

# Water Sense

Fall 1995  
Volume 1, Issue 4

## Rate Review Critical for System Finances

by P.J. Cameon  
NDWC Staff Writer

*Editor's note: This article is the second in a series dealing with water rates for small community systems.*

*In this article, we look at the objectives of a rate review, what data are needed to calculate rates, the basic steps involved, and what assistance is available to help communities review rates.*

*A related article on pages 10-11 discusses computer rate-setting programs.*

The task of raising drinking water rates is not one that a system manager or town official savors. However, setting new rates should be considered about once a year to maintain the system's financial health.

This doesn't mean that rates need to be increased annually. It simply means that a detailed review of a system's rates and other financial information should be conducted frequently to respond to changes in inflation and other factors that influence rates.

## Self-Help Brings Water, Saves Money

by Laurie Klappauf  
Water Sense Editor

Many people take clean, safe drinking water for granted. Not the North Carolina neighborhood of Larkspur Acres, where residents spent much of this year laying pipe, negotiating material prices, and even selling barbecued chicken to bring safe drinking water to their taps.

Their self-help effort enabled the 55-home community to build a

water distribution system for about \$61,000—approximately half the originally estimated cost.

Led by local neighborhood "sparkplug" Janice Pettiford, the project was guided by representatives of the Rensselaerville Institute's Small Towns Environment Program (STEP). STEP is a state-based program that enables small communities to solve their water and wastewater problems with mostly local resources.

The project enriched the neighborhood in unexpected ways as well.

"We knew each other by face, but didn't know each other's abilities or expertise," says Pettiford. "By working together, we found a lot of resources and good neighbors at the same time."

### Water Blamed for Health Problems

Concerns about the brownish-yellow, bacteria-laden water coming from Larkspur Acres wells had been increasing over the years. Residents

*Continued on page 14*

*This issue features the second in a series of articles on drinking water rates.*



*Residents of Larkspur Acres, North Carolina, finish installing a water main in their neighborhood. Their self-help effort enabled the community to affordably bring safe drinking water to their homes.*





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## Water Sense

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### National Drinking Water Clearinghouse

The National Drinking Water Clearinghouse (NDWC) assists small communities by collecting, developing, and providing timely information relevant to drinking water issues. Established in 1991, the NDWC is funded by the Rural Utilities Service and is located at West Virginia University.

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## In this Issue . . .

Staff writer P.J. Cameon continues his series of articles on drinking water rates. An important lesson he shares is that reviewing rates should be a regular practice, performed every year or so.

But this should not be thought of as strictly another "financial" activity. On the contrary, it's a crucial planning and management function that helps ensure a system can affordably and adequately provide safe drinking water to customers—now and in the future.

And that future continues to look uncertain. On pages 12 and 13, we discuss recent trends in federal infrastructure spending (it's going down) and government spending on state drinking water programs (there's more reliance on state fees and taxes).

Given this uncertainty, it's important that communities look for innovative ways to ensure a long-term supply of safe drinking water. This process can begin with some fundamental

questions. Are customers paying for the true cost of their water? Is the system running efficiently? Could several systems share operators, supplies, or otherwise combine some of their operations?

Communities might also ask if they're making the most of their own resources. Some communities are solving their drinking water problems by taking over many of the tasks long considered the domain of consultants, government officials, and engineers. One such neighborhood is featured in our cover story about self-help.

To help you seek out your own solutions, we've continued to sprinkle resources throughout the newsletter. As always, we'd like to hear from you. Please contact us with any questions, feedback, or issues you would like to see addressed.

Laurie Klappauf  
Water Sense Editor

## NETA Training Scholarships Announced

The National Environmental Training Association (NETA) is offering two scholarships for 1996:

- The Joseph Hammond Memorial Scholarship will award approximately \$4,000 to support environmental education for children, such as course development for young people, development of books and teaching materials, study of environmental education methods, and support for primary or secondary teachers to obtain environmental education credentials. Applicants need not be members of NETA.
- The NETA Memorial Scholarship will offer one or more awards of \$500 to \$1,000 for

NETA members to attend educational and technical seminars, instructional technology workshops, or similar programs that help environmental trainers improve skills or programs.

Letters of application must be postmarked by December 31, 1995. To request a copy of the application guidelines, send a fax to NETA at (602) 956-6399.

NETA is an international educational and professional association of specialists who design, deliver, and manage training in environmental, safety and health specialties. \$

## RUS Interest Rates Increase Slightly

Two of the three interest rates for Rural Utility Service (RUS) water and waste disposal loans have increased for the first quarter of Fiscal Year 1996. One rate remained unchanged from the previous quarter.

RUS issues loans at one of three interest rates, based on community qualification criteria. The rates are adjusted quarterly. The new rates are effective October 1, 1995, through December 31, 1995.

These rates are:

- *poverty line* rate: 4.500 (unchanged from last quarter);

- *intermediate* rate: 5.250 percent (up .125 from last quarter);
- *market* rate: 6.000 percent (up .250 from last quarter).

RUS loans are administered through local or state Rural Economic and Community Development (RECD) offices. These were formerly known as Farmers Home Administration offices. Local RECD offices can provide specific information concerning RUS loans and applications.

For the number of your state RECD office, call the National Drinking Water Clearinghouse at (800) 624-8301. \$



## EPA Program Can Help Reimburse Emergency Response Expenses

It's a small community official's nightmare. A tractor-trailer overturns on a nearby bridge, spilling unknown substances into the creek that serves as part of your drinking water supply.

Like any responsible community leader, you react immediately to contain the spill, test to identify the substance, fence off the contaminated area, and haul in fresh drinking water until the crisis is over. These and other emergency steps will help protect the public health and environment. But the cost may exceed your emergency response budget. How do you pay for this?

The U.S. Environmental Protection Agency (EPA) has a funding program that may be able to help. EPA's Local Governments Reimbursement (LGR) program can repay local governments up to \$25,000 per incident for the costs of responding to a release, or threatened release, of hazardous substances.

"The program is designed to serve as a 'safety net' for those local governments that do not have adequate funds available for emergency response activities," says Lisa Boynton, LGR program manager.

Available to local governments of all sizes, the program can reimburse costs of responding to a variety of potentially hazardous incidents, ranging from chemical fires to the detection of dangerous contaminants in a public well system.

Temporary emergency measures that may be eligible for reimbursement include testing spilled substances for hazardous chemicals, trucking in clean water while alternative sources are sought, or controlling runoff that would contaminate drinking water sources, says Boynton. Expenses that would *not* qualify include long-term remediation activities, such as installation of new water lines or ongoing sampling and analysis programs.

### Local Governments Encouraged To Call

If in doubt about eligibility, local governments should submit an LGR application, says Boynton. "We look at everything on a case-by-case basis.

"We're here," stresses Boynton, "and we can help people through the process over the phone." She also encourages local officials to get an application and become familiar with it, so "when something happens, you know what to do."

Eligibility requirements for the LGR program (see box at right) are not as difficult as some people fear, adds Boynton. For instance, checking to see if you're covered by insurance is "just one call," she notes.

Another requirement is that local governments

be covered by a local emergency planning process under SARA Title III (part of the 1986 Superfund law). Again, says Boynton, this should not be a problem for most communities since all 50 states have established emergency response committees who set up local emergency planning committees (LEPCs) in most parts of the state. If you're unsure whether your community is covered by an LEPC, contact the Superfund hotline at (800) 424-9346.

Local governments must report the incident within 24 hours of initiating a response (see box below). They then have a full year after the incident to submit a completed LGR application.

*For more information about the program, or to request an application, call the LGR HelpLine at (800) 431-9209. \$*

## Basic Requirements of EPA's Local Governments Reimbursement Program

- Participation is limited to any general purpose unit of local governments and federally recognized Indian tribes.
- Reimbursement applies only to temporary emergency response activities, not long-term remedial actions.
- Only hazardous substance incidents are reimbursable; petroleum release incidents cannot be reimbursed unless hazardous substances are also involved.
- Local governments must notify EPA or the National Response Center (1-800-424-8802) within 24 hours of initiating a response to an incident.
- Local governments must demonstrate in their applications that:
  - Sufficient emergency response funds have not been budgeted;
  - State reimbursement funds are unavailable;
  - Insurance does not cover the incident; and
  - Attempts have been made to recover costs from the party responsible for the incident (if known).
- Local governments must be participants in the local emergency planning process under SARA Title III.
- Local governments must submit their applications within one year after completing an emergency response. \$



## Rate Review Critical for System Finances

*Continued from page 1*

instance, are different from the costs involved with serving a local grocery store or car wash. The customers' bills should be proportional to the system's cost of providing them with service.

Additionally, rate structures should be simple to understand. If customers can understand rates, they may be more inclined to accept them.

### Frequent Reviews Are Necessary

Establishing a rate system that addresses each of the goals listed above is a great accomplishment for a water system manager. But even as rates are set, the factors that affect rates—such as regulations and customer base—continue to change.

Because of these changes, rates set for a small system are often good for only one year or a few years at most, according to Michael Siegel, an independent public finance consultant based in Washington, D.C. The system's rate income begins to "degrade," or provide less of a match to system expenses.

"Things change," Siegel said. "However, a lot of systems may set rates and not review them on a frequent basis."

Siegel further stated that a small system in a stable environment might possibly get by for several years with the same rates. Problems are often encountered when systems arbitrarily have no rate increase for several years or increase rates arbitrarily without an understanding of the importance of a rate review. Under such arrangements, Siegel warned, a system probably isn't giving enough consideration to maintenance and subtle changes in consumption and customer profiles.

### Who should conduct the review?

Management and budget experience, along with a public perception of impartiality, are two important considerations when conducting a rate study, according to Haywood Martin, manager of the Water Utilities Technical Program at New Mexico State University, Doña Ana Branch.

Martin recommends that a rate review for a public water system be conducted by a committee. A good committee would be composed of the town clerk (who would provide the needed data), a volunteer professional from the community (who would provide budgeting or financial expertise), and a member of the town council (who would address local political and social concerns).

The rate committee would set up the goals of the pending review and analyze the rate structure to which the new rates would be applied. (Rate structures and some common examples—flat rate, descending block, and unit block—were discussed in the previous issue of *Water Sense*.) At this point,

any social concerns would also be addressed, such as the impact higher rates would have on senior citizens or low-income residents.

Once these issues are discussed and some consensus is reached, the committee could proceed with the actual study or hire an outside consultant or accountant to provide guidance or actually do the work.

### Gathering Data for a Rate Study

The information needed for a rate study varies according to the type of rate structure and customer categories a system uses. Some systems may divide customers into categories, such as residential, industrial, commercial, agricultural, and institutional, while others do not use categories and charge all customers the same rates.

Information generally needed for a rate review includes:

- system expenditures (which includes operating expenses and other "variable costs," as well as debt requirements and other "fixed" costs);
- system revenue (primarily income from monthly water bills);
- the total number of service connections and a breakdown of connections in each customer category (if the system has categories);
- annual amount of water produced;
- annual metered sales (divided by customer categories, if system has categories);
- fund balances (balances of all savings accounts and reserve funds); and
- prioritized listing and estimated costs of future major maintenance projects and proposed capital improvement projects. (*This point is discussed in more detail on page 8.*)

This information can be drawn from a variety of sources, such as the system's current budget and the budgets for the previous five years. Census data showing community income statistics can also be useful, as can engineering documents showing the age and condition of system capital.

For a smaller system—depending on how well records are kept—it should take a week or so to gather the information necessary for a rate review and another week or so to conduct a rate study, according to Martin. If the committee's lead member is able to spend most of his or her time on the rate review, the entire process might be completed in less than a week.

### Calculations Depend on the Rate Structure

There are two common approaches small drinking water systems might use in determining water rates. One is for systems that separate  
*Continued on next page*

"Things change.

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Michael Siegel,  
Public Finance  
Consultant

*Continued from previous page*

customers into categories, and one is for systems that don't identify customer categories.

In small systems with fewer than 500 or so customers, the objective may be simply to determine costs and divide them relatively evenly among customers. In larger systems with more diverse customer categories, more effort may be made to allocate costs to the various categories. Rates would then be set based on the costs assigned to each customer category.

It is important that various customer categories pay their fair share of a system's costs, according to Martin, but he suggested that very small systems with only a few hundred hookups may want to keep their billing simplified and use only one category for all customers.

Rate setting is similar with both approaches, although it is less complicated in systems that don't use customer categories.

### **Without Customer Categories**

The first step to determining new water rates in systems without customer categories is to divide system expenses into fixed costs and variable costs. (*See the chart below.*)

Fixed costs are those that remain constant, regardless of how much water is produced. An example of a fixed cost is any insurance a system maintains on its physical plant. Variable costs are those that increase as water production increases. Examples of variable costs are expenditures for water treatment chemicals and the cost of electricity to run water pumps.

Costs can also be broken into "customer" and "commodity" costs, instead of fixed and variable costs. The two sets of terms have similar meanings.

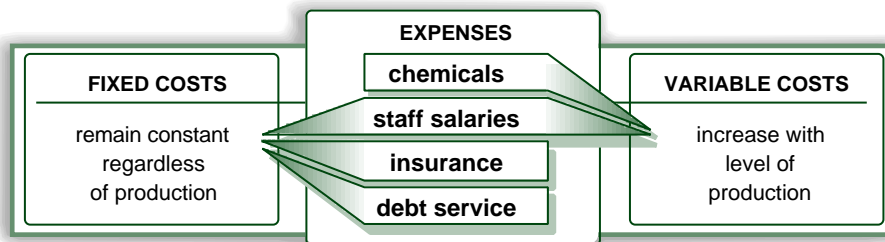
Once total fixed costs are established, divide that figure by the number of customers to establish an annual base rate for each customer. Divide that

*Continued on page 6*

## Basic Rate Setting

If all customers of a small water system pay the same rate for consumption and all are properly metered, setting water rates can be accomplished with three basic steps. For systems that separate customers into rate categories (residential, commercial, industrial), refer to the chart on page 6.

- 1) Split system's annual expenses into fixed costs and variable costs. (Some expenses should be divided between both fixed and variable costs.)



- 2) Divide fixed costs by the number of customer hookups to form the annual base rate, which every customer pays. Divide by 12 for the monthly base fee.

$$\frac{\text{fixed costs}}{\text{number of hookups}} = \text{annual base rate} \quad \text{annual base rate} \div 12 = \text{monthly base fee}$$

- 3) Divide annual variable costs by amount of water sold (in 1,000-gallon units) in a year to find the block rate for water. (This example shows how to calculate the flat or single block rate. Slightly different calculations are needed for descending or ascending block rates.)

$$\frac{\text{variable costs}}{\text{units of water sold}} = \text{charge per 1,000-gallon unit}$$

Source: Water Utilities Technology Program

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*Continued from page 5*  
number by 12 to establish a “monthly base rate,” or the base amount customers pay each month regardless of how much water they use.

For example, if a system’s fixed costs are \$65,000 a year and there are 400 customers, divide \$65,000 by 400 to establish the annual base rate for each consumer—\$162.50 in this case. Divide that last number by 12 to get the monthly base rate—\$13.54.

Next, divide the total variable costs by the amount of water sold to establish a unit charge. (Typically water consumption is measured in

units. For this example, each unit represents 1,000 gallons.) If a system’s variable costs total \$38,000 for the year and it sells an average of 55,000 units of water (55 million gallons) annually, the system should charge 69 cents for each unit a customer uses ( $38,000 \div 55,000 = \$0.69$ ).

The system, under this example, would charge each customer \$13.54 each month plus 69 cents for each unit (1,000 gallons) of water consumed. A customer who consumes 7,000 gallons in a month would be charged \$18.37.

A system can either set a base rate and then  
*Continued on next page*

## Rate Setting for Customer Categories

Rate setting is more complicated in systems that charge different rates for various customer categories. Costs must be allocated according to customer categories, and then rates are established for each category. This chart describes the basic steps involved.

- 1) Allocate system costs to expense categories, such as the ones listed below. For example, the purchase of water from a neighboring system would be allocated to Source of Supply, while a bookkeeper’s salary would be allocated to Customer Accounts and Administration/General.

**System Costs**




### EXPENSE CATEGORIES

**Source of Supply**  
**Water Treatment**  
**Transmission/Distribution**  
**Customer Accounts**  
**Administration/General**

- 2) Analyze the characteristics of each customer category to determine how costs should be applied to each. For example, most transmission costs are typically assigned to the residential category since it costs more to maintain hundreds of residential hookups than it does to maintain a handful of hookups in each of the other categories.

### EXPENSE CATEGORIES

**Source of Supply**  
**Water Treatment**  
**Transmission/Distribution**  
**Customer Accounts**  
**Administration/General**



### CUSTOMER CATEGORIES

**Residential**  
**Commercial**  
**Industrial**  
**Agricultural**  
**Institutional**

*(Steps 3, 4, and 5 below are similar to steps 1, 2, and 3 in the chart on page 5.)*

- 3) For each customer category, identify whether an expense is a fixed or variable cost.
- 4) Establish a monthly base fee for each customer category based on fixed costs allocated to that category and the number of customers in that category.
- 5) Establish a unit charge for water use for each category based on variable costs assigned to that category and the amount of water (1,000-gallon units, for example) sold to customers in that category.

*Source: National Regulatory Research Institute*

*Continued from previous page*

charge a fee for each unit of water consumed, or it can set up a base rate that includes a minimal amount of consumption, say, one or two units.

Martin recommends keeping the base and consumption fees separate so customers know exactly what they are paying for. On the other hand, John Borrows, senior water research specialist with the National Regulatory Research Institute, recommends that systems include a small amount of consumption in the base rate. He said this will help keep system income more stable by ensuring a minimum level of revenue to cover variable costs, regardless of variations in consumption.

*The calculations in this section are based on the document Water and Wastewater User Charge Guide for Small Municipalities. (See page 16.)*

### **With Customer Categories**

If a system uses customer categories, a more complex series of calculations needs to be made. (See the chart on page 6.) Again, this is not a step-by-step guide, but instead an explanation of some of the principles involved.

The objective of setting rates with this approach is to divide system costs into service, or operation, categories and then spread the costs of those categories among various customer groups.

After totaling a system's annual costs, allocate or divide those costs among various service or operation categories, such as source of water supply, water treatment, transmission and distribution, customer accounts, and administration. (See step 1 in the chart on page 6.) For example, the cost of chemicals would be divided between the water supply and water treatment categories.

Next, determine what percentage of the costs listed in each service category should be charged to each customer group. The expense of customer accounts (meter reading, billing) is more or less equal for every customer. So if there are 2,000 residential customers in a system with 2,300 hookups (87 percent residential hookups), then 87 percent of the expenses under customer accounts should be applied to the residential customer group.

As another example, a system may have to drill an extra well to ensure a water supply to a handful of nearby factories. Those factories should then pay a higher percentage of costs for the source of water. And if a local factory needs a larger water line installed to meet high peak demand, then that factory's water bill should reflect the cost of the new, larger line.

After costs have been assigned to the various customer categories, rates should be set for each

category using steps 3, 4, and 5 in the chart on page 6. This involves dividing expenses for each group into fixed and variable costs and using the fixed costs to calculate a base rate for water service and the variable costs to calculate a unit charge for consumption.

### **Other Factors Must Be Considered**

The calculated rate may be useful "as is," or it can serve as a solid starting point from which to adjust rates according to community priorities.

A system might consider adjusting the rate structure in an attempt to soften the impact on low-income residents, or it might review the proposed budget looking for ways to reduce operating costs or capital expenses. It might delay a planned capital project or consider a less expensive alternative.

System officials might avoid "rate shock" by enacting rate increases in two- or three-year increments. This can be accomplished only if the system has maintained an adequate reserve in the past several years to serve as a financial "cushion." If the system has failed to enact rate hikes in previous years, it may be too late to find alternatives.

In addition to rate shock and local political and social concerns, there may be legal or regulatory requirements that must be considered with rate changes.

Most states have a regulatory board or commission that reviews water or wastewater rate changes, according to Siegel. The amount of regulation varies from state to state, but in general an investor-owned system is more likely to be subject to review, whereas a publicly owned system is more likely to be "self-regulated."

In some cases, a review may involve simple approval or rejection of the proposed rate. In other cases, the regulatory board may review supporting data in a rate hike case to ensure system viability or fairness to customers.

The state board may also verify that the public was notified and allowed to make comments concerning the rate change.

A public system may be granted self-regulation because it is controlled by a local elected body, such as a town council, that citizens can hold accountable if they are opposed to a rate increase.

*For more information about drinking water and wastewater rate setting, refer to the products offered on page 16. \$*

*Water Sense will continue this series of rate-setting articles in its winter issue. To suggest topics for the next issue, contact the Water Sense staff at (800) 624-8301.*

## Consider Maintenance, Equipment Reserves

An unexpected major maintenance project or equipment purchase can wreak havoc on a small water system's finances. System managers should work to anticipate these expenses and plan for them when creating budgets.

A frequently used example of a major maintenance project is the painting of a water tower or tank. A major maintenance project can be defined as a relatively significant expense to the system (\$1,000 or more, based on the system size) that doesn't occur every year.

Equipment purchases include such items as water pumps or vehicles. These might also be referred to as minor capital expenditures or "pay-as-you-go" capital.

The cost of major maintenance and equipment purchases can be estimated and budgeted in advance, or "pre-funded." This can save the system from having to borrow money for a project and pay interest.

Experts warn, however, that there may be limits—based on equity, practicality, and other considerations—as to what future projects should be pre-funded and how much money should be placed in reserves.

### Identifying Future Expenses

A U.S. Environmental Protection Agency (EPA) publication, *Financial Management Evaluation*, recommends that systems conduct an equipment replacement inventory of all significant equipment replacement and major maintenance in the next five years. (See page 16.)

The inventory process involves listing each item along with an estimated current replacement cost. A date for each expense must be estimated as well as how much money must be reserved each year to cover those expenses.

John Borrows, senior water research specialist with the National Regulatory Research Institute, gave the following simplified example: It will cost approximately \$30,000 to paint the system's water tower or tank. The tank will probably need to be painted in five years. Based on this information, the system will need to budget about \$6,000 for each of the next five years to cover the painting costs.

By totaling all such expected replacement and maintenance costs, the system will have some idea of how much money should be reserved each year. This would be in addition to any other reserves required as part of an existing debt service or loan agreement. Borrows recommends that such funds be kept in a risk-free fund, such as an interest-bearing savings account or certificates of deposit.

When starting a major reserve, a system should attempt to educate its customers as to why a reserve is needed, Borrows said. This can be accomplished through bill inserts or an article in the local newspaper.

"The use of reserve funds is a hard concept for people to comprehend without seeing an example in detail," said Larry Parker, a consulting engineer and principal author of the EPA handbook mentioned above.

Parker said systems can experience terrific financial benefits by using reserve funds. The systems both earn interest on the reserves and avoid *paying* interest on a project loan.

### Rates, Fairness Must Be Weighed

However, systems should recognize that there may be limits to how much money is placed in reserve, especially for more expensive equipment and larger capital expenses.

Too much money going into reserve accounts can result in excessive water rates for current customers.

There is also the question of whether it is fair for current customers to pay twice for a project.

Michael Siegel, an independent consultant based in Washington, D.C., said it might be wise to maintain a capital reserve fund to serve as a down payment to replace a major capital item. However, he pointed out that expecting current customers to pay debt service for existing capital items—such as equipment or facilities—while simultaneously setting aside all replacement costs for those items, would put an excessive burden on current ratepayers.

Besides the issue of fairness to current customers, Siegel expressed concern that funds for future capital are typically placed in "undicated" accounts. So, for example, after several years of saving money for a new water plant, system officials could be tempted instead to use that money to reduce rates.

"It's politically difficult to keep those reserve funds going long term," Siegel said.

Borrows said he is more open to accepting reserve funds. He agreed that it is unfair to charge current customers both for investments that benefited earlier customers as well as investments that will benefit future customers. But the alternative might weaken the system financially, possibly even harming its ability to provide a safe and continuous water supply.

There should be some concern about fairness, according to Borrows, but the overriding consideration should be the financial and physical health of the system. \$

Budgeting reserves for major equipment or projects is often recommended. However, you should be aware of factors that may place limits on these reserves.

## Rates: Where To Go for Help

Managers of small water systems or community volunteers often have enough expertise to conduct their own rate reviews, according to Haywood Martin of the Water Utilities Technical Program at New Mexico State University, Doña Ana Branch.

"Technical work on a rate study for a small community is not horrendous and could be done by someone with technical skill and the inclination to do it," Martin explained. He added that a do-it-yourself approach can save systems the expense of an outside consultant or accountant.

However, there are some advantages to bringing in professional assistance. A big advantage is the potential time savings for local officials who could then tend to other responsibilities. Outside help can also give an impression of fairness when there are competing political interests in the community.

### Accountant Versus Consultant

Seeking assistance from a local accountant may be cheaper than hiring a consultant, but the assistance an accountant can provide is limited, according to John Borrows of the National Regulatory Research Institute.

An accountant can advise a system on setting up reserve funds, understanding tax laws, and designing strategies for dealing with delinquent accounts, according to Borrows. But an accountant probably cannot effectively evaluate the system's physical plant, tell a system if it has allocated enough for maintenance, or be aware of all current and pending U.S. Environmental Protection Agency regulations.

If the system needs a greater degree of assistance than can be provided by an accountant, it may choose to hire a consultant.

To select a consultant, a system manager should ask neighboring systems for recommendations. A manager might also respond to a consultant's advertisement in a trade magazine, ask for a list of recent clients, and contact those clients for comments.

Borrows recommends that system officials work closely with the accountant or consultant so they can get a better understanding of how the process works. This may add expense to the work, but the officials may gain enough knowledge to be able to do the work themselves the next time.

The National Association of Rate Utility Contractors (NARUC) publishes a national directory of water and sewer system consultants. The listing includes areas of specialization and recent clients for each consultant. To order a copy (\$27 plus postage), call NARUC at (202) 898-2203.

### Other Assistance Is Available

A range of rate-setting and budgeting assistance is also available, often at no charge, from various government agencies and assistance organizations. The assistance might come in the form of workbooks and other written information, telephone consultations, or even onsite visits to systems.

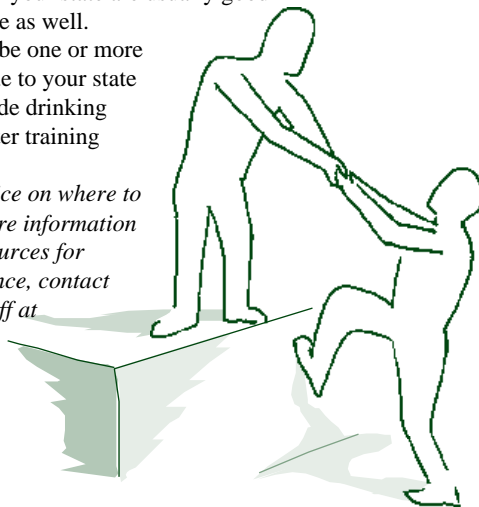
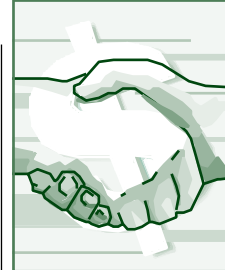
Some examples include:

- the Rural Community Assistance Program (RCAP), a national network of assistance agencies that was featured in the summer issue of *Water Sense*. RCAPs provide assistance, often onsite, with drinking water, wastewater, and other services in small communities. To reach the RCAP office in your region, call RCAP's national headquarters at (703) 771-8636.
- Rural Economic and Community Development (RECD) offices (formerly Farmers Home Administration). The national network of RECD offices provides assistance and guidance to water and wastewater systems, especially those that have recently received or are applying for an RECD loan or grant. For further information, call your local RECD office or contact the National Drinking Water Clearinghouse at (800) 624-8301 for the number of your state RECD office.
- the Coalition of Environmental Training Centers. This organization includes environmental assistance or training centers in 42 states. For the number of the assistance organization in your state, call (602) 956-6099.

Help may also be sought from the American Water Works Association, National Rural Water Association, or other assistance groups. The public utility commission and environmental protection bureau in your state are usually good sources for guidance as well.

There also may be one or more organizations unique to your state or region that provide drinking water and wastewater training and assistance.

*For further advice on where to seek help, or to share information about additional sources for rate-setting assistance, contact the Water Sense staff at (800) 624-8301. \$*





## Computer Programs Improve Rate-Setting

Performed manually, the rate-setting work outlined in the previous pages involves hours or even days of tedious calculations to find just the right rate for a drinking water system.

The same calculations can be performed in a fraction of that time using one of the many computer rate-setting programs developed by consultants and assistance organizations.

### **RECD Program Gives Options, Cuts Time**

One such computer program is used by Rural Economic and Community Development (RECD) personnel in Oklahoma.

"This program has saved us numerous hours of calculations," said Rick Schlegel, one of the program's designers. "Plus, we're providing a better service

to the systems because we can quickly give them different options for their rates."

RECD officials use the program when systems apply for RECD funding or when they want to adjust rates. It's also been used to help systems budget reserve funds.

Before the program was designed, according to Schlegel, RECD personnel would spend half a day performing calculations to develop a single rate proposal for a community.

"It would take several hours to develop a rate that would equal out to the expenses of the system," Schlegel said. If the community didn't like the proposed rates, the RECD official might have spent another half day developing an alternative proposal.

Frustrated with the slow process, Schlegel worked with John Thomas of the New Mexico RECD office to develop a set of six Rate Determination Programs.

With the programs, an RECD official can develop several options for a system in less than half an hour.

The programs have since been refined and are used by RECD personnel throughout Oklahoma. Schlegel has also submitted the programs to RECD headquarters to consider for use in RECD offices around the country.

### **How the Programs Work**

The six programs created by Schlegel and Thomas are designed for various situations. One

set, for instance, is better designed for systems that don't want to divide users into customer categories but do want to base customers' rates on their individual consumption.

The information needed for these programs includes data on system expenses, including salaries, repair and maintenance costs, insurance, and other expenses. Other information required includes the number of hookups (divided into categories, if applicable), average water consumption, debt service, and contributions to reserves. If a new system is being formed, some figures will be estimated based on information from similar systems.

Water systems with computerized billing can usually gather this information quickly on their own. But more often, an RECD official travels to the system office to collect the information.

The data collected from the system are entered into the appropriate "cells" or blanks on the computer screen.

"Once you enter the data, the programs will break down the expenses and figure out which part should be in the minimum bill and which part should be in the basic rate per thousand (consumption)," Schlegel explained.

Schlegel said the minimum, or base rate, developed by the computer programs usually covers all of the system's debt service and other fixed costs along with a portion of its variable costs based on the amount of water furnished with the minimum bill.

Schlegel said a loan specialist or other RECD official can sit down at a computer, enter the system's data and develop a suitable rate "in a matter of 10 to 15 minutes."

The programs have flexibility. If a system is concerned with the suggested rates, the RECD official, by trial and error, can adjust the data to develop alternative minimum and consumption rates. Also, the suggested rates can sometimes be rounded to whole dollar amounts that still meet the system's financial requirements. Rounding rates, Schlegel said, can simplify billing.

"We can use the programs to do just about anything a community wants us to do," Schlegel said.

RECD offices can operate the program using either Microsoft Excel or Lotus 1-2-3.

### **Programs Still Require Outside Help**

Lloyd McClendon, small community fiscal service specialist with Community Resource Group (CRG), aids small communities with the help of the RECD computer program as well as a program he designed.

*Continued on next page*



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Based out of Tulsa, Oklahoma, McClendon is part of CRG's staff of financial specialists who provide assistance to small community officials in Oklahoma, Texas, Arkansas, Louisiana, Mississippi, Alabama, and Tennessee. His program is designed to help very small communities with extreme financial problems.

McClendon said community officials can operate the programs themselves, but he said both programs can be complicated so he prefers to walk officials through the process.

"I'm hesitant to have people operate the programs on their own because of the problem of people misinterpreting figures," McClendon explained.

For example, he said a community's income statement may show a \$5,000 positive figure. The officials may view this figure as a surplus, whereas McClendon often has to point out that the figure does not take debt service and other expenses into account.

"I've got to go through that program and dig that information out to show them," McClendon said.

McClendon said the program he developed is most effective for small, rural systems with up to 1,000 hookups. The program doesn't only provide information on rate-setting. It also displays how much water a system produces versus how many gallons were billed. And it can show an average monthly consumer bill and average consumption.

Furthermore, the program can flag potential problems within a system's operation.

By comparing a system's financial records over several years, the program might show, for instance, an excessive increase in expenses for treatment chemicals. In such a case, McClendon would not cast doubt on the system operator's chemical use. Instead, he would simply point out the figures to system officials and let them determine, on their own, how the problem should be fixed.

McClendon said he might also come across a situation where a system does not charge a high enough deposit or have an effective collections policy for delinquent customer accounts. Adjustments in these areas could even reduce the amount of a rate increase.

"Under ideal conditions with all of the needed information in order, we can complete a computerized rate study in a couple of hours," McClendon said, adding that he uses the Microsoft Excel application to run his program.

### ***A Self-Service Program in the Works***

A cooperative effort between the U.S. Environmental Protection Agency (EPA) and

the Government Finance Officers Association (GFOA) has produced a rate-setting and financial management program that systems can use on their own. In addition, the program offers plenty of assistance through written materials and a telephone help line.

The program, expected to be introduced this fall, was prepared by Michael Siegel, a consultant based in Washington, D.C. The program involves a series of input screens. Users enter data about their system as prompted, with the program plainly explaining what specific information is being requested in each case.

The data requested are grouped into three categories: customer and consumption characteristics; physical system, expressed as dollars invested; and financial information, including budget data and debt.

"It's a fairly simple, straight-forward process," Siegel said. "If people can get that information—and most have it—then they can design their own rates by inputting information into the model."

The computer offers "default values" for allocating costs in some situations if the system personnel are unable to individually determine these amounts.

Under the rate-setting function, after the data are entered, the program can determine two types of rates for water and, if needed, two types of rates for wastewater.

The program can develop a flat rate, in which customers pay a set monthly fee for service. The program can also develop a uniform block rate structure, in which customers pay a minimum monthly fee plus additional amounts depending on how much water they use. The program calculates a per account and per equivalent dwelling unit (EDU) charge for both the flat rate and the minimum portion of the uniform block rate.

Further, the program can factor in surcharges, such as higher rates for customers outside the town limits.

Siegel said the program offers some "wiggle room" for system managers looking to trim the size of a recommended rate increase. In some cases, the program can factor in the increase over a couple years, or it can be used to experiment with lowering various system expenses.

The computer model has online help and a user's manual for assistance. Telephone support is also available through GFOA. A training program for the model is being planned.

The program requires an IBM-compatible computer equipped with Windows 3.1. \$

*For further information about computer rate-setting programs or the specific programs mentioned in this article, contact the National Drinking Water Clearinghouse at (800) 624-8301.*



## Alternative Funding Helps State Drinking Water Programs

As states pay a growing share of the operating expenses for their drinking water programs, they are increasingly turning to alternative funding mechanisms (AFMs), according to a report by the National Conference of State Legislatures (NCSL).

AFMs, for the most part, are fees individual water systems pay to the state. Some examples include operator certification fees, construction permit fees, service connection fees, and population-based service fees.

The NCSL report—*Alternative Funding Mechanisms for State Drinking Water Programs, 1994–1995*—notes that total funding for operating state drinking water programs increased from \$174 million in 1994 to \$189 million in 1995.

The federal contribution for these programs increased from 1994 to 1995, but not as much as state-supplied funding, according to the NCSL.

In 1994, the federal portion accounted for 35 percent of total funding, according to the report. In 1995, the federal contribution represented 33 percent (\$63 million) of the total funding, while state contributions accounted for the remaining 67 percent (\$126 million).

The report also notes that as the states increase funding for their programs they are relying less on general revenue funds and more on AFMs. In 1995, 57 percent of the states' contributions to their programs came from AFMs, up from 56 percent in 1994.

The state drinking water programs mentioned in the report help individual water systems with technical assistance for complying with federal drinking water standards, laboratory analysis, and

advice on improving treatment and conducting monitoring.

Larry Morandi, one of the authors of the NCSL report, noted that small drinking water systems pay a larger share of these AFM fees per customer.

"Even though small systems pay more per customer, they are getting more services from the state," Morandi said. He said if states were to relinquish control of their programs to the federal government, small systems would receive little or no technical assistance or variances.

Eight states use only general revenue funds to finance their share of their drinking water programs. Six states use one or more AFMs for their entire contribution. And 35 use a combination of both AFMs and general revenue funds. (Wyoming does not have a federally approved drinking water program. Its program is operated by the regional office of the U.S. Environmental Protection Agency.)

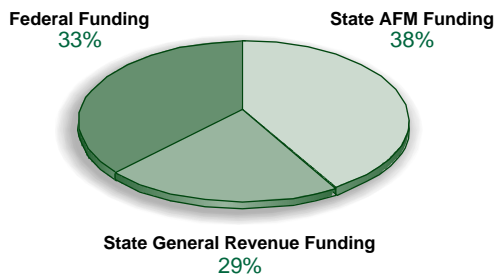
Whereas the federal funding mentioned in the NCSL report is used to operate state drinking water programs, the federal funding mentioned in the Congressional Budget Office report on page 13 is geared toward drinking water infrastructure.

The NCSL, based in Denver, Colorado, is a nonprofit, bipartisan research organization that provides service to all 50 state legislatures.

*To order a free copy of the NCSL report on alternative funding mechanisms, contact Morandi at (303) 830-2200. An NCSL report on state revolving funds, updating an earlier version, is expected to be released later this year. \$*

### State Drinking Water Program Funding

FY 1995



States are increasingly turning to alternative funding mechanisms (AFMs) to help finance their drinking water programs. These AFMs are typically fees—such as operator certification, laboratory analysis, and service connection fees—that states collect from individual water systems. In 1995, 38 percent of the total funding for state programs came from AFMs, while in 1994 AFMs accounted for 36 percent of the funding. At the same time, states are relying less on federal funding to operate their programs.

Source: National Conference of State Legislatures

## Report Tracks Infrastructure Spending

The federal government's capital spending, inflation-adjusted, for drinking water and wastewater infrastructure peaked in the late 1970s and has gradually decreased since then, according to a report by the Congressional Budget Office (CBO). This downward trend is projected to continue through the end of the decade.

CBO issued the report, *Public Infrastructure Spending and an Analysis of the President's Proposals for Infrastructure Spending from 1996 to 2000*, in June 1995 at the request of the House Committee on Transportation and Infrastructure.

The report shows total federal spending on water supply and wastewater treatment infrastructure peaked at \$7.9 billion in 1977, but by 1988 that figure had dropped to \$3.1 billion.

The vast majority of this federal spending goes into wastewater efforts such as U.S. Environmental Protection Agency funding for municipal wastewater treatment plants. The water supply funds include money for water-related loans and grants issued by Rural Economic and Community Development (formerly Farmers Home Administration).

The CBO report lists the sum of all public infrastructure spending—reflecting federal, state and local government outlays—for each year from 1956 through 1991. It also provides annual data for eight infrastructure categories—highways, mass transit, rail, aviation, water transportation, water resources, water supply, and wastewater treatment.

For years after 1991, only federal spending is listed, as state and local totals were not

available. The report also projects federal spending from 1995 through 2000 based on President Clinton's budget proposal for fiscal year 1996, which was submitted to Congress earlier this year. The CBO explains that its estimates represent "the likely path of spending if current laws remain unchanged."

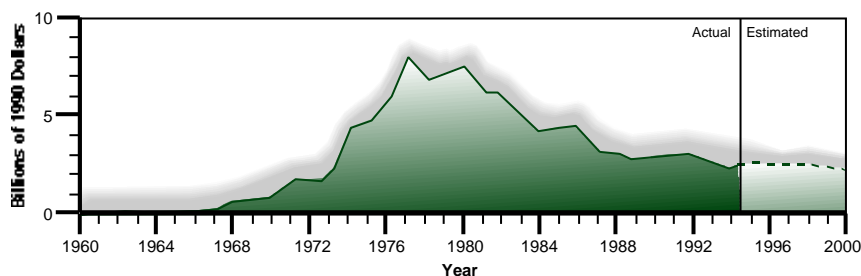
Compared to current levels, federal infrastructure spending is expected to decline approximately 11.6 percent from 1995 to 2000, according to the CBO. The report states that the water supply and wastewater treatment categories will experience the greatest percentage decrease in funding, although other categories may experience a greater dollar amount loss.

The report also states that the local and state government share of infrastructure spending has increased in recent years—a trend the CBO predicts will continue.

To order a free copy of the report, contact the CBO publications office at (202) 226-2809. \$



### Federal Infrastructure Spending On Water and Wastewater



When adjusted for inflation, federal spending for drinking water and wastewater infrastructure peaked in the late 1970s and early 1980s and has gradually decreased since then. The estimated spending for 1995-2000 plotted on this chart is based on President Clinton's fiscal year 1996 budget proposal.

Source: Congressional Budget Office

**"Do More with SCORE . . ."**

## Free Poster Lists Resources For Help

A free poster from the U.S. Environmental Protection Agency (EPA), "Do More with SCORE: Small Community Outreach and Education Helps Solve Wastewater Problems," is available free from the National Small Flows Clearinghouse, a sister organization of the National Drinking Water Clearinghouse that helps small communities meet their wastewater needs.

This colorful poster explains how EPA's small community outreach program can help communities solve their wastewater treatment problems.

It lists national and state government agencies, public interest and advocacy groups, educational institutions, small community outreach coordinators and environmental training centers for each state, and EPA's regional SCORE coordinators in an attractive chart that is suitable for display.

Many of these resources provide drinking water assistance and financial information as well.

Single or multiple copies of the poster are available by calling the NSFC at (800) 624-8301 and requesting Item #WWBLPE03. Actual postage will be charged. \$

## Self-Help Brings Water, Saves Money

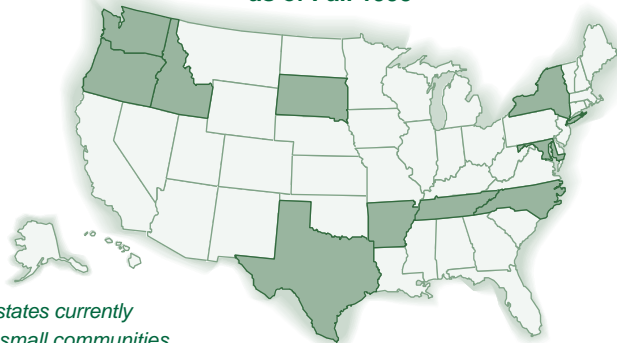
*Continued from page 1*

blamed the foul water for their frequent colds and 15 unexplained deaths since the neighborhood was established in 1974. They knew something had to be done.

But the community was some three miles outside the city of Wilson—which had the area’s only drinking water treatment facility.

### Active STEP States

as of Fall 1995



Ten states currently help small communities undertake self-help projects through the Small Towns Environment Program (STEP). A number of other states are considering the program as well.

Residents thought they might be added to the system in the early 1990s. That’s when the county extended a water line from the city past their neighborhood to an outlying landfill. But the city estimated it would cost around \$120,000—in addition to special fees and administrative hurdles—to extend the distribution system to unincorporated Larkspur Acres.

This was simply unaffordable for a community with a large number of retired residents on fixed incomes. Drilling for new wells was not feasible either. In fact, says Pettiford, the ground was often too wet for the septic systems to work properly, and many suspected that wastewater was seeping into the wells. “We were drinking our own sewage,” says Pettiford.

Then, in the spring of 1994, Pettiford was introduced to North Carolina’s STEP representative, Eric Stockton. Pettiford invited Stockton to a neighborhood meeting to explain how Larkspur Acres could use the self-help approach to build the needed distribution system themselves.

“It brought tears to my eyes,” says Pettiford. “I realized this was something we could do and needed to do.”

#### STEP Offers Helping Hand

STEP representatives, too, liked what they saw—a community committed to bringing safe drinking water to their neighborhood.

“The community has to buy into this and be receptive,” emphasizes Christopher Conway,

senior staff member of STEP. Self-help doesn’t work everywhere, he notes. In fact, prospective communities for the approach are screened to ensure that they show both *potential*—the capacity to make a project work—and *readiness*—the willingness to start right away.

Also crucial to the community’s success is a human “sparkplug”—someone like Larkspur Acres’ Pettiford, with the energy and drive to see a project through from start to finish.

Once the residents are committed, STEP helps the community connect with resources, says Conway. “It’s not that someone does everything for [the community], but instead facilitates at the state level,” he explains. “We can help them think through the problem—find out what needs to be done and who to call.”

Moreover, says Conway, “[STEP] doesn’t create a new organizational entity. It’s an additional tool that states can use.” Of course, he adds, there has to be some commitment of staff time and other resources. Typically, someone from a state environmental agency takes a lead role and develops contacts in other relevant organizations, says Conway. So far, 10 states have made such commitments to offer the STEP approach (see map at left).

#### “What can we afford?”

This approach doesn’t start with what a project costs or what funding is available, but with what the community can afford. Rob Hanna, STEP senior field director, says that too often with traditional approaches, the design constraints become those of the funding organizations.

In contrast, says Hanna, “our design constraint is ‘what can we afford?’ This is the first question a community must always ask.”

In the case of Larkspur Acres, this figure was around \$55,000—or about \$1,000 per household.

According to Hanna, much of the community’s financial savings occurred in the planning stages. “Eighty percent of any project is administrative and organizational work,” he says. “And if a community can compress these activities, they can also save a lot of time.”

Pettiford credits the STEP representatives with getting the community on the right track. “They showed us how to get started—to get to the first construction stage,” she says.

Over the following months, the neighborhood established a community association and obtained easements and loan agreements from residents. They negotiated prices for materials and equipment rental. They hired an engineer to do the design and a licensed contractor to train the

*Continued on next page*

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volunteer construction crew. They met with city inspectors and other officials.

Actual construction started on February 1, 1995. "During that time it rained, it snowed—everything possible," says Pettiford.

She praises the neighbors who climbed into the backhoe-dug trenches, laying pipe in the muddy, red clay that would stick to their boots, their clothes, their tools. Other neighbors kept hot food coming, or ran for needed supplies and tools. After working some six hours a day on this project, most of the volunteer crew went on to work the afternoon shift at their regular jobs.

"They learned a lot about each other," says Pettiford. "It brought about a sense of people working together."

It also brought a certain peace of mind. "I know that each bolt that was turned—they did a good job, they put their best into it," says Pettiford.

### **Reasonable Bills Expected**

As the project nears completion, actual costs are coming in closer to \$61,000. The community borrowed \$55,000 from a short-term revolving loan fund available through the STEP program as a funding source of "last resort." Each resident paid a \$200 deposit, and will pay about \$800 more over four years to cover the STEP loan.

To make ends meet, the community has held raffles and sold barbecued chicken dinners, donating residents' time and food.

On October 3, the community installed the last water meter boxes in front of each house. Each homeowner is responsible for installing the

pipe from the meter box to the house, but publicity about the project has been generating low-cost bids from plumbers.

Because they are outside the city limits, Larkspur Acres residents will pay double the water rates of Wilson city residents. Pettiford says the average monthly water bill—based on 5,000 gallons—is expected to stay in the \$20 to \$30 range. Including the debt service repayment for the STEP loan, bills should still stay under \$50, she says.

The enthusiastic "sparkplug" is already looking ahead. "There's a sewer line running behind our neighborhood to the school—we got the county to upsize it to be able to someday handle Larkspur Acres sewage," says Pettiford. "So that may be our next project."

*For contacts in the states offering the STEP approach, call The Rensselaerville Institute at (518) 797-3783, or the National Drinking Water Clearinghouse at (800) 624-8301. \$*

## **STEP Offers Self-Help Handbook**

STEP has published a comprehensive guidebook of ideas, case studies, and resources for communities that undertake self-help projects. *The Self-Help Handbook, Revised Edition*, costs \$21.95, plus \$3 shipping and handling (call for shipping and handling charges if ordering multiple copies). To order, call (518) 797-3783, or write Small Towns Environment Program, The Rensselaerville Institute, Rensselaerville, NY 12147. \$

## **LINKS Continues Small-Town Assistance**

Earlier this year, the International City/County Management Association (ICMA) changed the name of its small-community assistance program to avoid confusion with The Rensselaerville Institute's Small Towns Environment Program.

ICMA's Small Town Environmental Partnerships (STEP) program officially was renamed the Environmental LINKS (Local Government Information Networks) for Small Communities. Despite the name change, Environmental LINKS continues to help small local governments in towns of 10,000 or less understand and participate in the development of federal environmental regulations. The program distributes federal regulatory information, and assists small communities with strategic planning and exploration of financing alternatives.

Environmental LINKS also helps foster and maintain cooperative regional partnerships. They

provide a quarterly newsletter, an online communications bulletin, publications and case studies, regional forums, and a small town clearinghouse.

They are currently gathering case studies for a manual that will showcase different ways small communities are complying with environmental regulations. Communities are encouraged to call ICMA with examples.

Environmental LINKS is funded by the U.S. Environmental Protection Agency's Office of Regional Operations and State/Local Relations.

*For more information on Environmental LINKS for Small Communities, contact Shannon Flanagan at (202) 962-3540, or write to ICMA, 777 North Capitol St., NE, Suite 500, Washington, DC 20002-4201. \$*

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## Rate-Setting Documents Offer Help

The products on this page might be useful to readers interested in more information about rate setting.

*Note: Actual shipping and handling charges will apply to all orders unless otherwise noted.*

*Call (800) 624-8301 to order or for more information. Please allow four to six weeks for delivery.*

■ **Financial Management Evaluation: Handbook for Wastewater Utilities**  
Item #: FMPCFN11

Developed for the U.S. Environmental Protection Agency (EPA), this handbook and related appendices (*described below*), are designed to help evaluate the financial management capacity of wastewater systems. Much of the information is also applicable to drinking water systems. (1989, 40 pages)

Cost: \$5.65

■ **Financial Management Evaluation (Appendices)**

Item #: FMPCFN07

This EPA-funded booklet, a companion to the handbook noted above, contains an outline for

making an intensive financial management evaluation of a wastewater utility. (1989, 176 pages)

Cost: \$17.50

■ **Managing Your Utility's Money (Workshop Materials)**

The National Environmental Training Center (NETC) is offering these free materials to trainers or financial experts interested in holding a one-day financial management seminar. The trainer's manual (*Item #: TRBLFM01*) and accompanying participant's manual (*TRBLFM02*) were developed for the EPA by the Municipal Technical Advisory Service at the University of Tennessee.

A seminar developed by following the manual's outline can provide participants with information on sound financial management practices, plus how to assess the health of their drinking water or wastewater systems and how to boost revenues through user fees. The trainer's manual includes tips on how to increase audience participation and other helpful information.

A member of the NETC Resource Center can give additional information, at the phone number above, to those interested in planning a seminar.

## Rate-Setting Guide Available

A rate-setting guide prepared for water and wastewater system managers in New Mexico offers information helpful to systems across the country.

*Water and Wastewater User Charge Guide for Small Communities* was prepared by the Infrastructure Development Assistance Program and the Water Utilities program at New Mexico State University, Doña Ana Branch.

The 20-page guide, published in 1991, offers information on conducting a rate study with some sample calculations, discussion of the various types of rate structures, and advice on how to implement a rate hike.

*Copies of the guide are available for \$6 by calling Nancy Gott at the Water Utilities program at (505) 984-0676. \$*

### National Drinking Water Clearinghouse

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