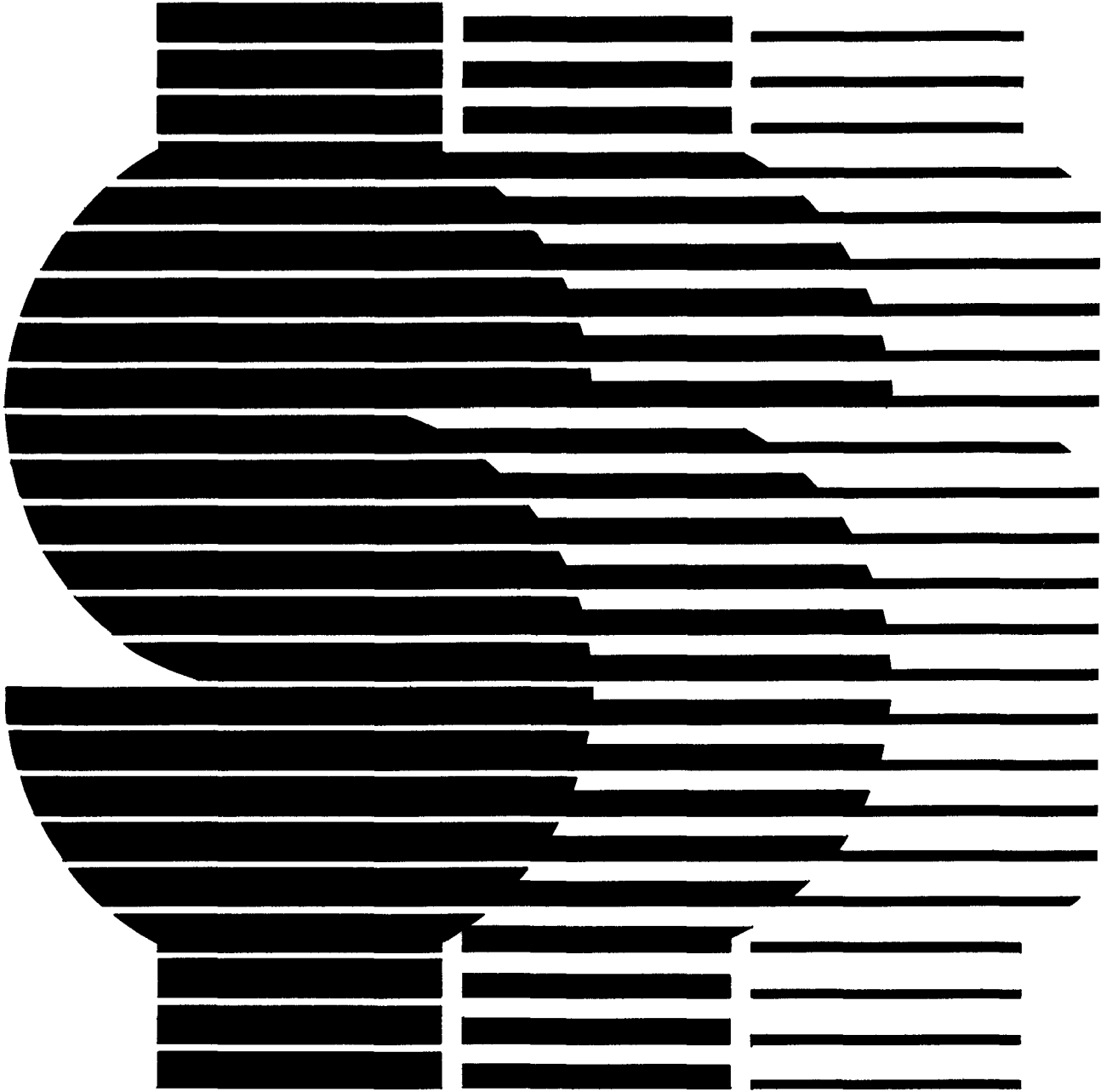




Reducing the Co\$ of Operating Municipal Wastewater Facilities

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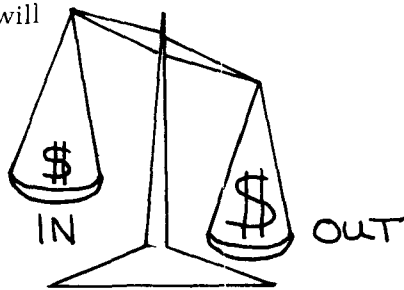


Rising Operations Co\$ts Strain Wastewater Budgets

Operating a wastewater facility can have significant economic impact on a municipality, particularly in smaller communities. In recent years, operating expenses have escalated to a point where many communities do not believe they can afford to operate their existing facilities. Rather than cut back on O&M and risk reducing the life of the plant or facing an enforcement action, communities should evaluate approaches to reducing costs and increasing productivity.

Balance Your Budget

Much can be done to lessen the financial burden of a wastewater facility on the community. Simply stated, the aim is to minimize operating costs and maximize revenues. Specific means of accomplishing this will vary from one community to another.



Minimize Co\$ts

- Restructure outstanding debt to reduce debt service
- Maximize staff efficiency
- Conserve energy
- Minimize maintenance costs
- Reduce administrative costs

Maximize Revenues

- Assure maximum use of facilities
- Collect all user charges
- Pursue supplemental income
- Collect special assessments

Cutting Co\$ts - How to Begin

Facilities can cut costs and still supply good treatment. But it demands efficient management, and a system that takes in enough money to cover costs. This can mean simple changes in operations or management. Or it can

The Method

Step 1: Identify High Co\$t Areas (Line Items)

Review previous years' spending. Look at items such as labor, utilities, materials, supplies. Compare these costs with current spending.

Indicators of potential high cost areas include:

- Items that use more than 20 percent of your operating budget
- Items consistently over budget
- Items subject to price escalation (e.g. chemicals, fuel oil, utilities, etc.)
- Expected increases in operating costs or capital outlays (e.g. renewal of service contracts, major equipment replacement, etc.)

Use the following chart or your own more detailed chart to list these costs.

Typical Expenditures

Labor		Chemicals	
	\$ _____		\$ _____
	\$ _____		\$ _____
	\$ _____		\$ _____
Utilities		Equipment	
	\$ _____		\$ _____
	\$ _____		\$ _____
	\$ _____		\$ _____
Materials		Miscellaneous	
	\$ _____		\$ _____
	\$ _____		\$ _____
	\$ _____		\$ _____

mean long-range capital improvement or restructured financing. Regardless of the scale of the cost reduction program, one basic method for identifying cost reduction opportunities is recommended.



Step 2: Itemize High Co\$T Components

Now determine why costs are so high for specific items. Once high cost items are identified they need to be allocated to the system components to further pinpoint the source of excessive expenditures. The table below can be used to identify high cost components. A complete itemized record of operating costs may need a special facility audit. Small communities especially may need this if detailed accounting records are not kept.

Revenue data should also be reviewed to identify potential shortfalls.

Example of an Audit Cost Breakdown:

System Component Costs

Cost Item	Treatment Plant	Pump Stations	Collection System	General Administration	Other
Labor					
Operation	_____	_____	_____	_____	_____
Maintenance	_____	_____	_____	_____	_____
Support Services	_____	_____	_____	_____	_____
Utilities					
Electricity	_____	_____	_____	_____	_____
Fuel Oil	_____	_____	_____	_____	_____
Natural Gas	_____	_____	_____	_____	_____
Water	_____	_____	_____	_____	_____
Materials and Supplies					
Chemicals	_____	_____	_____	_____	_____
Laboratory Supplies	_____	_____	_____	_____	_____
General	_____	_____	_____	_____	_____
Equipment Replacement	_____	_____	_____	_____	_____
Contractual Services	_____	_____	_____	_____	_____
Debt Service	_____	_____	_____	_____	_____
Misc.	_____	_____	_____	_____	_____
Total	_____	_____	_____	_____	_____

Step 3: Look at all Co\$T Reduction Opportunities

Pinpoint specific ways to cut expenses of identified high-cost items. Encourage your whole staff to come up with practical, affordable ideas. Look at all possibilities. Get expert technical and financial advice if necessary.

Step 4: Develop and Evaluate Co\$T Reduction Programs

Develop a set of cost-cutting proposals. These could range from simple changes in operation and management to long-range plans that call for significant capital outlays. Compare the various proposals' life cycle costs and the number of years each takes to recoup the initial investment (simple payback period). The following formulas can help make this comparison:

$$\text{Simple payback period} = \frac{\text{Capital Investment}}{\text{Annual net savings} - \text{Annual Replacement Costs}}$$

$$\text{Life Cycle Costing Savings} = \frac{\text{Present Worth Savings in Operating Costs} - \text{Present Worth Capital Investment} + \text{Present Worth Salvage Value}}{\text{Present Worth Replacement Costs}}$$



Step 5: Have a Plan

Determine:

- "What" cost reduction measures you will implement.
- "Who" will be responsible for implementing them.
- "When" the measures will be put into operation.
- "How" they will be carried out.
- "How much" it will cost.
- "Where" the money will come from.

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Co\$ Reduction Options

Here are some ways to cut costs in various high-cost problem areas:

High Labor Costs:

- Reduce total staff requirements by maximizing individual productivity and using automated processes where possible.
- Share staff with other agencies.
- Reduce overtime by instituting flexible work schedules and provide "comp-time" in lieu of overtime pay.
- Use contract services.

High Energy Costs:

- Reduce energy consumption through plant-wide energy conservation measures.
- Use low cost alternative energy sources, fuel conversion, and energy recovery systems.
- Control use during high demand periods.

High Chemical Costs:

- Make process modifications to reduce or eliminate use of chemicals.
- Substitute less expensive chemicals that accomplish similar treatment functions.
- Seek lowest purchase price; award chemical supply contracts based on competitive bidding.

Excessive Water Use:

- Institute water conservation measures such as flow restrictions.
- Reuse plant effluent for non-potable uses.
- Rely on onsite water supply to avoid utility charges.

High Repair Co\$ts:

- Institute an active preventive maintenance program. Maintain spare parts inventory in order to minimize equipment down time.
- Take advantage of service contracts and life cycle equipment bidding.

High Administrative and Overhead Costs:

- Eliminate unnecessary administrative positions or reduce to part-time.
- Get administrative and clerical support from other public agencies.
- Shop around for less costly employee benefit packages providing equivalent benefits.
- Evaluate outside contracts to determine if services can be provided for less by in-house staff or other contractors.
- Utilize low maintenance building and landscape features.

Revenue Shortage Remedies

- Establish "enterprise operations" accounting which requires wastewater operations to be self-supporting.
- Aggressively seek payment of delinquent user fees.
- Expand service base if adequate capacity exists.
- Invest monies in operating revenue accounts and reserve funds if allowable under State law.

More Information:

For detailed discussion on ways to identify high-cost problems and to cut operating costs, EPA's "Cost Reduction and Self-Help Handbook" is available from the Environmental Quality Instructional Resources Center; Ohio State University; 1200 Chambers Road; Room 310; Columbus, Ohio 43212; 614-422-6717.

"THIS HANDBOOK WILL BE AVAILABLE SUMMER '86."

