, do not include any appreciation in their value, even if they are worth much more now than when you paid for them. Banks or other lenders will make their own adjustments to account for such appreciation when you apply for credit. Note that accounting for water rights can be very complex. If these are a major asset of your system, you should consult an accountant familiar with local law and practice.

A Capital Improvements or Reserve Fund should be maintained to cover the cost of equipment replacement, system repairs, and other emergencies.

Liabilities:

Accounts Payable are bills that you have received but not yet paid.

Accrued Payroll and Payroll Taxes are what you owe your employees plus FICA, withholding, and other payroll taxes.

Short-term Debt includes the principal on any loans that must be paid back within one year or less.

Long-term Debt includes the principal of any loans that can be paid back more than one year in the future.

Net Worth:

This is the difference between Assets and Liabilities. **If Assets are less than Liabilities, your Net Worth is negative and your water system may go bankrupt. You should consider raising your rates or trying some of the suggestions in Parts C and D of this pamphlet.** As a last resort, it may be necessary to sell the water system to someone who will be able to operate it more effectively.

If your Assets are greater than your Liabilities, your Net Worth is positive, and the water system is solvent. The larger your Net Worth, the more likely it is that you will be able to get bank or government loans to help with system improvements.

Worksheet #2

Homeowners' Association Water System
Balance Sheet

For the year ending _____, 19____

I. Assets		
Current Assets:		
Cash	_____	
Accounts Receivable	_____	
Materials and Supplies on Hand	_____	
Prepaid Expenses	_____	
Total Current Assets		_____
Fixed Assets		
Plant and Equipment	_____	
less Accumulated Depreciation	(_____)	
Land	_____	
Water Rights	_____	
Total Fixed Assets		_____
Other Assets		
Reserve Fund		_____
Total Assets		_____
II. Liabilities		
Current Liabilities		
Accounts Payable	_____	
Accrued Payroll & Payroll Taxes	_____	
Accrued Fines or Penalties	_____	
Short-term Debt	_____	
Total Current Liabilities		_____
Long-term Debt		_____
Total Liabilities		_____
III. Net Worth		
Total Assets minus Total Liabilities		_____

NOTES

WILL YOUR SYSTEM HAVE ENOUGH CASH TO OPERATE?
FIND OUT USING WORKSHEET #3

Instructions for using Worksheet #3:

Worksheet #3 is a Cash Flow Budget. A Cash Flow Budget tells you when you will need extra cash and how much you will need.

To do a Cash Flow Budget, start with the Cash Balance on the first day of the current month. ("Cash" means the contents of all checking accounts, savings accounts, and cashboxes.) Then estimate all cash receipts and payments for the month. Combine them to get the Total Cash Generated (net gain) or Used (net loss) in the month. Then add the gain to (or subtract the loss from) the Beginning Balance to get the ending Balance for the month. This Ending Balance then becomes the Beginning Balance for the next month, and the whole process repeats. It is a good idea to do a Cash Flow Budget for several years into the future.

If the Ending Balance for any future month is negative, you will not have enough cash to operate in that month. There are several ways to address this problem. You can step up collections in earlier months to build up cash. You can ask your vendors to let you delay payments to months when cash will be more available. You may take a short-term loan, as long as the budget shows you will be able to pay it back (with interest). If the budget shows that you will usually be short of cash, however, you should raise your water charges to compensate.

The Cash Flow Budget counts all cash transactions. The terms in Worksheet #3 are defined just as they were in Worksheet #1, except that General & Administrative Expenses must not include depreciation, because that is not a cash transaction.

In the example below, the system operator plans to pay $2,500 for a new piece of equipment in April, which would drive the system's cash balance negative by $1,066. The operator may want to take a short-term loan for $1,500, so as not to draw cash completely down to zero in April. The proceeds from this loan would be entered in April under "New Borrowings". Each future month's principal repayment would be entered under "Payments of Debt Principal". Interest payments would be subtracted from "Net Cash from Other Revenues and Expenses". Note that the Ending Balance at the bottom of each month's column is entered as the Beginning Balance at the top of the next month's column.

Monthly Cash Flow Budget: EXAMPLE

	March	April	May	June
Beginning Cash Balance	1,082	1,298	(1,066)	(375)
Collections from Water Sales, etc.	988	801	1,025	
Payments for O&M and G&A Expenses	(841)	(498)	(525)	( )
Net Cash from Other Revenues and Expense	128	(87)	208	
Payments of Debt Principal	(122)	(122)	(122)	( )
Payments for Capital Assets	(0)	(2,500)	(0)	( )
Other Balance Sheet Cash (prepaid expenses, customers' deposits, payments to reserve funds)	63	42	105	
Total Cash Generated or (Used) for Month	216	(2,364)	691	
New Borrowings	0	0	0	
Ending Cash Balance	1,298	(1,066)	(375)	

Worksheet #3

Homeowner's Association Water System

Monthly Cash Flow Budget

For the year beginning _____, 19___

	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
Beginning Cash Balance												
Collections from Water Sales, etc.												
Payments for O&M and G&A Expenses	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )
Net Cash from Other Revenues and Expenses												
Payments of Debt Principal	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )
Payments for Capital Assets	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )
Other Balance Sheet Cash (Prepaid expenses, customer's deposits)												
Total Cash Generated (Used) for Month												
Net Borrowings												
Ending Cash Balance												

NOTES

C. GETTING FINANCIAL HELP

1. Do you know how much it will cost to make necessary water system improvements?

Determine how much it will cost to meet current drinking water standards. Estimate the cost by contacting similar water systems and state technical assistance staff, or by hiring a consulting engineer (see Question 3 on page 3).

Find out which activities must be done first. You may find that work needed to meet the regulations cannot be done before you have upgraded the water system. Get help from regulators or technical assistance programs to develop a priority list for system improvements.

2. Can you raise the money you need from your members?

As a first step, see whether your members can afford a one-time assessment to raise the funds needed for system improvements.

3. Do you know that you may be able to get financial help from government agencies?

Systems such as yours maybe eligible for funding assistance from some government programs.

Small Business Administration. The SBA provides two types of loan assistance to small businesses. It guarantees loans made by local banks, thus providing a reduced interest rate to the borrower. It also provides direct loans to businesses that are unable to get an SBA-guaranteed loan through a bank. Funds for direct loans are limited, and are often available only to firms owned by or serving disadvantaged groups.

Community Development Block Grants. These grants, which are given by the U.S. Department of Housing and Urban Development, must be applied for and administered by the town in which your system is located. The funds, however, may be used to make improvements in private water systems.

Farmers Home Administration. FmHA gives grants and loans to nonprofit corporations that cannot obtain funds from other sources at reasonable rates. If your association is a nonprofit corporation, you can apply for assistance. Funds can be used for system improvements and expansion.

More details of these programs are given in the accompanying Resource Guide.

Banks and government funding agencies usually provide money for "hardware costs" such as treatment facilities, distribution lines, and water source development. Other costs, such as operation, maintenance, and water quality monitoring, must be paid for out of water charges. Remember that if you get a loan, you may have to increase water charges to meet the loan payments.

Before you apply for funding, find out what each source will pay for and what information they will need to consider your application. Most lending and granting agencies will want to see financial statements similar to the three Worksheets in this manual.

4. Do you know what lenders will look for?

Banks and government lending agencies will look at:

- Your repayment ability (your assets and water charges)
- Your "creditworthiness" (your balance sheet and the current value of your assets)
- Your credit history (your record of loan repayment and current debt)

Banks and other private lenders will look at ratios of various items on your system's financial statements. Two of the most important of these are:

Pretax interest coverage. This measures your system's ability to meet its debt costs. It is calculated by adding Depreciation (next to last line in Item III of Worksheet #1) to Income from Operations (Item V in Worksheet #1) and dividing the sum by Interest Expense (second line in Item VI of Worksheet #1). The resulting value should be at least 1.3.

Return on equity. This measures your system's basic profitability. It is computed by subtracting federal and state taxes (not shown on the Worksheets) from Net Income (Item VII on Worksheet #1) and dividing the result by Net Worth (Item III on Worksheet #2). Two percent is generally considered an acceptable minimum for small water systems.

It is a good idea to calculate these ratios for yourself, as a general index of whether your system is in good financial health. In addition to your system's finances, private lending and granting institutions may also consider your Association as a whole, including the personal finances of your members.

Government loan and grant programs may look for other indicators of creditworthiness. The Farmers' Home Administration (FmHA), for example, considers the effect that its grants and loans will have on the water rate, and compares the rate with those of nearby systems.

5. *Is your system regulated by your state's Public Utility Commission?*

Some states may require small privately owned water systems, such as yours, to notify the State Public Utility Commission when applying for a loan. Check with your state's environmental or public health agency to find out if this applies to you. If it does, the Commission will review your financial records to determine whether your current water charges can cover loan payments or a rate increase is needed. Bank officers are often in communication with the PUC. If you have applied for a rate increase to cover loan payments, the bank may approve your loan based on the expected change in rates.

For Further Information See:

Barry R. Sagraves, John H. Peterson, and Paul C. Williams, *Financing Strategies for Small Systems*, AWWA Journal, August 1988, pp. 40-43.

Water Utility Capital Financing, American Water Works Association, Manual M29, First Edition, 1988.

Also consult your state's PUC or PSC rules and regulations for small private water systems.

NOTES

D. IMPROVING YOUR OPERATIONS AND MANAGEMENT

Operations, maintenance, and management of water systems are complex topics. This section covers only a few ideas you may wish to consider. For more detailed information, see the sources cited below.

1. Do you have accurate system maps and records ?

Get your water system records together: a map of the system, *including distribution mains, service connections, valves, and shut-offs*; equipment records (including the names and phone numbers of equipment manufacturers); records of repairs and replacements; and financial books. Set up a filing system for these items. Being able to reach them when you need them will help you plan your system's improvements and apply for the funding you need. If no records exist, you may wish to hire a consulting engineer to conduct a survey of the system.

2. Do you know whether your system is losing water?

If your system has meters at the members' locations, you should compare the gallons billed with the gallons pumped. This will tell you if you have water leaks. Besides wasting water, leaks can damage pipes and nearby structures. Industry groups such as the American Water Works Association and the National Rural Water Association have developed booklets and training courses on how to find and fix water leaks. In addition, the Rural Community Assistance Programs (RCAPs) have sophisticated water audit programs to assist you in finding leaks.

If your system does not have individual meters, you should consider installing them. In the meantime, have an engineer survey your system for leaks.

3. Do you follow a regular timetable for maintenance, repair, and replacement of equipment and pipe?

Set up a schedule for regular maintenance to prevent problems before they occur. Review your repair schedule and find out which repairs and replacements need to be done now.

It is important that your schedule include all the activities that are part of taking care of your water system. As you think about what needs to be done to meet drinking water regulations, you need to consider how the regulations will affect your operations and management responsibilities. If you have an operator, you should discuss with him how the regulations will affect his work.

4. *Is the operator of your system properly trained and/or certified?*

Find out about the different levels of operator training and certification. Make sure that the person in charge of your system is qualified. If you have to upgrade or install new treatment equipment, find out what operator certification is required to run and maintain that equipment, and when training for certification will be available.

5. *Is your operator qualified to handle new treatments that might be required in the future?*

You or your system operator must understand what current and future state and federal drinking water regulations require. Talking with state officials or attending workshops on new procedures or programs is a good way to learn about upcoming drinking water regulations.

6. *Do you discuss your water system's needs with other homeowners' associations?*

You should see if you can share maintenance expenses with other homeowners' associations. It might be possible to share equipment or staff. Talk to other associations about your operating and maintenance needs and see if they might want to cooperate.

You can set up a water management authority with one or more water systems. This authority would then be responsible for the operations and management of all of the member systems. This can be done by incorporating an association or authority, or by selling your system to a larger water system with more staff and financial resources. You should consider this option if you find it hard to afford the time and money involved in water system management. Talk to your state drinking water office about it.

Many private and public organizations put on training programs for water system operators. Contact your state drinking water office or local chapter of the American Water Works Association or the state Rural Water Association for information on training programs in your area.

7. *Do you take monthly water samples to test for bacteriological contamination?*

All public water systems are required to test monthly for bacteriological contamination. You should make sure that one person is responsible for taking samples and having them tested by a certified laboratory. If you have had problems with bacteriological contamination, be sure that the person taking samples has been trained in water quality monitoring. Call a water testing laboratory or your state regulatory office to find out how and where to take water samples.

8. *Do you share physical plant, staff, or other items with other systems to reduce costs?*

You may be able to share costs and staff with another water system. You should look at the cost of purchasing water from another system, sharing the cost of a treatment plant operator, or sharing equipment to reduce repair and maintenance costs. Review your needs and talk with other system managers. Working with another system may be less expensive than improving your own system.

For Further Information See:

Basic Management Principles for Small Water Systems, American Water Works Association, Data Processing Department, 1982.

Decision Makers Guide in Water Supply Management, U.S. EPA, Office of Drinking Water, EPA Number 570/9-80-003.

Regionalization Options for Small Water Systems, U.S. EPA, Office of Drinking Water.

Water and Revenue Losses: Unaccounted for Water, American Water Works Association, 1987.

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