Financial Benchmarking Training

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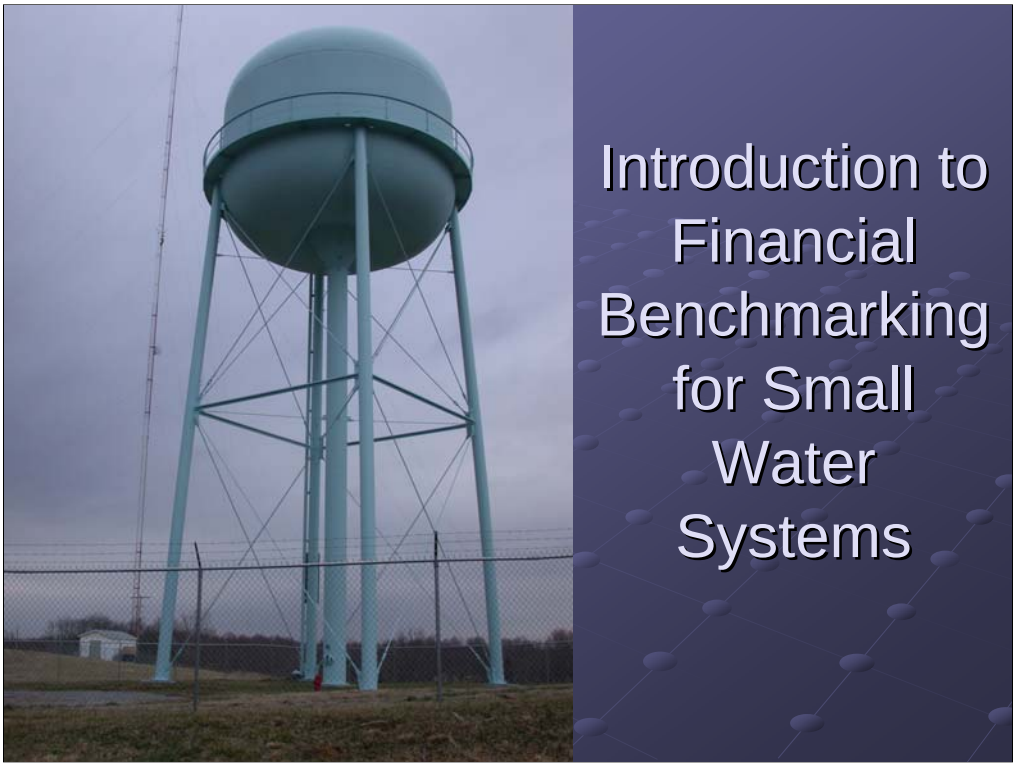
MTAC Publication TP06-06A

Disclaimer

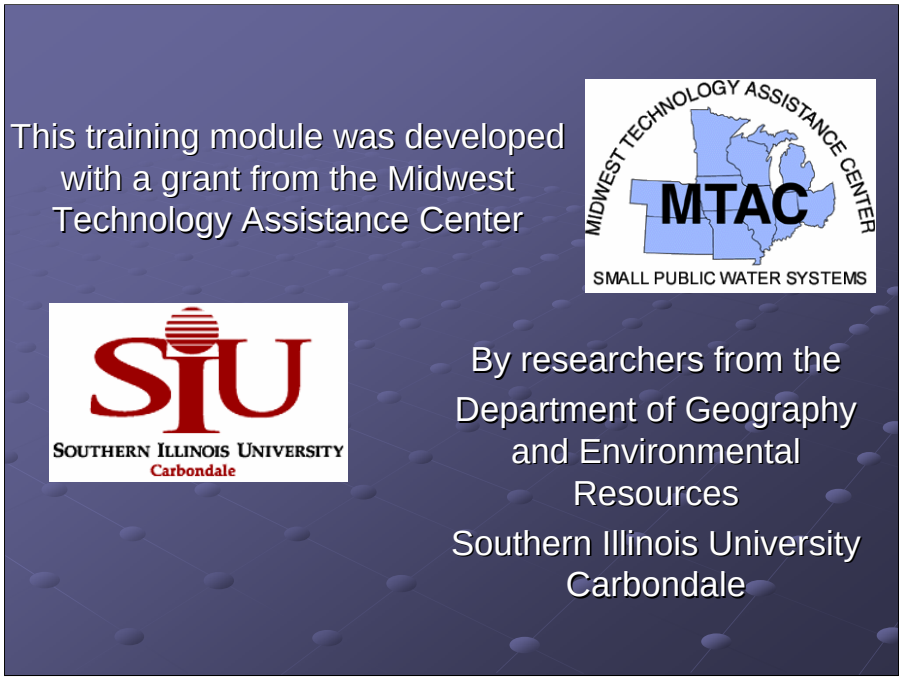
This material is based upon work supported by the Midwest Technology Assistance Center for Small Public Water Systems (MTAC). MTAC was established October 1, 1998 to provide assistance to small public water systems throughout the Midwest via funding from the United States Environmental Protection Agency (USEPA) under section 1420(f) of the 1996 amendments to the Safe Drinking Water Act. MTAC is funded by the USEPA under Grant No. X829218-01. Any opinions, findings, and conclusions or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the USEPA or MTAC.



Performance assessment and evaluation are essential businesses practices. Countless text books, research articles, websites, professional trainings, and other resources are available to teach performance assessment. There are numerous performance assessment techniques, standards, and applications, and a broad range of research activities.

This training module presents an *introduction* to just one performance assessment technique, *benchmarking,* and more specifically, *financial benchmarking*. The goal of this presentation is to familiarize small system managers with *benchmarking* so that they can begin to develop basic performance assessments at their systems and learn how to access other performance assessment resources.

This training module describes basic benchmarking concepts and terminology, and presents a hypothetical case study to explain how benchmarking might be used to assess the financial status of a small community water system. Links to a variety of resources are provided at the end of the presentation that will direct interested readers to other benchmarking information, tools, and data that can be used to support performance improvement activities in their communities.



Development of this training module was funded by the *Midwest Technology Assistance Center (MTAC).* MTAC is one of nine centers throughout the country established under the provisions of the *1996 Safe Drinking Water Act Amendments*. The mission of these centers is to provide assistance to drinking water systems that serve less than 3,300 customers.

A previous MTAC study, the *Benchmark Investigation of Small Public Water System Economics*, found that while small system officials were very interested in learning more about how they could improve the performance of their utilities, they often lacked access to information on effective performance improvement techniques. This training module was developed by the authors of the *Benchmark Investigation* as one part of the effort to fill this informational gap. The case study included in this module is based upon the data and results from the *Benchmark Investigation*.

Several slides from the *USEPA' Drinking Water Academy Electronic Workshop's* excellent financial capacity module, Public Water System Operation: Developing Financial Capacity (*http://www.epa.gov/safewater/dwa/electronic/ematerials.html#PWSS)* are included in this presentation. These slides are acknowledged where they appear.

A large variety of financial management resources are available to small system managers from technical assistance organizations and government agencies. Information from some of these is included, and noted, throughout the presentation.

Contents

- What is performance assessment?
- Why should small water systems adopt performance assessment programs?
- What is the special role of financial performance?
- What is benchmarking?
- How to do financial benchmarking: A case study example
- Links and references

This training module answers the following questions:

•What is performance assessment?

•Why should small water system managers adopt performance assessment programs for their organization?

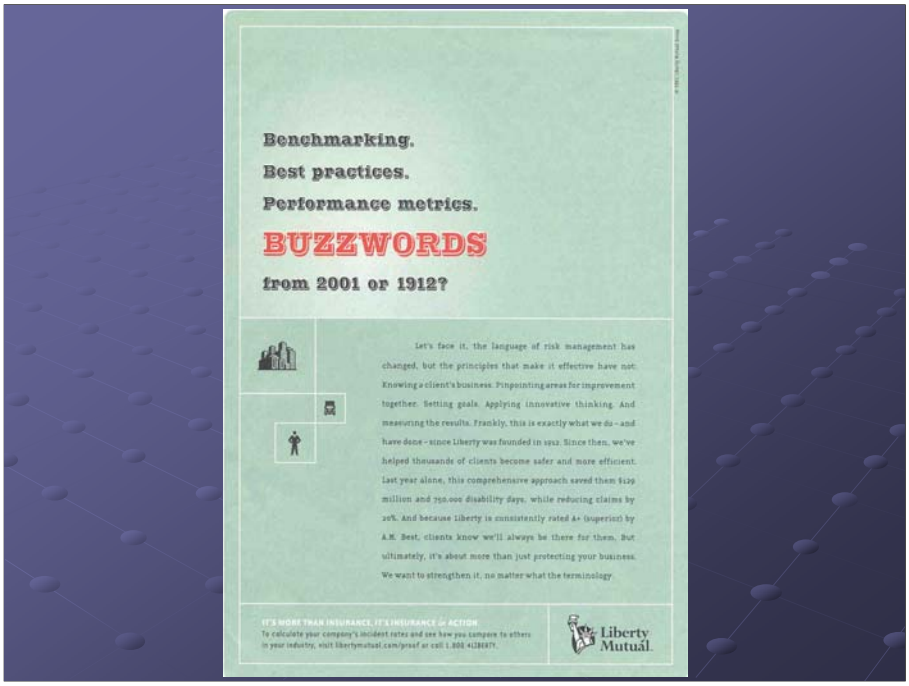
•Why should financial performance assessment be the #1 priority?

•What is benchmarking and how do you do it?

The benchmarking process is demonstrated through a short case study that examines one small system's "bottom line". The data used in the case study is taken from the *Benchmark Investigation of Small Public Water System Economics.*

There are a great many resources available to assist system managers in their pursuit of excellence.

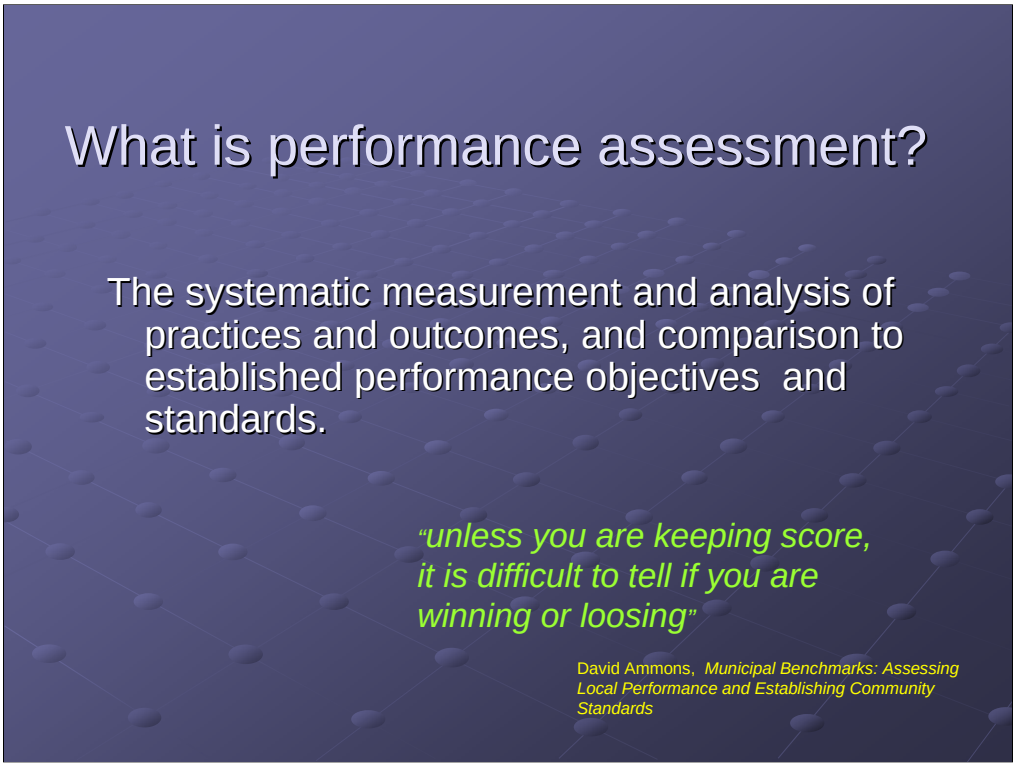
Links and references to a sample of these appear at the end of the session.



Performance assessment is nothing new.

As expressed in this magazine advertisement, while the language of performance assessment may have become "*buzzwords*" of 21st century business management, performance assessment is really nothing new for many organizations.

"Informal" performance comparisons are common among small drinking water officials, and generally occur at any meeting of two or more drinking water system managers. Therefore, many of the ideas discussed in this training module will be familiar to water system managers and public officials, even though they are expressed using a terminology that is more common to business management.



Simply stated, performance assessment is the process of examining how well an organization is doing in meeting its goals.

This process consists not simply of casual observation and commentary, but must include careful measurement of recognized performance indicators.

In other words, stating that "our water distribution system generally seems to be working OK" **is not** performance assessment.

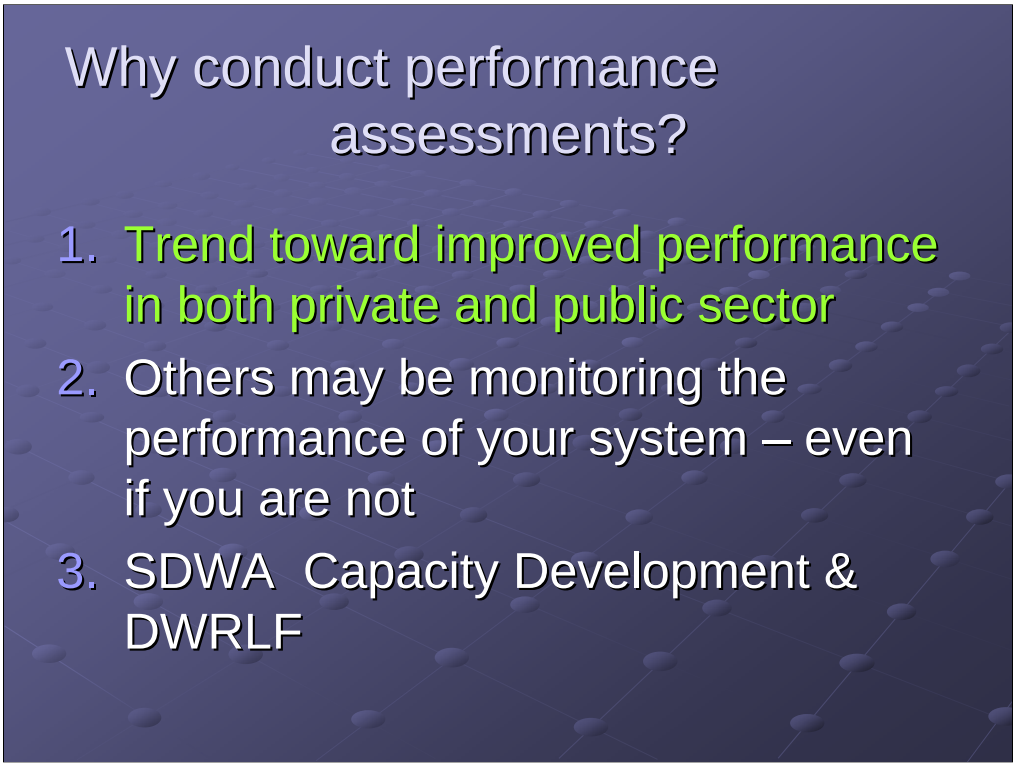
Calculating the difference between water pumped from the treatment plant and measured at customer meters, to determine that annual *unaccounted-for water* has been less than 8% every year, for the past five years, **is** performance assessment.

Water utilities are generally operated as monopolies, and are often municipally owned.

Because the infrastructure and effort needed to provide water services are largely invisible to the public, both consumers and elected officials may be lulled into a state of ‘everything is OK as long as the water is coming out of the tap”.

Furthermore, taking on the task of routine performance assessment may seem overwhelming to busy employees and unnecessary to customers. Yet there are many reasons why small water systems should consider developing a regular program of performance assessments for their water utility.

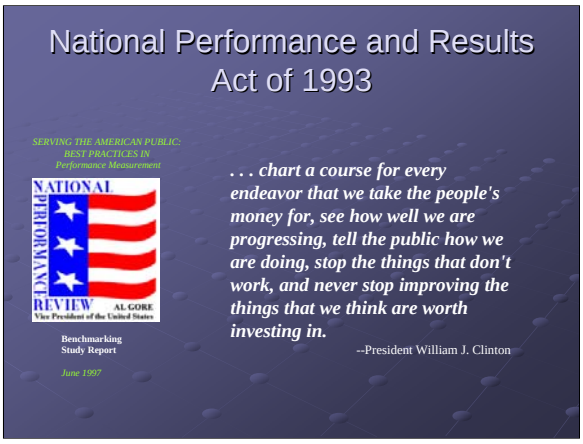
Three reasons why small systems should conduct performance assessments are presented here.



The Xerox corporation is widely credited with introducing performance assessment in the United States and using it to make dramatic improvements to their operations in the 1960s. Xerox's success stimulated tremendous interest from the business community and resulted in performance assessment becoming a standard modern business practice.

There is also a long tradition of performance improvement efforts in government services that has been revitalized by the successes of the business community.

The trend toward the adoption of performance assessment and evaluation practices in both the public and private sectors in the past few decades has resulted in the increased awareness of the potential for continuous organizational improvement, and raised the expectations of citizens and consumers.



One clear sign of this trend in the public sector performance improvement is the 1993 *National Performance and Results Act* . This legislation required most federal agencies to set strategic plans, establish performance goals, and file annual reports on their progress in meeting these goals. In many cases, future appropriations for government agencies included a review of these performance assessments.

In response to the *National Performance and Results Act*, the USEPA's developed a set performance goals for drinking water supply systems.

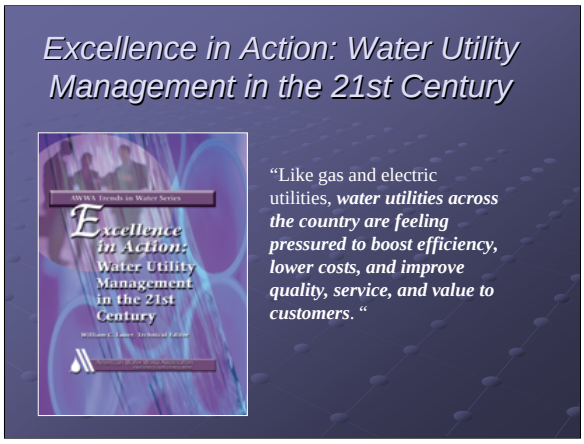
The success that the USEPA has had in reaching these goals is reported every year in the Agency's annual "*Factoids*" report.

These reports can be found on the Internet at:

http://www.epa.gov/safewater/data/getdata.html

The trend toward public sector benchmarking can also be seen in the numerous publications that have appeared in recent years that are designed to guide public officials in methods to improve their organizations.

Although public enterprises are often criticized as inefficient, these publications demonstrate that there is no inherent reason why public sector organizations cannot perform as well, or better, than their private sector counterparts.



Water consumers also now expect more service and quality from their drinking water systems and other public services.

Numerous publications, such as the American Water Works Association's "*Excellence in Action: Water Utility Management in the 21st Century*" , are testimony to the trend in water system performance improvement that has been under way for several years.

The need for performance assessment in the water sector is summarized in AWWA's description of this manual:

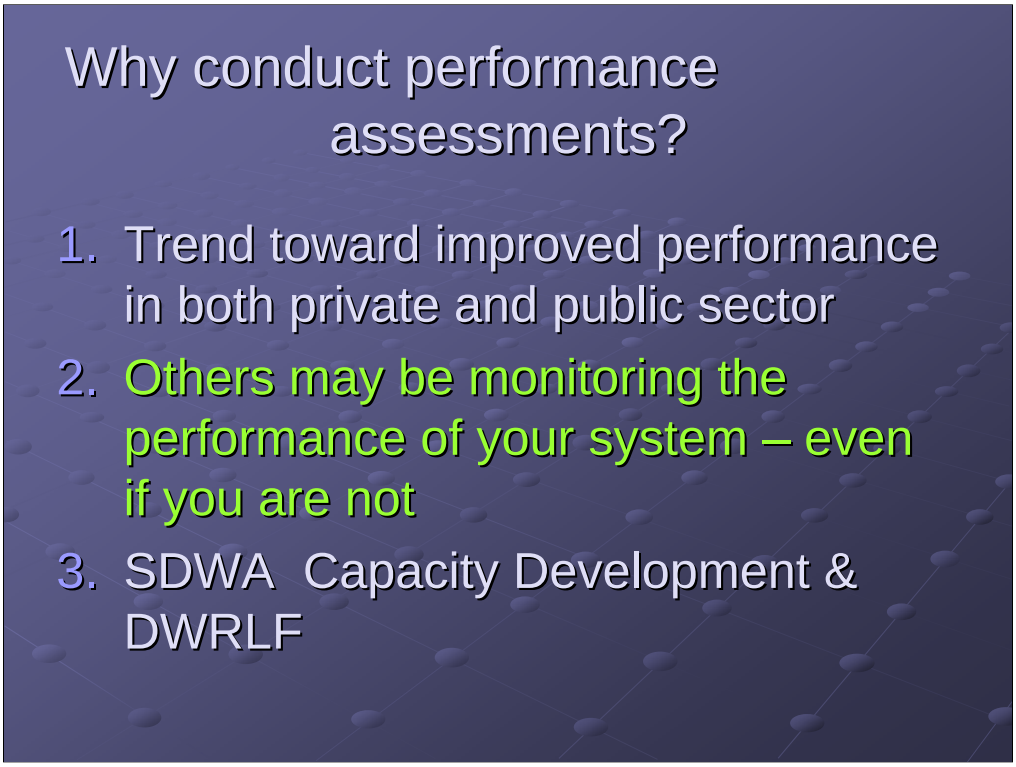
"In short, public water utilities are expected to operate more like private enterprise companies.

What is causing this fundamental shift?
How can a deeply entrenched, public-service monopoly like a municipal water utility become competitive, consumer-oriented, and willing to change?
What changes must managers make, both to themselves and to their utilities?
Can today's management techniques and business strategies help?
What lessons from other utilities can managers learn and apply? "
(source: AWWA web page description of "*Excellence in Action")*

One of the first studies to examine the potential role of performance assessment in the management of small drinking water systems was sponsored by the *Midwest Technology Assistance Center (MTAC).*

This *Benchmark Investigation of Small Public Water System Economics* set out to describe the performance assessment needs of small systems, and to identify the most effective indicators that could be used to measure financial performance. It also includes interviews with water system managers, regulators, technical assistance providers, and researchers, and an analysis of financial data provided by hundreds of small water systems in the Midwest.

One of the findings of this study was that small system managers were anxious to learn more about performance assessment techniques that could be used to improve the performance of their systems.



There are many “constituencies” involved in the production and consumption of water services.

Consumers, regulators, politicians, investors, and even other water systems may have an interest in the performance of your water system.

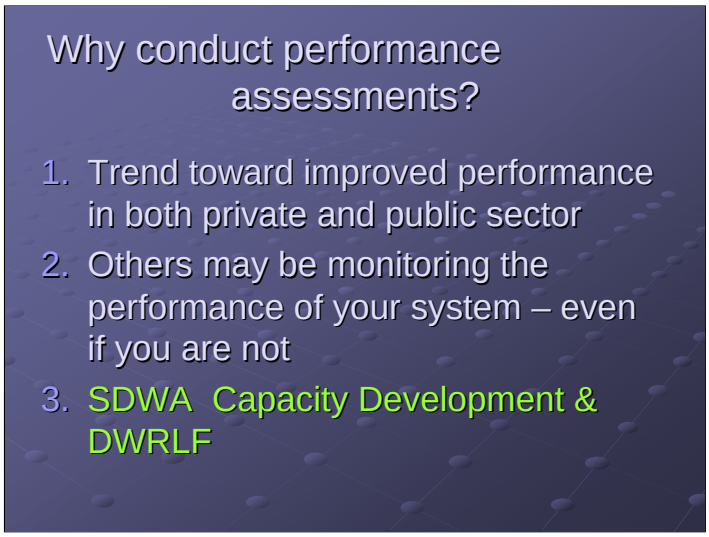
A second reason for conducting performance assessments is that members of these constituencies may be monitoring the performance of your water system; even if you are not.

Because of the massive investments required for water and sewer infrastructure, bond rating agencies have been involved in the business of evaluating the performance of water utilities and communities in order to provide advice on the risk involved in bond sales intended to support these projects.

Investor Service' such as Moody's use a wide variety of measurements to assess the ability of water systems to operate in a sustainable fashion.

It is important to remember that organizations like Moody's are making assessments of the performance of water systems throughout the country, even if the managers of those systems are not.

Water system managers that practice routine performance assessment, can be assured that reports prepared by organizations such as Moody's will have noting but good news to report about their water system.



A new era in water management began with the passage of the *1996 SDWA Amendments*. The provisions in these Amendments focused on actions and policies to strengthen the long-term sustainability of US drinking water systems, and provided a national source of funding assistance. The Amendments promoted a proactive approach to sustainability, creating a framework that could be used to determine the *capacity* of each drinking water system.

Water system *capacity* can be defined as the ability to plan for, achieve, and maintain compliance with applicable drinking water standards. Capacity has three components: technical, managerial, and financial. In order to be truly sustainable water systems must have adequate capacity in all three areas.

The 1996 Amendments also established a *Drinking Water State Revolving Fund (DWSRF)* to provide low-interest loans and grants to assist drinking water systems. The Amendments established a link between the DWSRF and capacity development provisions.

•States that fail to develop and implement programs to ensure that new systems demonstrate capacity and to assist existing systems in acquiring and maintaining capacity can loose up to 20% of their DWSRF allotment.

•Water systems that cannot demonstrate capacity are not eligible for DWSRF assistance.

This approach mirrors common business practices by denying funding assistance to businesses that, in their current condition, are unable to repay their loans. Systems that cannot demonstrate the capacity to operate in sustainable manner must find ways to either improve their operations, or to seek alternative organizational arrangements that will provide sustainable water services the their customers.

SDWA Capacity Development

- Access to funding assistance
- Must demonstrate "capacity"
  - Technical
  - Managerial
  - Financial

(source: http://www.epa.gov/safewater/smallsys/back4.htm)

Drinking water systems wishing to access DWSRF funding assistance must demonstrate their capacity for sustainable operations. Performance assessment techniques can be used to evaluate the three components of system capacity.

Technical capacity is the physical and operational ability of a water system to meet SDWA requirements.

The measurement of Technical Capacity focuses on three principal areas:

•Source water adequacy. Does the system have a reliable source of drinking water? Is the source of generally good quality and adequately protected?

•Infrastructure adequacy. Can the system provide water that meets SDWA standards? What is the condition of its infrastructure, including well(s) or source water intakes, treatment, storage, and distribution? What is the infrastructure's life expectancy? Does the system have a capital improvement plan?

•Technical knowledge and implementation. Is the system's operator certified? Does the operator have sufficient technical knowledge of applicable standards? Can the operator effectively implement this technical knowledge? Does the operator understand the system's technical and operational characteristics? Does the system have an effective operation and maintenance program?

SDWA Capacity Development

- Access to funding assistance
- Must demonstrate "capacity"
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  - Managerial
  - Financial

(source: http://www.epa.gov/safewater/smallsys/back4.htm)

Managerial capacity is the ability of a water system to conduct its affairs in a manner enabling the system to achieve and maintain compliance with SDWA requirements.

Assessment of managerial capacity focuses on three functions:

•Ownership accountability. Are the system owner(s) clearly identified? Can they be held accountable for the system?

•Staffing and organization. Are the system operator(s) and manager(s) clearly identified? Is the system properly organized and staffed? Do personnel understand the management aspects of regulatory requirements and system operations? Do they have adequate expertise to manage water system operations? Do personnel have the necessary licenses and certifications?

•Effective external linkages. Does the system interact well with customers, regulators, and other entities? Is the system aware of available external resources, such as technical and financial assistance?

SDWA Capacity Development

- Access to funding assistance
- Must demonstrate "capacity"
  - Technical
  - Managerial
  - Financial

(source: http://www.epa.gov/safewater/smallsys/back4.htm)

Financial capacity is a water system's ability to acquire and manage sufficient financial resources to allow the system to achieve and maintain compliance with SDWA requirements.

Three key functions must be assessed to assure adequate financial capacity:

•Revenue sufficiency. Do revenues cover costs? Are water rates and charges adequate to cover the cost of water?

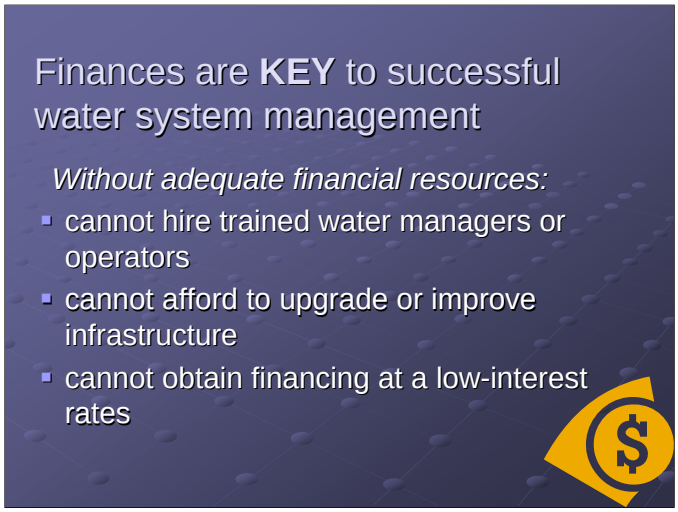
•Credit worthiness. Is the system financially healthy? Does it have access to capital through public or private sources?

•Fiscal management and controls. Are adequate books and records maintained? Are appropriate budgeting, accounting, and financial planning methods used? Does the system manage its revenues effectively?

(Source: Ratio 8: *http://sspa.boisestate.edu/efc/Tools_Services/Ratio8/Ratio_8.htm)*

While all three components of water system capacity are necessary for sustainable water system operations, financial performance is the key ingredient.

This key role of financial performance has made it the focal point of efforts to improve small systems.



The key role of financial performance reaches across all elements of system operations.

Without adequate financial resources:

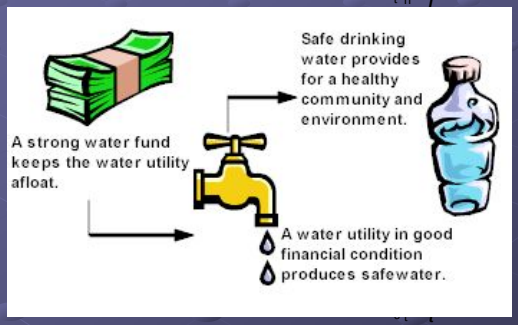
•There are not sufficient funds to hire or retain trained staff and/or improve training of current personnel

•There is not enough money to pay for needed infrastructure improvements, proper maintenance of existing infrastructure, to purchase money saving technologies, or to reserve funds to address emergencies or save for future system upgrade.

•Systems that are cannot demonstrate their ability to properly collect revenues and manage their finances will be unable to obtain low-interest loans from any lender.

Why is Financial Assessment Important?

Providing safe drinking water is the most necessary endeavor your community can undertake. To ensure you are providing safe drinking water, your water system needs to have the financial resources to renew and replace equipment, test water for pollutants, take corrective actions and meet other service and financial obligations – to constituents, creditors, consumers, taxpayers and suppliers.



Environmental Finance Center
Boise State University

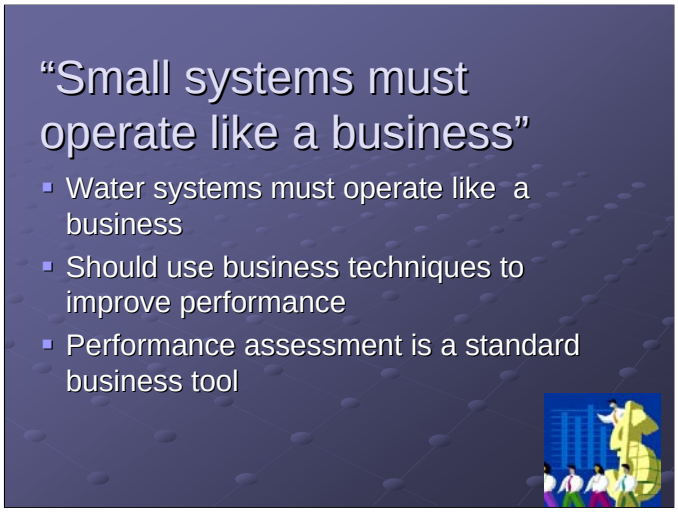
(Source: http://sspa.boisestate.edu/efc/)

To deliver safe water, your water utility needs to have a secure water fund.

The role of financial management is so critical to water systems and other environmental infrastructure that USEPA established a network of nine *Environmental Finance Centers* (EFC) specifically to "educate state and local officials and small businesses on lowering costs of compliance and pollution prevention, increasing investments in environmental protection, improving financial capacity to own/operate environmental systems, encouraging the full cost pricing of environmental services, and identifying and evaluating financing tools and options ."

(*Source: Environmental Finance Program (EFP) Overview: http://www.epa.gov/efinpage/efp.htm*)

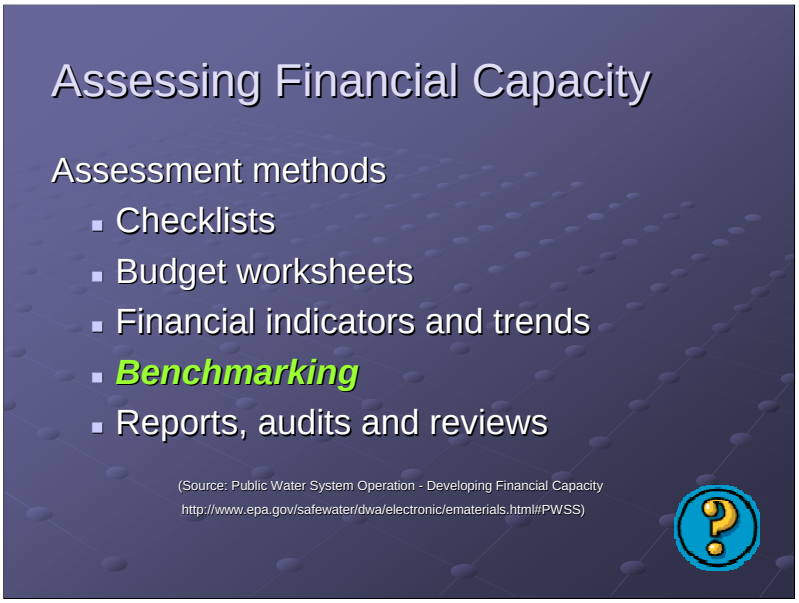
This excerpt from the *Boise State EFC* website *(Source: http://sspa.boisestate.edu/efc/)* on this slide emphasizes the link between strong finances and safe water.



The essential message of "financial capacity" has been translated into a phrase that is often repeated in small systems trainings, publications, and web sites. This is the recommendation that small drinking water systems ***MUST OPERATE LIKE A BUSINESS.*** In order to be "sustainable", small water systems must be "business-like" so that they can be "self-supporting".

Small water systems face all of the challenges of every small business enterprise. To survive in this tough business environment they need to take advantage of the numerous tools developed by the business community.

Performance assessment is one of the standard tools used to evaluate and improve business performance. Numerous assessment methods are available.



The **assessment process** (which may include the joint evaluation of managerial and financial capacity), can play an important role in capacity development.

Assessment methods can be used to identify systems in **financial trouble** or **at risk** of experiencing financial difficulty in the future.

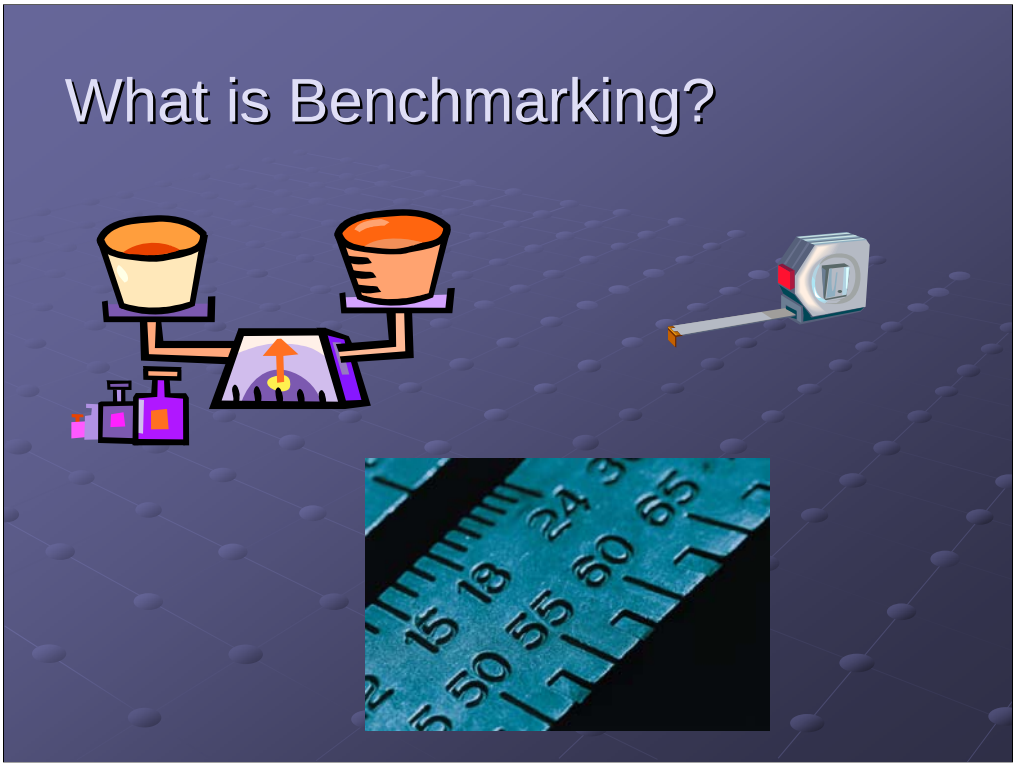
Some of the **methods** available for assessing financial capacity include:

- Checklists
- Budget worksheets
- Financial indicators and trends
- ***Benchmarking***
- Reports, audits and reviews.

The rest of this presentation will focus on ***Benchmarking.***

Further details on the other assessment methods can be found in the USEPA *Developing Financial Capacity* training module.

http://www.epa.gov/safewater/dwa/electronic/ematerials.html#PWSS

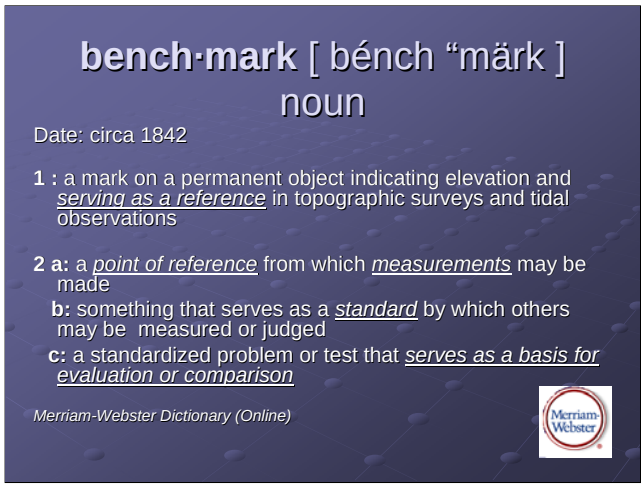


So what is ***benchmarking*** ?

The best way to understand benchmarking may be to start with a definition.

However, there are many organizations that perform and promote benchmarking, and each one has a slightly different definition.

Several definitions are presented in the following slides in order to assemble a broad perspective on the meaning of benchmarking that can be applied to small drinking water systems.

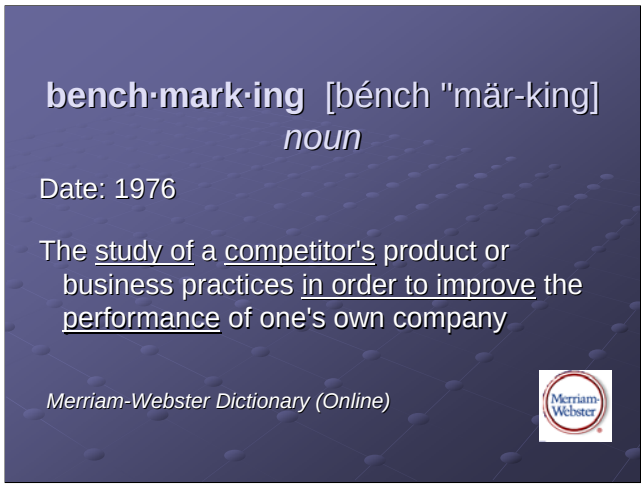


The root of the term benchmarking is of course **benchmark**.

The definitions of *benchmark* that appears in the Merriam-Webster Dictionary provide considerable insight into the meaning benchmarking.

The original use of the word is derived from surveying, which is the art of measuring and recording the landscape and changes in the landscape in order to make and update maps. Without the topographic reference points provided by benchmarks, surveying would not be possible.

The term benchmark has also come to have a more general meaning that refers to a point of reference used in any measuring procedure, that can serve as a standard or basis of comparison.

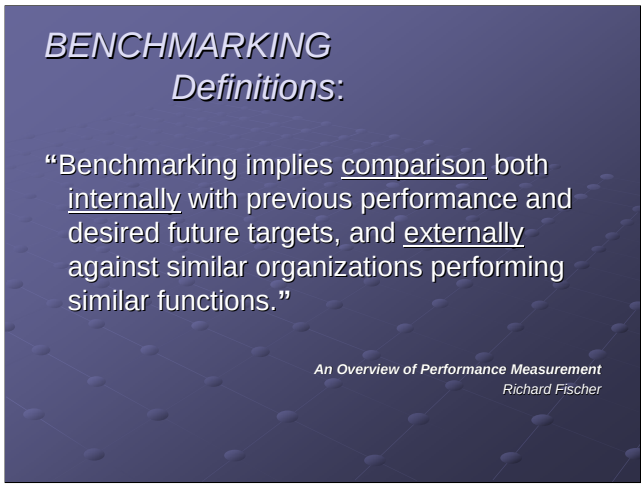


By the mid-1970s “benchmarking” had become so common that the term was added to the dictionary.

Merriam-Webster describes it as a process that involves studying what your “competitors” are doing as a way of improving your own organization’s performance.

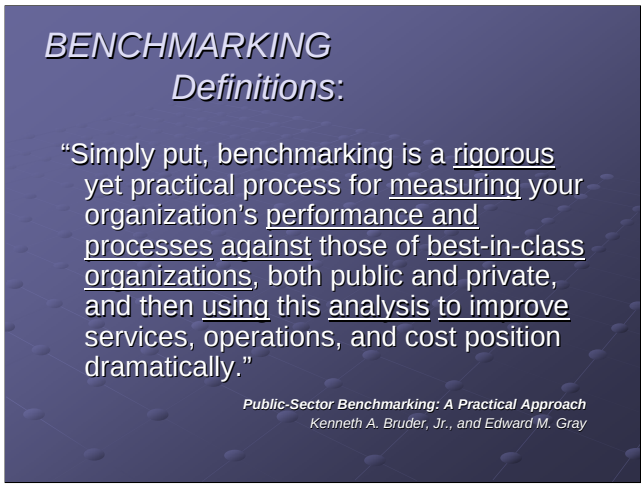
This definition includes the concepts of observing competitors for the purpose of performance improvement.

This definition began to expand as businesses and business advisors began to gain more experience with the technique.



Richard Fischer's definition points out the importance of using comparisons over time *within* the organization as way to monitor and improve performance.

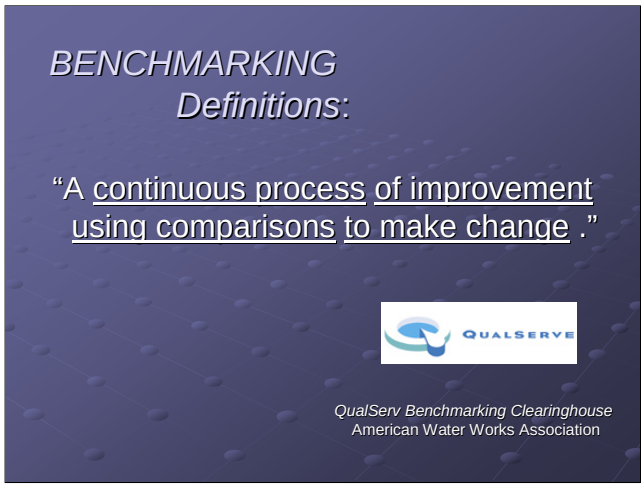
This *internal* form of benchmarking is particularly useful in determining trends that are taking place within the organization and for evaluating the progress of performance improvement programs.



Ken Bruder and Edward Gray stress that benchmarking is a "rigorous" process.

Benchmarking is NOT an informal of casual comparison between organization, but is a systematic approach that employs carefully selected indicators capable of identifying and measuring critical performance differences.

Furthermore, by making these comparisons to the best performing organizations, it is possible to identify and adopt the processes used by those best-in-class performers, and adopt or adapt them to improve the performance of your own organization.



Benchmarking has become one of the most important performance assessment tools in the water supply industry.

The *American Water Works Association QualServ* program uses a wide variety of approaches, including benchmarking, to improve water services performance.

The *QualServ* benchmarking definition, while simple, incorporates many of the concepts included in the previous definitions, highlighting the continuous nature of the process, the use of comparison, and the goal of make changes for improvement.

QualServ also notes on their web site that:

•Benchmarking is a tool to help you improve your business processes. Any business process can be benchmarked.

•Benchmarking is the process of identifying, understanding, and adapting outstanding practices from organizations anywhere in the world to help your organization to improve its performance.

•Benchmarking is a highly respected practice in the business world. It is an activity that looks outward to find best practices and high performance and then measures actual business operations against those goals.

(Source: *http://www.awwa.org/science/qualserve/)*

Several common themes can be found in this collection of definitions.

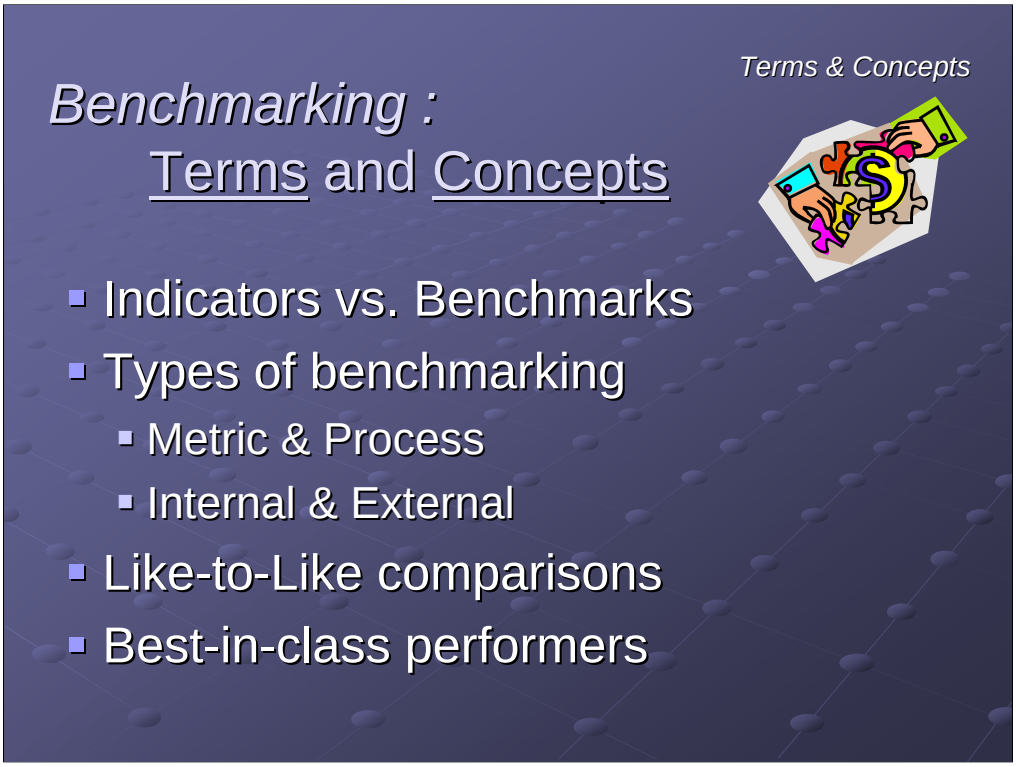
•Benchmarking is a *performance assessment tool* that is used to assess, and more importantly, improve performance. It is synonymous with *learning* and *action.* It makes little sense to even begin a benchmarking assessment without a firm commitment to action.

•Benchmarking involves a *systematic* approach to *measurement*. Indicator measures are carefully selected on the basis of their ability to represent actual performance.

•The key to benchmarking is *comparison*. An organization can compare the value of its indicator measures to a recognized standard, to measures from its own operations during a previous time period, or to the indicator measures from other organizations.

•The purpose of this comparison is to identify those practices that allow one firm to perform better than its peers. Organizations learn how to improve their own performance by adopting or adapting the practices of those organizations that are the *best-in-class*.

•Finally – benchmarking is a *continuous process* that is constantly re-evaluating performance and seeking opportunities for improvement of all organizational functions.

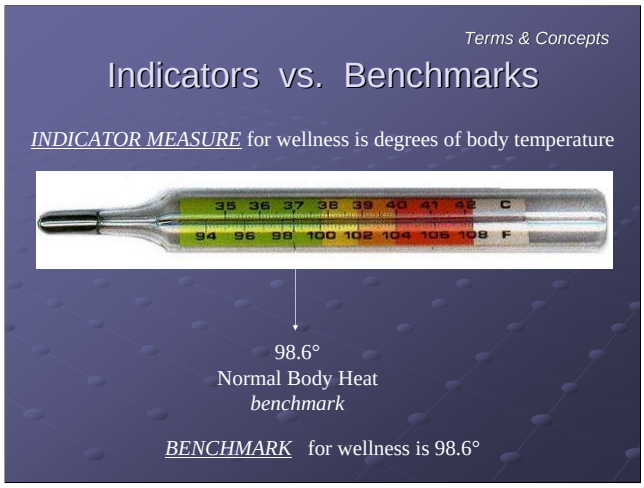


Like any process or technique, benchmarking has its own terminology.

Some of the “language” of benchmarking is reviewed in the next few slides.

Several terms and concepts are described:

- Indicators
- Benchmarks
- Metric, process, internal, and external benchmarking
- Like-to-like comparisons
- Best-in-class performers



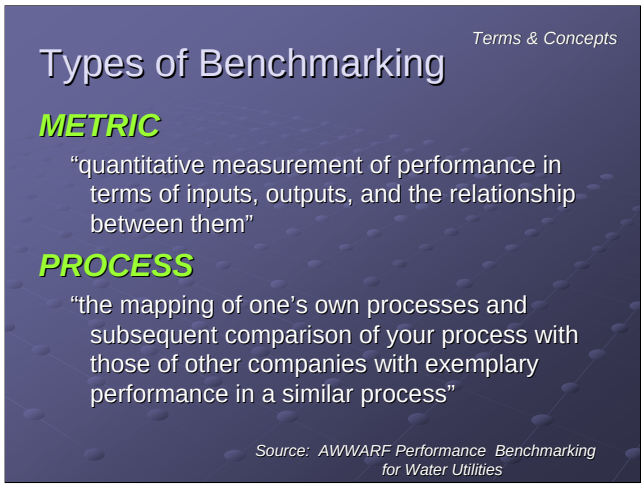
Although the terms indicators and benchmarks are often used interchangeably, in the benchmarking process they have unique meanings and it is important to clarify the difference.

Indicators are those measures that have been shown to be related to the performance of the function that is being investigated.

Benchmarks are the point(s) on the indicator measurement scale that discriminate between good and poor performance.

A thermometer analogy is useful in describing the distinction between these two terms.

A common *indicator measure* of wellness is body temperature. The *benchmark* for this indicator measure is “normal” body temperature of 98.6° (Fahrenheit).



Performance assessment programs almost always include two types of benchmarking.

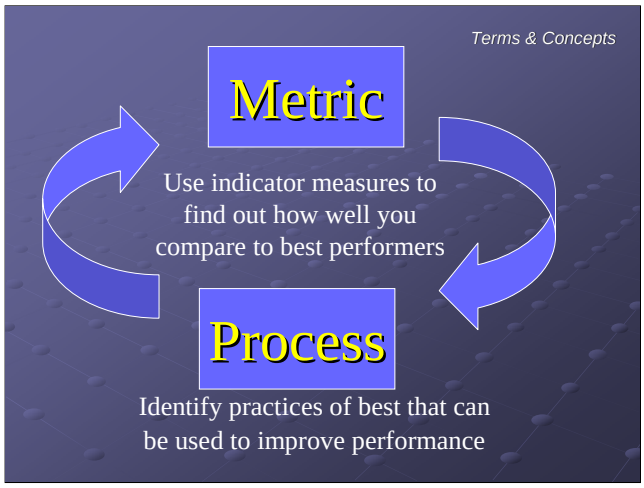
The American Water Works Association defines these as:

Metric Benchmarking is the quantitative measurement of performance in terms of inputs, outputs, and the relationship between them.

Process Benchmarking is the mapping of one's own processes and subsequent comparison of your process with those of other companies with exemplary performance in a similar process

Simply put, metric benchmarking is the practice of using information that is in the water system records to calculate "performance indicator measures". These indicators are the yardsticks or measuring tools that are used to examine performance.

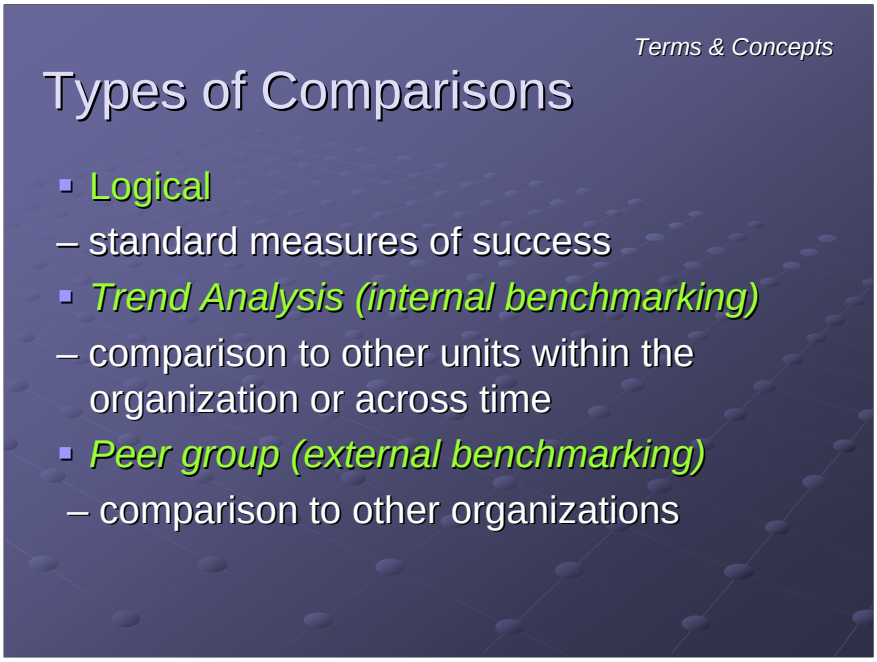
Process benchmarking is the examination of those practices used by your organization (and others) that can influence these performance indicators. Improved processes will result in improved outcomes, as measured by performance indicators.



Metric and *process* benchmarking are combined in a cycle of measurement and investigation of what works to improve performance.

Metric benchmarking provides the measures that are used to compare organizations. Those having the "best" levels of these indicator measures are using practices that have helped them to achieve a higher level of performance.

Once these "*best-in-class*" achievers are identified, a review of their business practices, or p*rocess benchmarking* investigation, can be conducted to identify what the specific practices that are responsible for improving perfromance.



Three types of benchmarking comparisons are possible.

•Logical - comparison to a logical or absolute measure of performance that is linked to the mission of the organization

•Trend analysis or “Internal” benchmarking compares performance measures for the same organization at different points in time

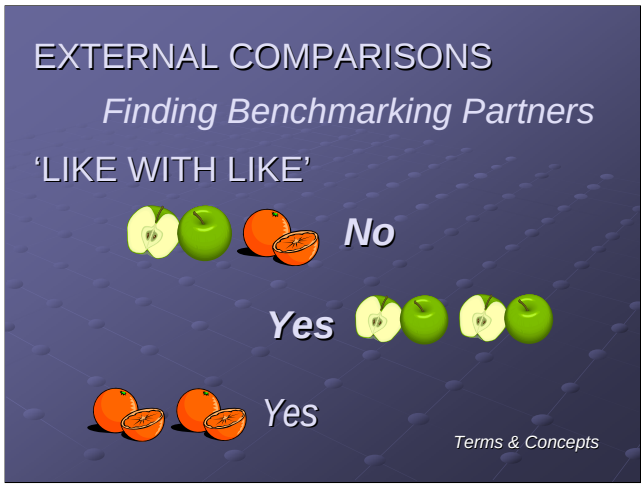
•Peer group or “External” benchmarking compares the performance of one organization to that of its peers.

Many water systems functions can be assessed using simple logical comparisons. For example, if water quality cannot meet the minimum levels set by USPEA standards, then the system is out of compliance, and may not be allowed to continue to operate. Or if a water systems does not generate enough revenue to pay all of its expenses, it will eventually need to cease operations and turn over system management to another organization.

Time series comparisons are especially useful for water systems to check whether or not water systems are keeping up with inflation. The tradition of long periods between rate increases at many water systems has made this assessment particularly important for water system management. Time series assessment also provide a way to obtain feedback on the success (or failure) or performance improvement programs.

External comparisons provide the highest potential for capturing new ideas that can rapidly improve water system performance. External benchmarking is the mechanism that can identify what best-in-class performers are doing to improve their performance in your area of concern.

Water system performance assessment must rely on all three forms of comparison.

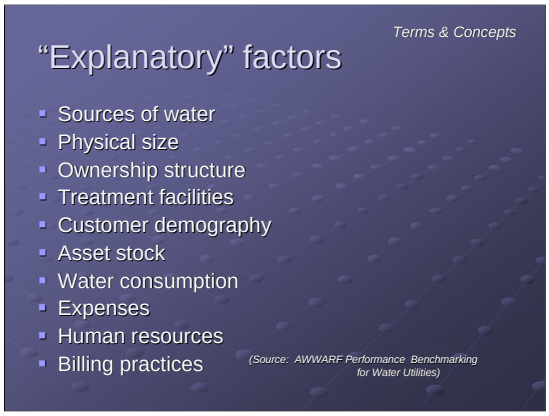


The most important consideration when making external comparisons is to be sure that the organizations that are being compared do not have any differences in their physical or operational structures that would unduly influence the indicator measures that are being used to make the comparisons.

This is best expressed by the commonly used term of making "apples – to apples" comparisons.

Organizational size is probably the factor most often considered when selecting benchmarking partners, because economies of size (bigger is cheaper) exist in almost every form of organization.

When comparing drinking water systems, water source is very important, because of the financial impact of the differences in the regulatory requirements between surface and groundwater systems.



In their analysis of water system performance assessment, the *American Water Works Association Research Foundation* listed a number of factors that could be important in the selection of "apples-to-apples" benchmarking partners.

They describe these as "explanatory factors" and note that they are generally beyond the range of the control of water system managers.

Some of the factors that may need to be considered are:

- Sources of water
- Physical size
- Expenses
- Ownership structure
- Customer demography
- Water consumption
- Asset stock
- Human resources
- Treatment facilities
- Billing practices

Whether an explanatory factor is important or not depends upon the function that is being studied.

For some functions, it may actually prove useful to seek out systems that are nothing like yours, or may even to examine how the functions is being performed by an entirely different type of firm. For example, a water system seeking to improve its billing methods might examine how the local bank sends out their monthly statements. This "out-of-category" form of benchmarking may provide valuable insights not be possible from only examining water system billing practices.

Why benchmark?

There are both short and long answers available to answer the question, Why benchmark? At its simplest, benchmarking can help you "to find out where you're at and to plan where you are going".

Benchmarking does this by:

- establishing the criteria that underlie performance,
- identifying problem areas within respective services, and
- improving service delivery by importing best practices.

There are many ways that benchmarking can specifically help small drinking water systems:

Practicality: Perhaps the real question that system managers should be asking is "Why not benchmark?" Most of the basic benchmark indicators can be calculated using information that should be easily available from utility records. Even the simplest evaluation and comparison can provide valuable management direction.

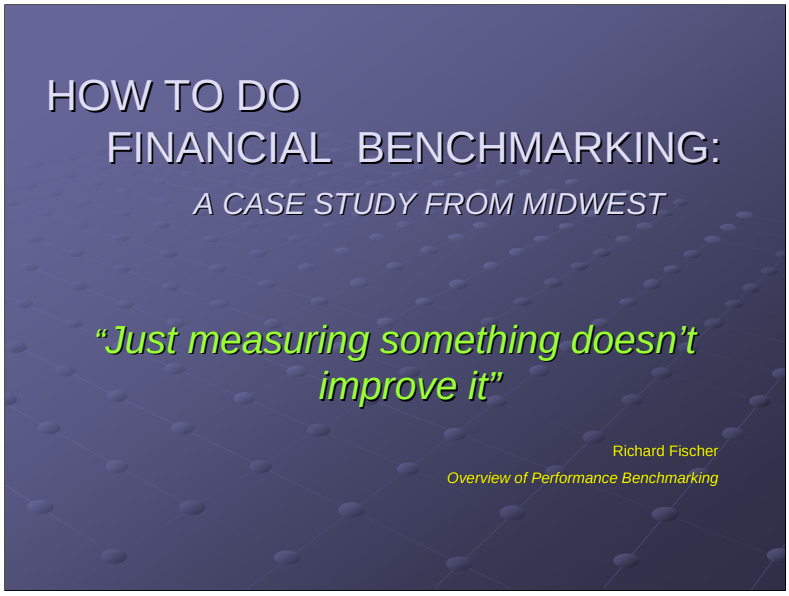
Accountability: Benchmarking provides a way for managers to demonstrate the efficiency of their systems to consumers, regulators, and lending institutions. Systems that benchmark have the evidence on hand that they need to demonstrate:

- to consumers, the importance of rates keeping pace with inflation and system maintenance and improvements
- to regulatory agencies, the ability to meet capacity development guidelines, and
- to lending institutions, the ability of system management to meet lending obligations

Planning/budgeting: Benchmarking provides a clear idea of the relationship of costs to income. This provides utilities with the information that they need to map out their futures. *Operational improvement:* Benchmarking can help to identify operational strengths and weaknesses and to take action to quickly resolve problems.

Evaluation: Benchmarking can be used to monitor and document the effectiveness of performance improvement programs.

Competitiveness: Private sector water systems and consulting firms are rapidly becoming a force in the management of small drinking water systems. Benchmarking can help public works departments to compete against their private sector counterparts. There is no inherent reason why public drinking water systems can not be as efficient, or more efficient, than those in the private sector. Benchmarking analysis can be used to demonstrate that the performance of community's water system meets or exceeds that of competitors, or other systems in the region.



In order to demonstrate *HOW* benchmarking works, a simplified case study was developed using the financial data from some of the systems that participated in the *Benchmark Investigation*. This case study describes a hypothetical situation where one small system uses benchmarking to assess its financial performance.

The water systems in the case study are identified by code numbers.

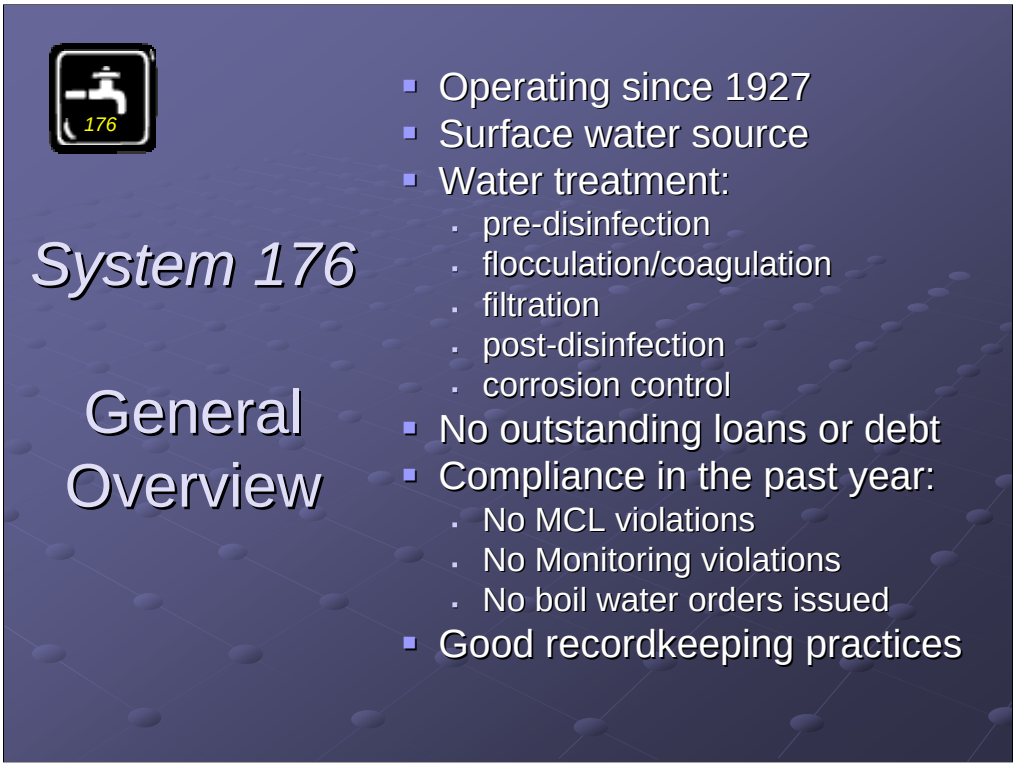
System 176 is the subject of the case study and will be described in detail in the following slides.

It is important to note that the case study uses data collected in the year 2000, and presents the reported revenues and expenses that were current at that time.

A description of the case study water system and the hypothetical scenario is presented in the next four slides.

This is followed by a review of the "steps" used to implement the benchmarking process.

Then each step will be reviewed in detail as it applied to implement the benchmarking goals of System 176.



System Description

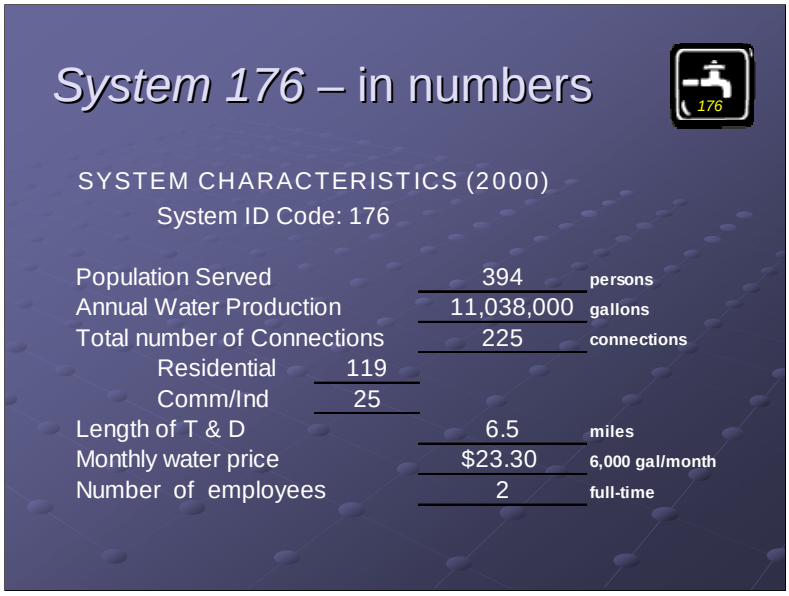
System 176 is a municipal water system that was started in 1927.

Water for the community comes from a surface water reservoir and treatment includes: pre-disinfection, flocculation/coagulation, filtration, post-disinfection, and corrosion control.

The system has no outstanding loans or any other form of debt.

There have been no maximum contaminant level or monitoring violations in the past 3 years, and the systems has not needed to issue a single boil water order in the past year.

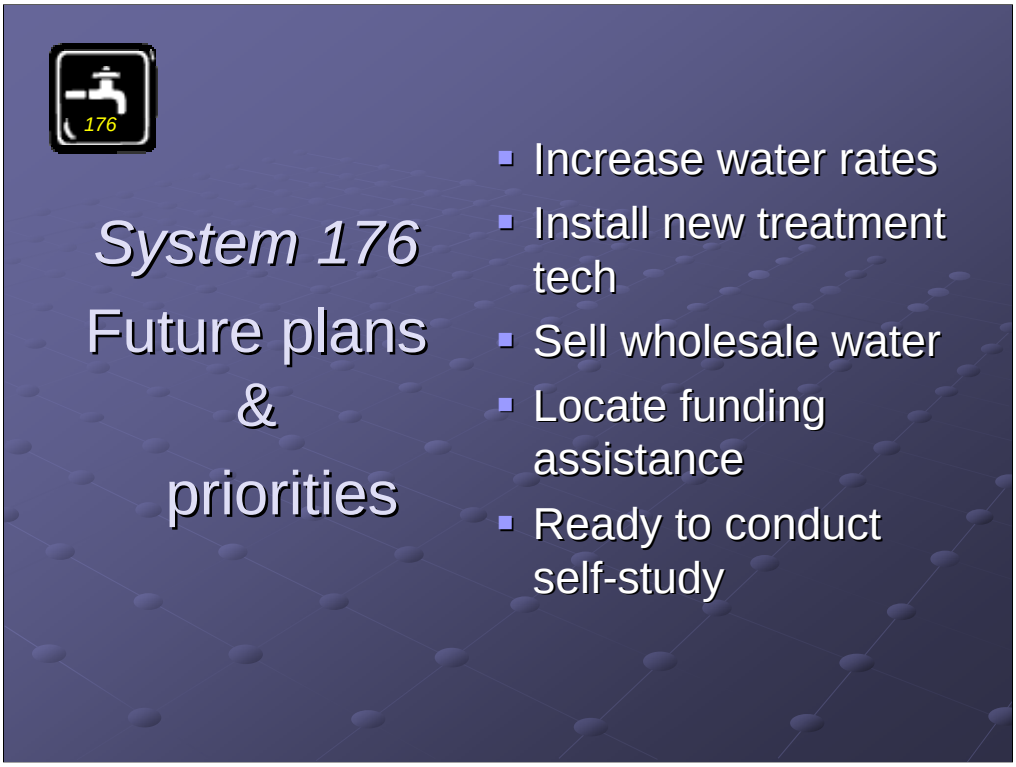
The systems maintains good financial records, including an income statement and balance sheet. System managers prepare an annual budget, prepare “year-to-date” assessments, and monthly financial reports.



The water system has 2 full-time employees and 100% of the systems connections are metered. Customers who are connected to the system pay $23.30/month for 6,000 gallons of water. Total annual production for the system is 11,038,000 gallons.

It currently has 224 connections and serves an estimated population of about 394 people. About 10% (25) of the connections serve commercial and industrial establishments.

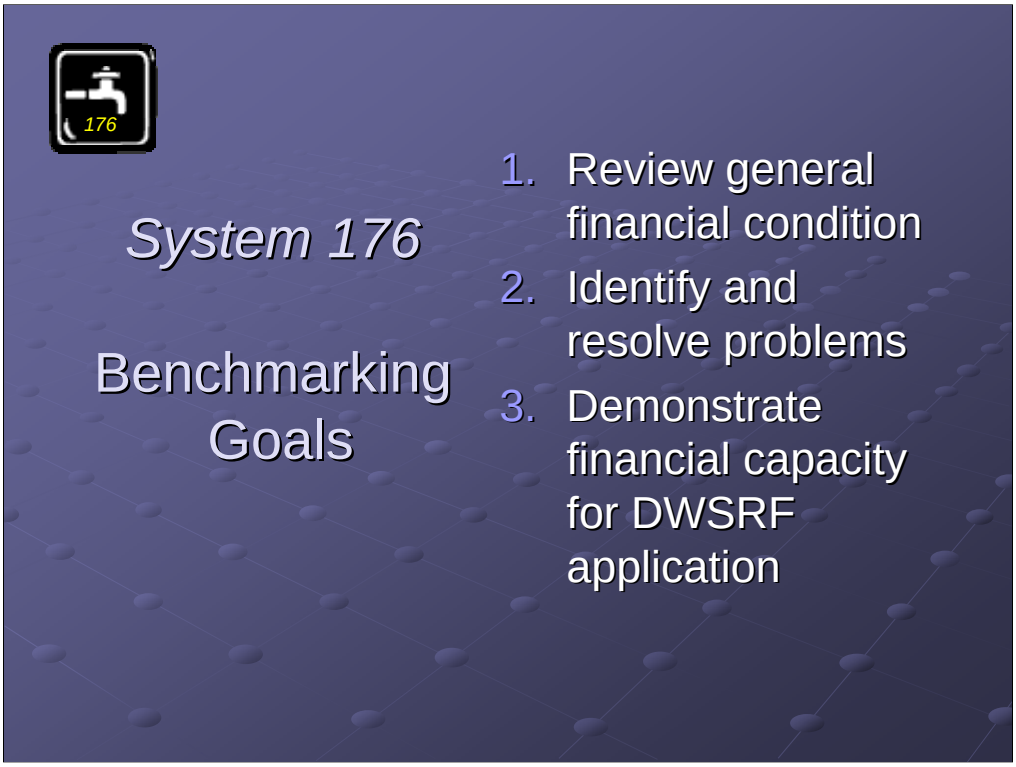
The system maintains approximately 6.5 miles of transmission and distribution line.



In the year 2000 the town council decided to seek funding to upgrade the existing water treatment facility.

As the first step in that process, the water system manager was ordered to prepare an assessment of current water system finances, and to identify those areas of system performance that were in need of attention. The town council wanted to be sure that any problems with the system would be identified and resolved prior to beginning the search for financial assistance.

All the members of the town council and the water system staff were enthusiastic about the review of water system finances and anxious to begin the upgrade. The town council voted to support the investigation, if necessary, with funds from the town's general revenues, and the assistance of the municipal support staff.

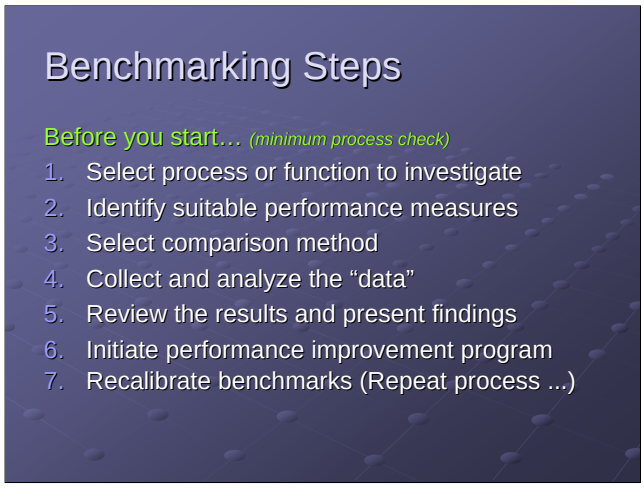


The water system manager and several members of the town council prepared a list of the goals that they wished to address during their assessment of the performance of the system.

Their first goal was to perform an investigation of the overall financial well-being of the system.

This evaluation would be used to identify those areas of system finances that needed attention, and to take action to resolve these problems.

The third goal was to generate information that could be used to demonstrate the system's ability to conform to capacity development guidelines. This documentation could then be included in their application for funding assistance for the Drinking Water State Revolving Fund.



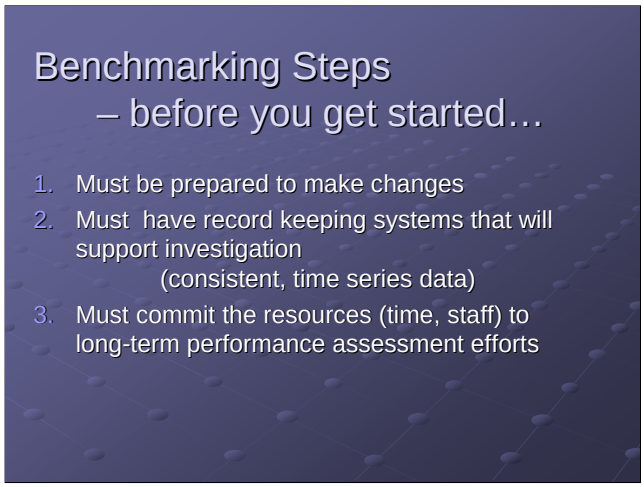
The benchmarking process has been described in many different ways by performance assessment practitioners.

Links to summaries of different approaches to the benchmarking process are included at the end of this training module.

A generic, seven-step, benchmarking procedure, based upon several of these other approaches, was developed to demonstrate the benchmarking process for this case study. It combines components of several of these other approaches.

The seven steps that are demonstrated in the case study are:

1. Select process or function to investigate
2. Identify suitable performance measures
3. Select comparison method/partners
4. Collect and analyze the "data"
5. Review the results and present findings
6. Initiate performance improvement program
7. Recalibrate benchmarks (Repeat process ...)

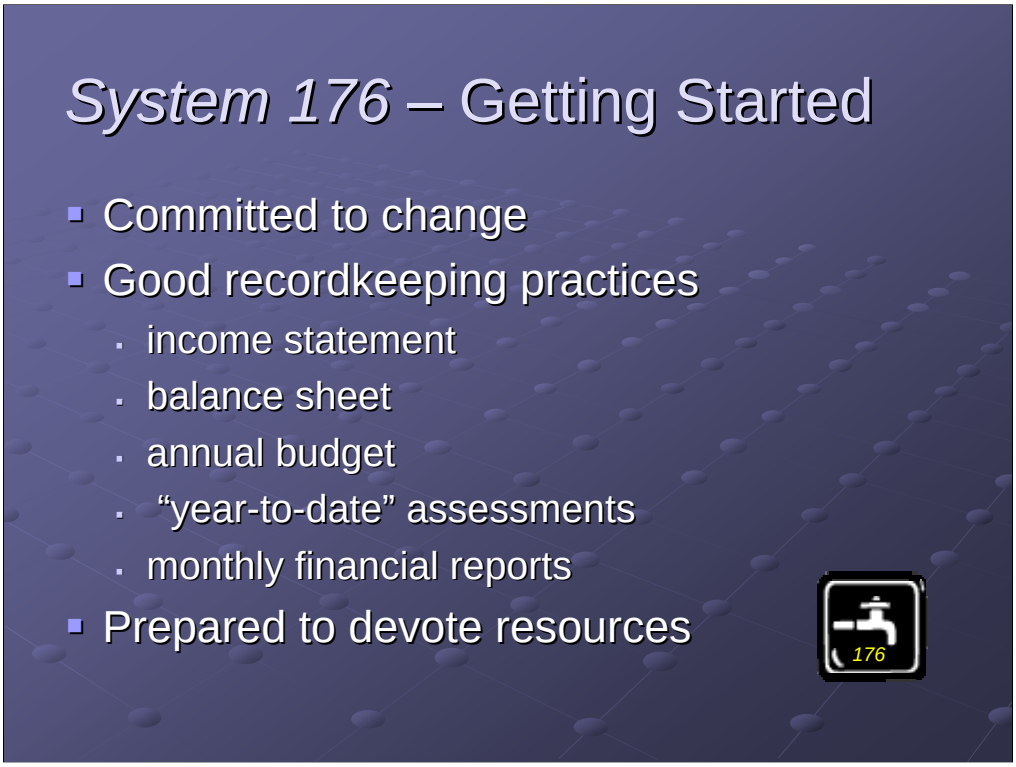


There are several preconditions that must be met before benchmarking can begin.

•The organization must be genuinely prepared to make changes

•The organization must have a record keeping system that can support performance assessment efforts (A surprisingly large number of water systems do not keep accurate records of critical information that can be used in performance assessment efforts. More than 17 percent of the systems that participated in the *Benchmark Investigation* reported that they prepared no financial reports for their systems.)

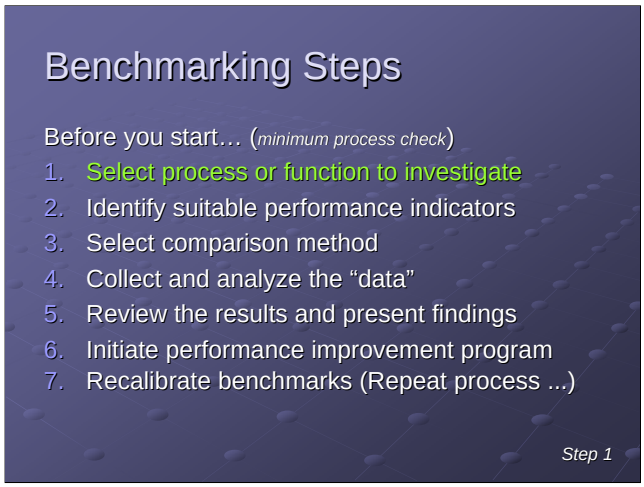
•The organization must commit the necessary staff (or volunteer) time to study performance, and design and implement performance improvement programs.



The case study scenario described the community leaders and managers of System 176 as committed to making changes to improve the performance of their system, and ready to devote the resources necessary to conduct an assessment of system performance.

The survey response from System 176 to the *Benchmark Investigation* noted that the system maintains many different types of financial records and would have a wealth of information available that could be used to assess the System's past and current performance.

System 176 meets all of the preconditions for beginning a benchmarking study.



The first step in benchmarking is to identify the function(s) that will be examined during the performance assessment process.

The specific areas to be targeted during benchmarking can be derived from the utility's Mission Statement or Strategic Plan, if one is available.

It may also be helpful to develop a list of questions that can be used to guide the selection process.

For example:

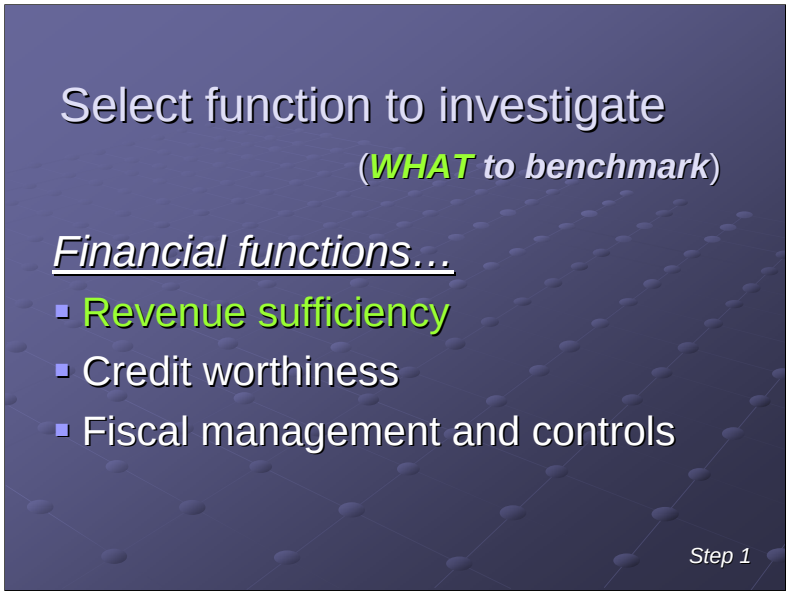
•What is essential to the organization's success?

•Where are we currently experiencing problems?

•What are the critical outputs in the problem areas?

(*Source: AWWARF Performance Benchmarking for Water Utilities*)

In the case study scenario, the managers of System 176 determined that they wanted to begin with a general review of their water system's financial condition.



The capacity development framework developed by USEPA describes three major components of a water system's (or any other business') financial function:

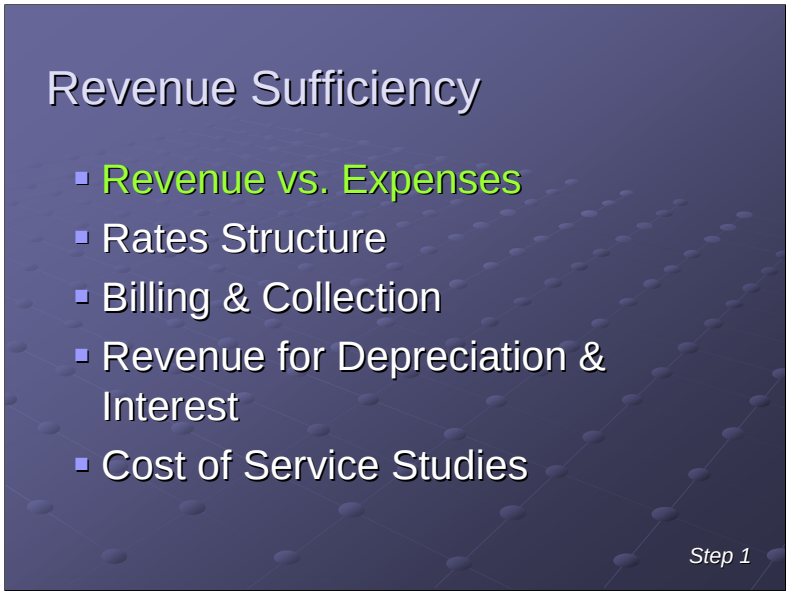
•Revenue sufficiency

•Credit worthiness

•Fiscal management and controls
(Source: http://www.epa.gov/safewater/smallsys/back4.htm)

The first, and perhaps foremost, financial function is revenue sufficiency.

It is the foundation of water system finances.



The revenue function can be further broken down into several smaller functional areas that can be examined.

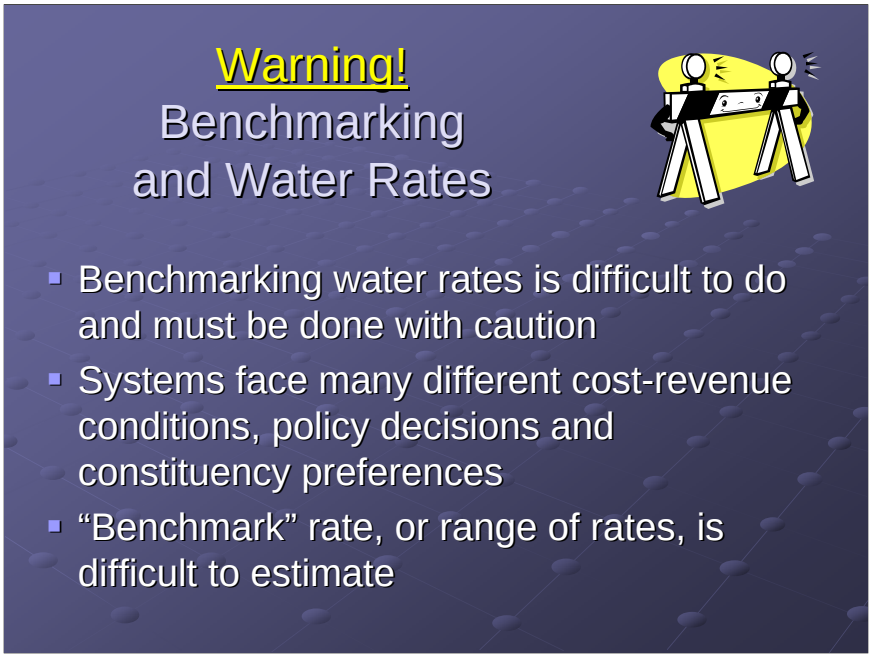
- Revenue vs. Expenses
- Rates Structure
- Billing & Collection
- Revenue for Depreciation & Interest
- Cost of Service Studies

(Source: Ratio 8: *http://sspa.boisestate.edu/efc/Tools_Services/Ratio8/Ratio_8.htm)*

The simplest yet most important aspect of revenue sufficiency is finding out if there is enough revenue to cover expenses.

(Note: more that 15% of the small systems that submitted financial data to the *Benchmark Investigation* did not collect enough revenue to cover their expenses.) .

In the case study scenario, the first function that will be assessed for System 176 is the balance between revenues and expenses.



Before beginning the investigation of revenues and expenses, it is important to say a word about some of the difficulties of making water rate comparisons.

Water rates are often the topic of greatest interest to utility managers and customers alike.

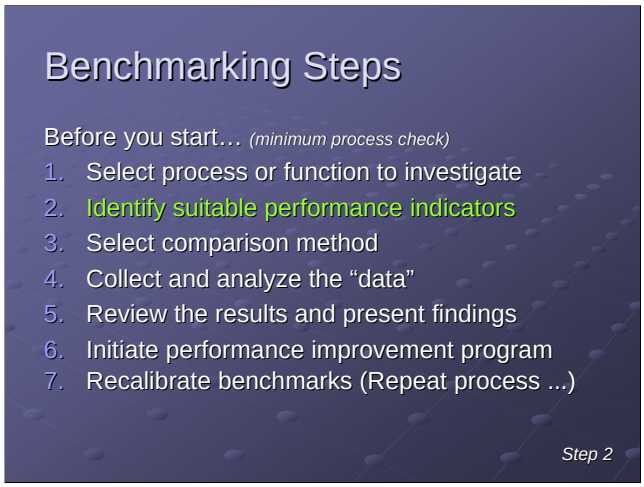
However, comparing the rates charged for water services is particularly difficult because of differences in the physical and organizational structure of each system and their ratemaking practices.

Some communities may boast about how low their water rates are compared to surrounding communities.

However, *low water rates may actually be a sign of poor financial management* if these rates are do not represent the full cost of proving water services.

Water rates are practically unique to each water system and there may be little value in attempting to compare water rates between systems, or to develop benchmarks for the many different configurations of drinking water systems.

The task of comparing systems based upon their water rates must always be approached with caution.

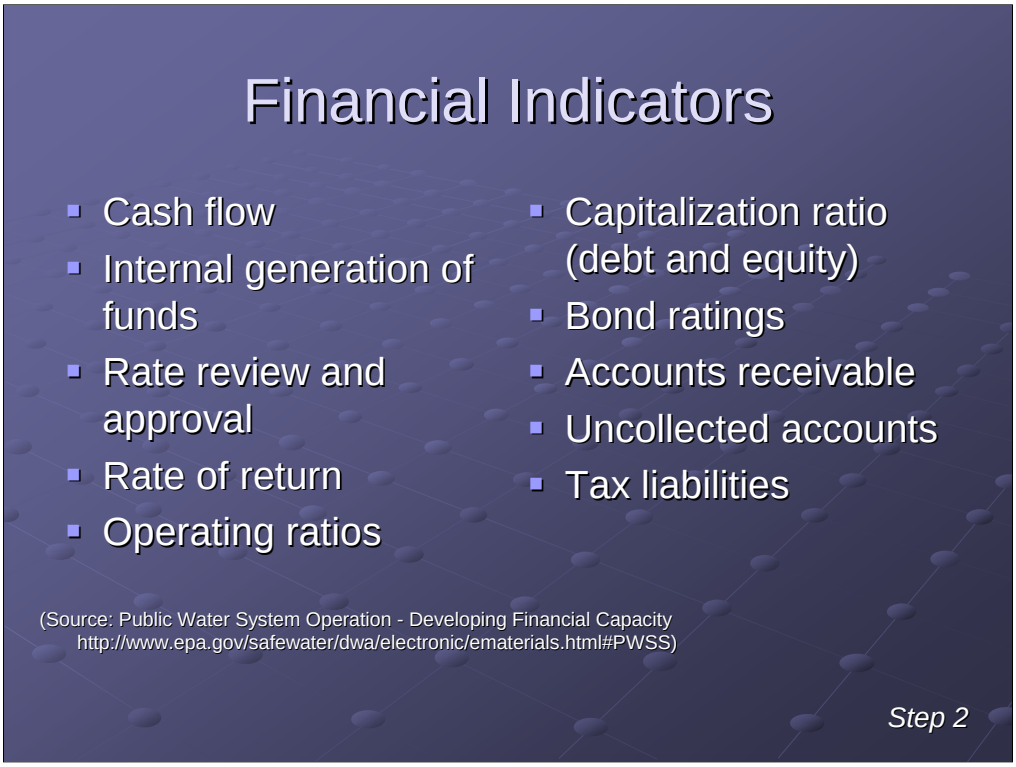


The second step in the benchmarking process is to identify the performance indicators that will be used to measure the function under investigation.

It should be no surprise that the business community has developed a great many performance measures to assess business financial performance.

These are equally applicable to the small drinking water system “business”.

Many list of these measures can be found in water system financial manuals and journals.

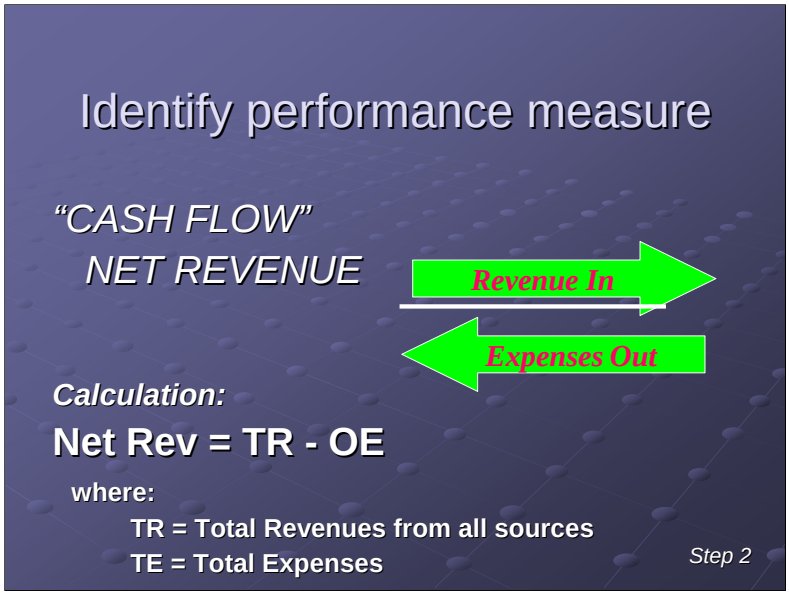


For example, USEPA's *Developing Financial Capacity* training module lists a variety of **financial indicators** that can be used for screening and assessment:

These **indicators** include**:**

- Cash flow
- Internal generation of funds
- Rate review and approval
- Rate of return
- Operating ratios
- Capitalization ratio (debt and equity)
- Bond ratings
- Accounts receivable
- Uncollected accounts
- Tax liabilities

Most of these measure can be calculated from a water system's financial records.

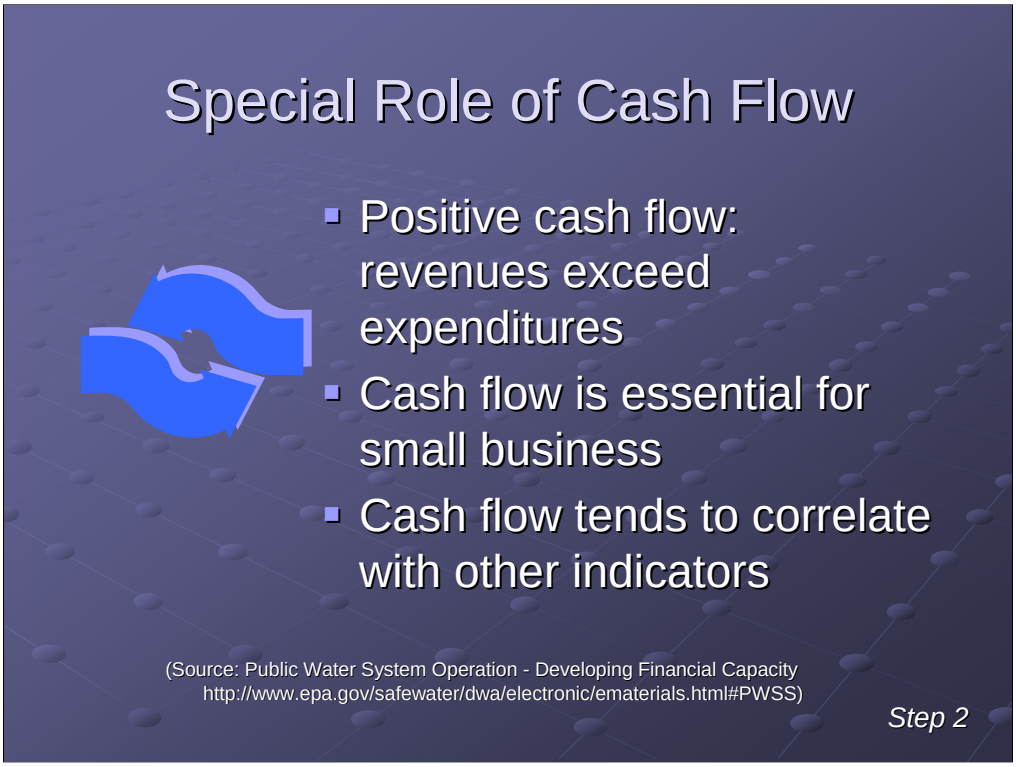


There are many measures of revenue sufficiency..

The most obvious and simplest measure of revenue sufficiency is **Net Revenue**.

Net Revenue compares the annual total revenues to annual total expenses.

When all of the collections of payment by customers are up-to-date, and water system bills are being paid on time, then Net Revenues are equal to **Cash Flow**.

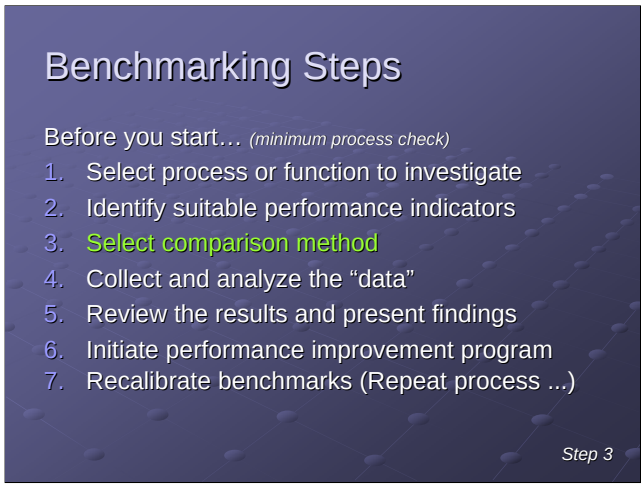


Cash flow has a special role in the management of small businesses.

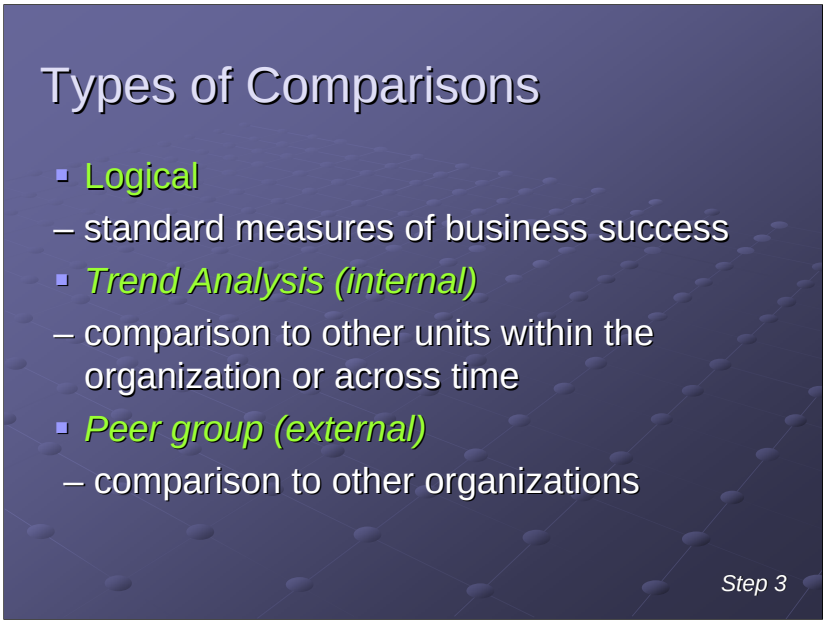
Positive cash flow is achieved when revenues exceed expenditures for a sustained period of time.

Cash flow is **essential** for all small businesses, including water systems.

Cash flow tends to correlate with other indicators of **financial health.**



The third step in the benchmarking process is to select the comparison method that is appropriate for the chosen indicator measure.



There are three basic types of comparison that can be performed.

Water system performance assessment must rely on all three forms of comparison.

Logical comparisons are based upon standard measures of business success that are linked to basic mission of the organization.

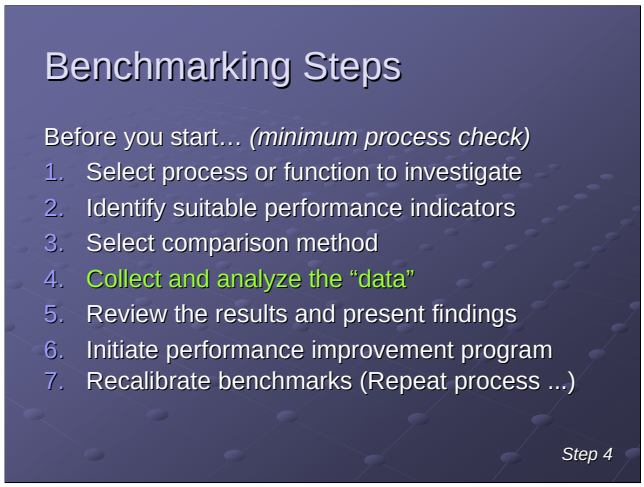
For example:

Water systems, as the provider of a publicly consumed product, must provide safe drinking water. System that cannot meet safe drinking water mandates will be forced to shut down.

Water systems, as a business enterprise, must be able to raise sufficient revenues to cover all costs. A water system that consistently looses money will eventually go out of business.

Time series comparisons are used to track the progress of water systems finances, and are particularly useful to check whether or not a business is keeping up with inflation. The tradition of long periods between rate increases makes time series comparisons very important for small water systems. Time series assessments also provide a way to obtain feedback on the success (or failure) or performance improvement programs.

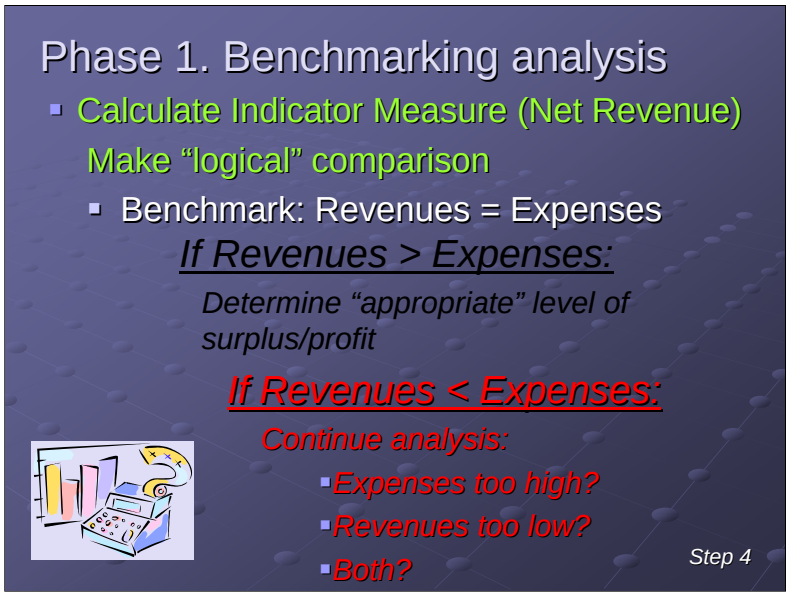
External comparisons provide the highest potential for capturing new ideas that can rapidly improve water system performance. External benchmarking is the mechanism that can identify what best-in-class performers are doing to improve their performance in your area of concern.



The fourth step in the benchmarking process is to collect the financial information, or *data*, that will be used in the calculation of the indicator measures.

These measures will then be compared to the logical standard, previous time periods, or other water systems.

The analysis for System 176 will proceed in several phases, and will include several types of comparisons.



The **revenue vs. expenses** evaluation of System 176's financial status begins with a simple **logical** comparison.

The source of any gaps in revenue sufficiency can be determined using a series of benchmarking procedures.

First, the value of the **net revenues** for the system must be determined.

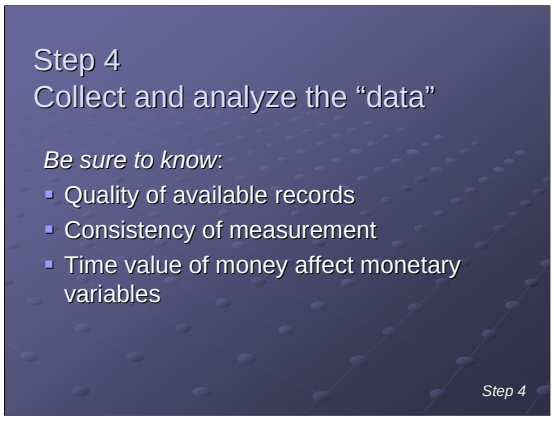
If net revenues are greater than zero, the implications of positive net revenues need to be considered, perhaps through the use of comparative measures that indicate *the proper level of positive net revenue* for systems in similar financial conditions.

If net revenue is equal to zero, *the implications of zero net revenue*, considering the systems current financial situation, will need to be addressed, along with the actions (if any) that should be taken.

If *net revenues are less than zero*, the water system is loosing money, is *not sustainable*.

It will then be necessary to determine whether this is the result of insufficient revenues, excessive costs, or both.

Other performance indicator measures are available to guide this evaluation.



The data for most basic indicator measures should be available from existing organizational records.

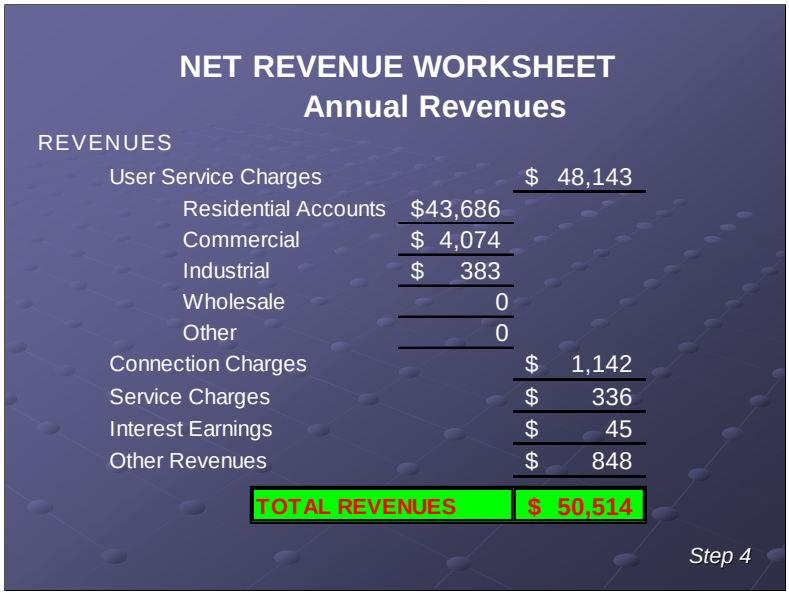
When using historical data is important for organizations to be able to assure the quality of this data, or if this is not possible, to use the information with caution. Otherwise, errors or different methods of data reporting may be mistaken for changes in performance.

For external benchmarking, data or indicator measures from comparative organizations must be located. Performance information is available for a wide variety of organizations is often available on the Internet and from public libraries. It is important to verify that indicators measures taken from other sources are calculated using comparable methods and sources of information. Although there are many commonly use indicator measures available, they are occasionally calculated in slightly different, but important, ways.

When making time comparisons using indicator measures that contain monetary values, such as the total revenue per capita ($/person), it is important to realize that the *value* of money changes over time. Some form of adjustment factor, such as the consumer price index (CPI) will need to be applied to the data to compensate for the effects of inflation.

(Note: The U.S. Department of Labor, Bureau of Labor Statistics inflation calculator can be found on the Internet at: http://data.bls.gov/cgi-bin/cpicalc.pl)

According to the case study scenario all of the data needed for the analysis of System 176 is available from the system's financial records.

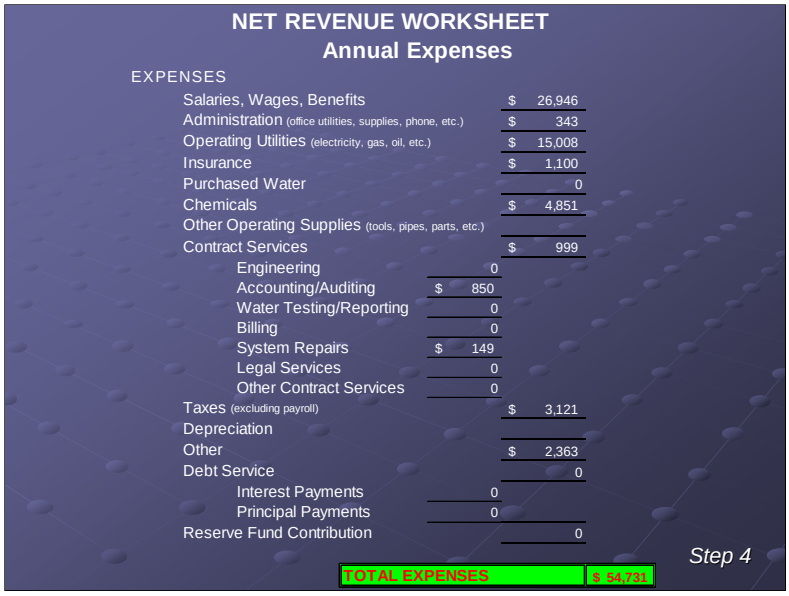


Most of the revenues for System 176, like almost all water systems, comes from its residential accounts.

A small amount of revenues were obtained from connection and services charges, and the system has some investments that are returning a small amount of interest. ("Other" revenues were obtained from an unspecified "reimbursement" of funds).

The *Total Annual Revenues* for this system (in the year 2000) are calculated by summing the User, Connection, and Service Charges, and the Interest and Other revenues ($50,514).

The *Benchmark Investigation* found that while most small water systems have very good methods for keeping track of their income revenues, they have a much harder time accounting for and categorizing expenses.



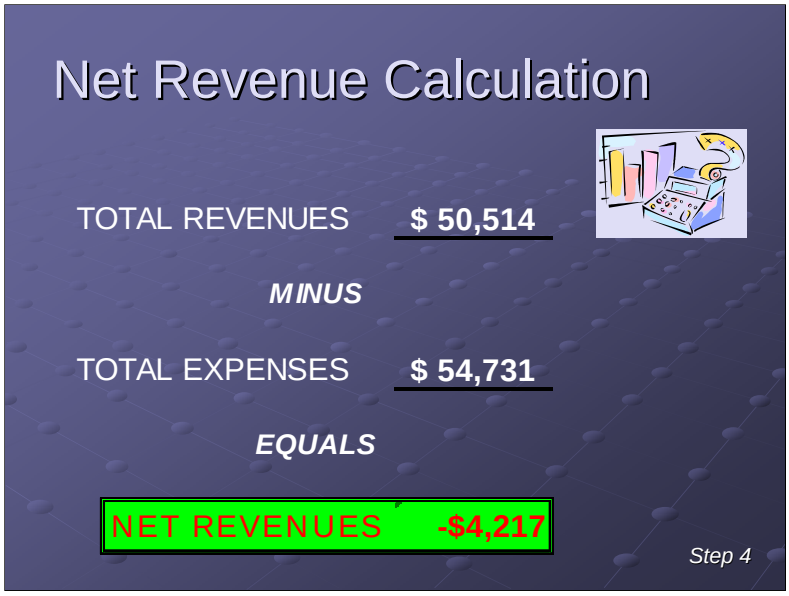
The *Benchmark Investigation* found that while most small water systems have very good methods for keeping track of their income revenues, they have a much harder time accounting for and categorizing expenses. The amount of detail of the expense accounting is determined by the number of expense categories used in the accounting system.

The categories for the expense data submitted by System 176 were based upon the survey form used in the *Benchmark Investigation.*

The largest expense for System 176, as for most water systems, is staff salaries. This is followed by operating utilities, chemicals, and taxes.

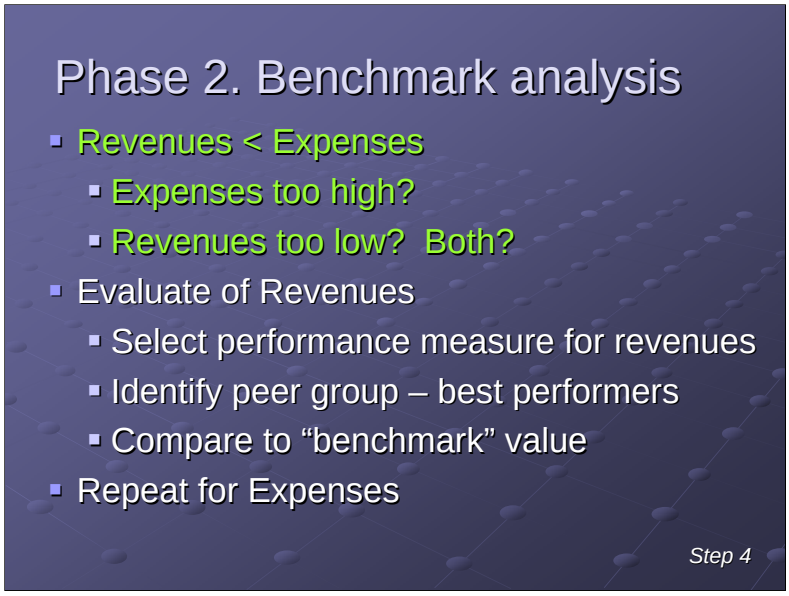
Contract services are sub-divided into several sub-categories.

The *Total Annual Expenses* (in the year 2000) for System 176 sum to $54,731.



Having calculated both *total revenues* and *total expenses*, *net revenue* can be determined.

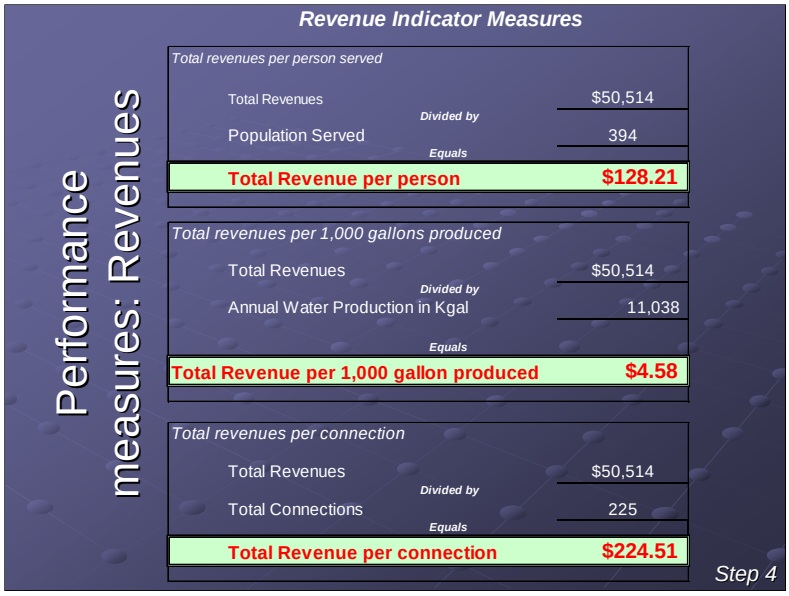
The result is that net revenue to System 176 is negative (-$4,217).



The second phase of the analysis process is to determine the cause of the negative net revenues. Are water system revenues inadequate; expenses excessive; or both.

This will require that appropriate performance indicators for revenues and expenses be identified, appropriate sources of water system data located, and comparative measures calculated and compared.

If necessary, this process can be repeated for System 176's expenses.



In order to assess System 176's revenue, another indicator measure will need to be selected.

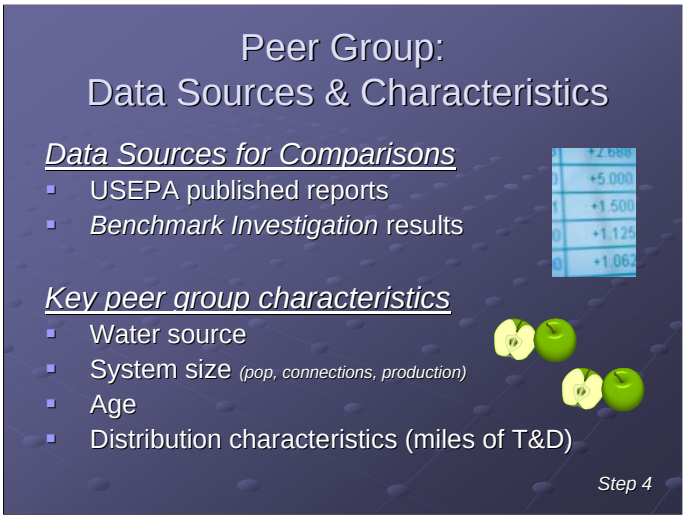
Three indicator measures commonly used to evaluate the water system revenues are:

- Total annual revenues per person
- Total annual revenues per 1,00 gallons produced
- Total annual revenues per connection

These measures are in the form of *ratios* and are calculated by dividing total annual revenues by various measures of *size* (persons, gallons, connections).

For System 176, the data to calculate these ratios are readily available from the system's financial and operational records.

All three ratios are calculated on this slide.



To assess the adequacy of System 176 revenues, one or more of these ratios will be used in a *peer group comparison* to one or more similar water systems.

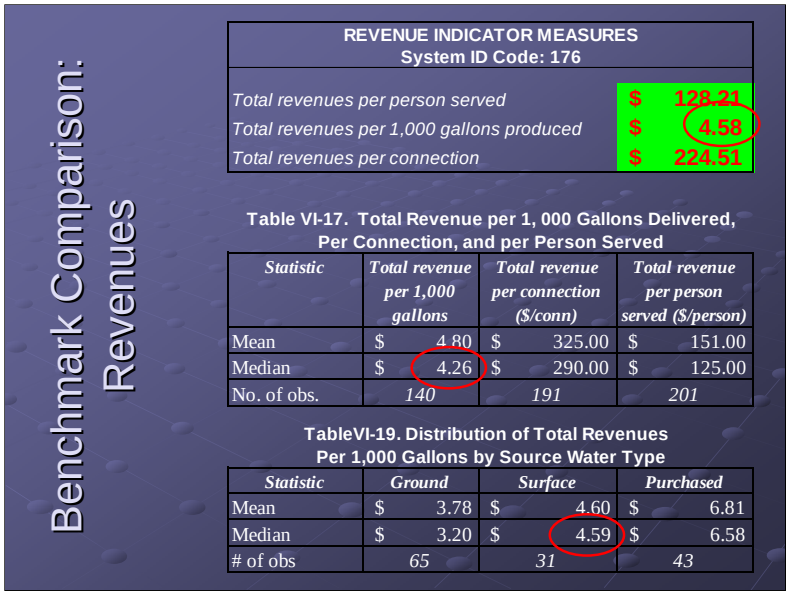
There are several possible sources of comparative data that can be used in the analysis. The time and effort required to collect comparative data must always be considered. The cheapest, most available data can be obtained from some of the publicly available published reports from government agencies. Comparative data can also be purchased from organizations like the *American Water Works Association* or other benchmarking groups. The most expensive way to collect data is personal contact between systems. For this initial *screening* analysis it make the most sense to use publicly available published sources. The cost of this data consists only of the staff time that it takes to find and collect it.

The USEPA regularly publishes national surveys of water system financial data in their *Community Water System Surveys (http://www.epa.gov/safewater/cwssvr.html),* and this might be a good source of data for an initial comparison. However, the *Benchmark Investigation* study used a survey to collect financial data from 350 Midwestern water systems that serve less than 3,300 persons. Since System 176 participated in this survey, and received a copy of the results, this was the most easily accessible data for the system and what was used as a source of comparative data.

It is also important to consider some of the peer group characteristics selecting systems to used in making these comparisons.

Some of the characteristics that might influence the comparisons between systems or groups of systems are:

- Water source
- Size
- Age of key infrastructure
- Miles of transmission and distribution system lines



Two tables from the *Benchmark Investigation* contained summary revenue data that System 176 could use to assess its revenue adequacy. Both tables contain *means* (averages) and *medians* (the middle most values in a set of data) calculated for particular subsets of data. The number of observations (systems) differs for each statistic because not all systems provided all of the data that was requested.

The performance measure *total revenues per 1,000 gallons* of water delivered is available for most of the systems in the study, so this makes it a good candidate to serve as a comparative indicator measure. This measure is also available by water source, one of the peer group characteristics that is likely to influence the value of financial indicator measures.

The *median* value was selected as the most reasonable value to use in assessing the System 176's revenue performance. The median value represents the boundary line between the half of the systems the with the highest revenues and the half with the lowest.

Table VI-17 from the *Benchmark Investigation* displays the mean and median values calculated for ALL of the systems participating in that study (that submitted this data). The total revenue per 1,000 gallons median value for System 176 ($4.58) is slightly larger (better) than the median value estimated from the 140 responses to the *Benchmark Investigation* ($4.26).

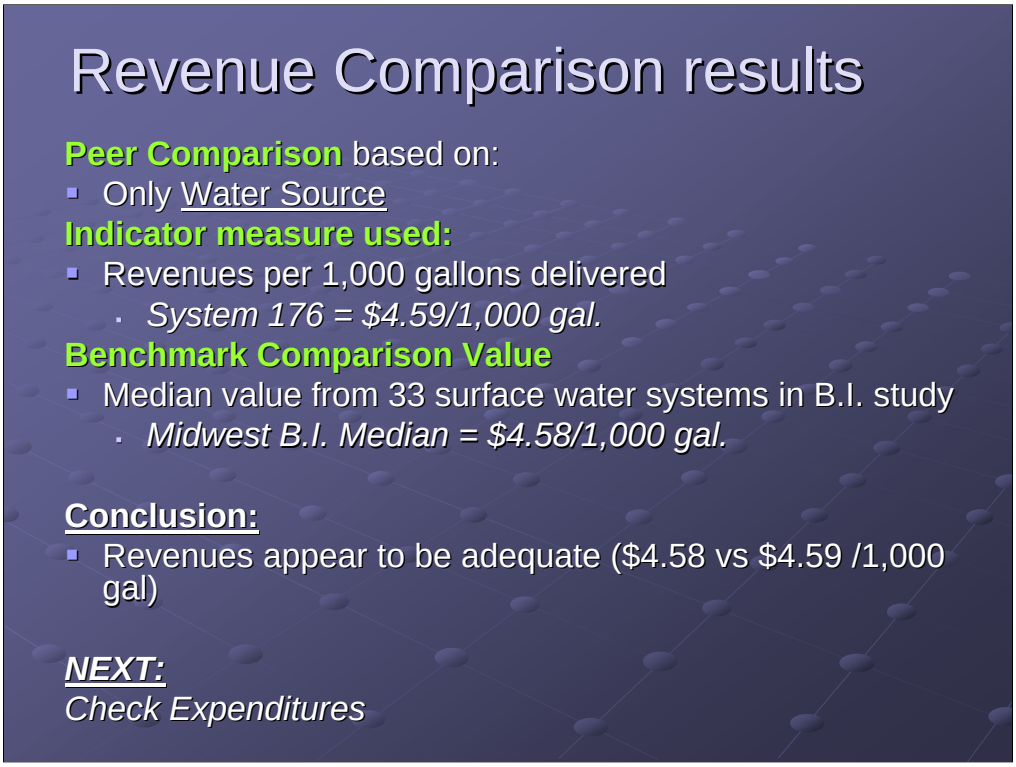
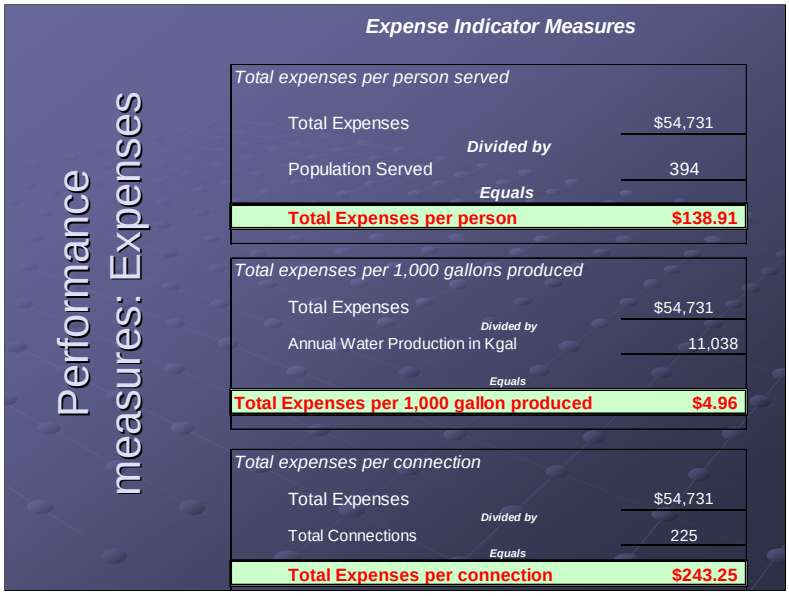


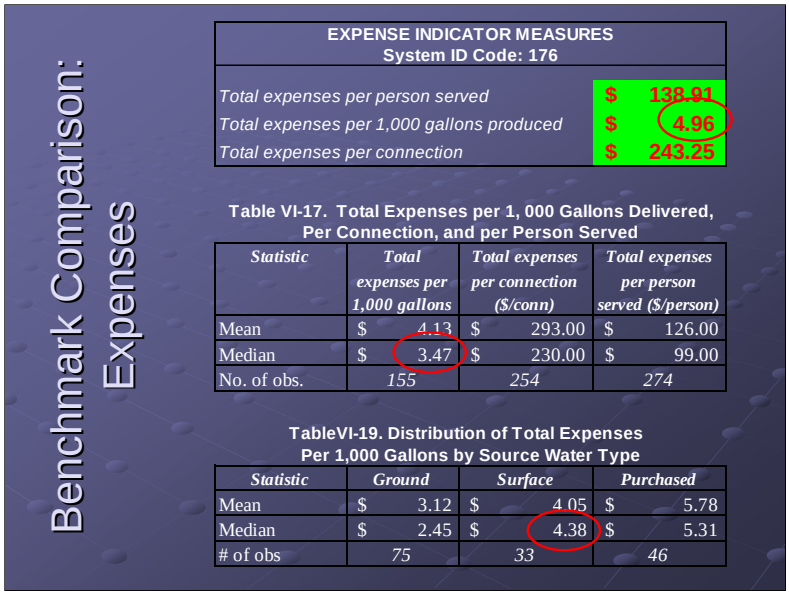
Table VI-19 takes the analysis one level deeper, providing indicator variables broken down by their water source. The comparative value from the 31 surface water systems in the study matches ($4.59) almost exactly matches that of System 176, which is a surface water system.

On the basis of these comparisons, it appears that that System 176's revenue situation appears to be reasonably adequate.

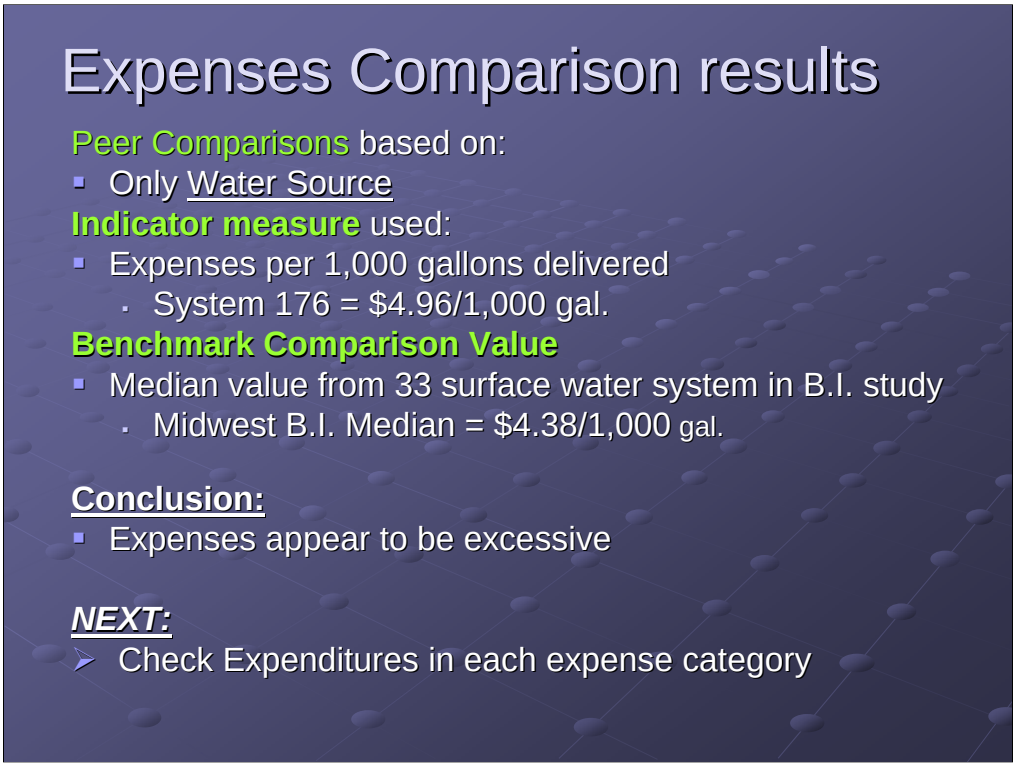
Therefore the next step in this process is to determine if expenses for System 176 are excessive.



Total Expenses per person served, *per 1,000 gallons produced*, and *per connection* can be calculated in the same way as the revenue indicator measures.



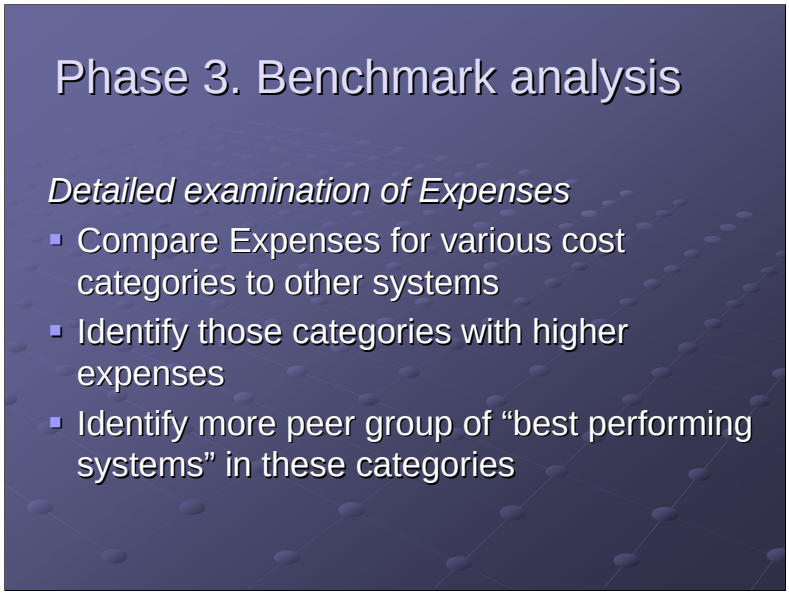
System 176's expenses are larger than the median values of the systems participating in the *Benchmark Investigation* regardless of which indicator measure is used.



When the *total expenses per 1,000 gallons* of System 176 ($4.96) are compared to the median value of all the surface systems ($4.38), System 176's expenses are found to be nearly 60 cents (13%) per gallon higher (Table VI-19).

So why does System 176 have higher expenses?

What are the components of system 176's operations that are driving its costs above those of the other surface water systems in the *Benchmarking Investigation*?



The next phase in the analysis is to perform a detailed review of the total annual expenses for the various cost categories for System 176.

This can be done by first identifying and calculating an appropriate indicator measure, and then comparing this measure to an appropriate peer group of systems.

The “best performing systems” can then be identified and contacted to learn the practices that are used by these systems to keep costs low in these categories.

Performance Measure: Expense Per Connection

EXPENSE PER CONNECTION WORKSHEET
System ID Code: 176

TOTAL NUMBER OF CONNECTIONS		225
EXPENSES		Expense per connection
Salaries, Wages, Benefits	$ 26,946	$119.76
Administration (office utilities, supplies, phone, etc.)	$ 343	$1.52
Operating Utilities (electricity, gas, oil, etc.)	$ 15,008	$66.70
Insurance	$ 1,100	$4.89
Purchased Water	0	$0.00
Chemicals	$ 4,851	$21.56
Other Operating Supplies (tools, pipes, parts, etc.)	0	$0.00
Contract Services	$ 999	$4.44
Taxes (excluding payroll)	$ 3,121	$13.87
Depreciation	0	$0.00
Other	$ 2,363	$10.50
Debt Service	0	$0.00
Interest Payments	0	
Principal Payments	0	
Reserve Fund Contribution	0	$0.00
TOTAL EXPENSES	$54,731	$243.25

Fortunately, the results from the *Benchmark Investigation* include a table that summarizes the per connection expenses (median) for all of the public drinking water systems that participated in the research project, by water source.

The expenses per connection for System 176 can be calculated by dividing the expenses in each category by total annual expenses.

Benchmark Comparison: Expense Per Connection

EXPENSE PER CONNECTION COMPARISON SHEET

***B.I.* Public Systems vs. System ID Code: 176**

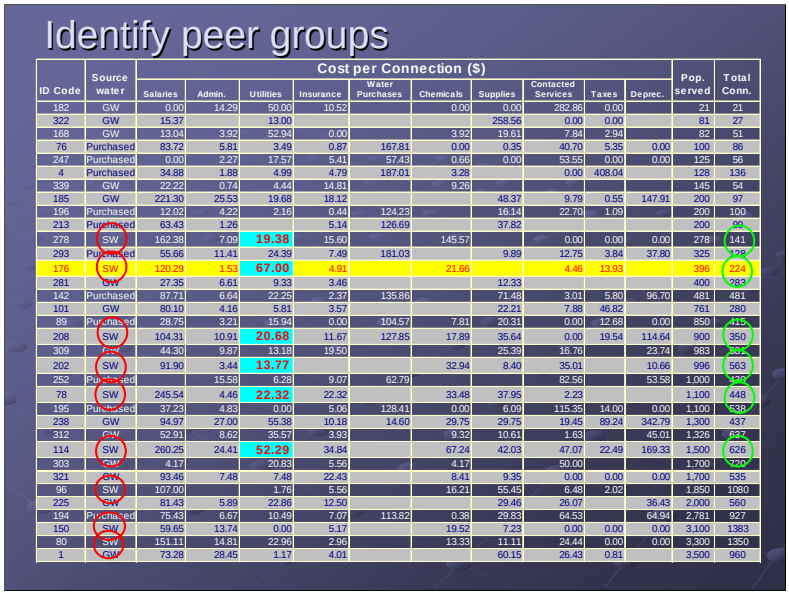
Expense per connection	*Benchmark Investigation* Ground water (medians)	*Benchmark Investigation* Surface water (medians)	*System 176*
Salaries, Wages, Benefits	$ 46.89	$ 102.87	$ 119.76
Administration (office utilities, supplies, phone, etc.)	$ 5.56	$ 9.06	$ 1.52
Operating Utilities (electricity, gas, oil, etc.)	$ 16.67	$ 20.66	$ 66.70
Insurance	$ 4.90	$ 20.67	$ 4.89
Purchased Water	$ 14.87	$ 82.52	0
Chemicals	$ 5.61	$ 23.84	$ 21.56
Other Operating Supplies (tools, pipes, parts, etc.)	$ 15.40	$ 23.48	0
Contract Services	$ 10.00	$ 5.45	$ 4.44
Taxes (excluding payroll)	$ 0.55	$ 3.01	$ 13.87
Depreciation	$ 31.58	$ 5.33	0
Other	n/a	n/a	$ 10.50

The comparison between expenses per category between System 176 and the median values for all of the surface water systems in the *Benchmarking Investigation* show that while it compares well in several categories, its expenses per connection are much higher for *operating utilities*, and *taxes*.

Before proceeding any further in the analysis, it is worthwhile at this point to stop and check all of the calculations, and to also check for any non-performance reasons for the large differences found between System 176 and the peer group of systems. A quick review of the other information available for System 176 reveals that there are no obvious differences in system characteristics that might account for the higher utility costs for System 176 (such as an unusually large number of miles of transmission and distribution lines).

A review of the way that System 176 allocates its costs categories suggest that perhaps it has included the costs of *Other Operating Supplies* into the *Operating Utilities* category (more than $23/connection for other surface systems; $0/connection for System 176), and that this might partially explain the difference. However, for the purpose of this case study, it is assumed that all systems allocated their expenses to these categories in a similar manner.

The next step in the process is to identify those *best-in-class* water systems with similar operational profiles as System 176, and then to explore the practices that those systems use to achieve their superior performance.



ID Code	Source water	Cost per Connection ($)										Pop. served	Total Conn.
		Salaries	Admin.	Utilities	Insurance	Water Purchases	Chemicals	Supplies	Contacted Services	Taxes	Deprec.		
182	GW	0.00	14.29	50.00	10.52		0.00	0.00	282.86	0.00		21	21
322	GW	15.37		13.00				258.56	0.00	0.00		81	27
168	GW	13.04	3.92	52.94	0.00		3.92	19.61	7.84	2.94		82	51
76	Purchased	83.72	5.81	3.49	0.87	167.81	0.00	0.35	40.70	5.35	0.00	100	86
247	Purchased	0.00	2.27	17.57	5.41	57.43	0.66	0.00	53.55	0.00	0.00	125	56
4	Purchased	34.88	1.88	4.99	4.79	187.01	3.28		0.00	408.04		128	136
339	GW	22.22	0.74	4.44	14.81		9.26					145	54
185	GW	221.30	25.53	19.68	18.12			48.37	9.79	0.55	147.91	200	97
196	Purchased	12.02	4.22	2.16	0.44	124.23		16.14	22.70	1.09		200	100
213	Purchased	63.43	1.26		5.14	126.69		37.82				200	99
278	SW	162.38	7.09	19.38	15.60		145.57		0.00	0.00	0.00	278	141
293	Purchased	55.66	11.41	24.39	7.49	181.03		9.89	12.75	3.84	37.80	325	198
176	SW	120.29	1.53	67.00	4.91		21.66		4.46	13.93		396	224
281	GW	27.35	6.61	9.33	3.46			12.33				400	283
142	Purchased	87.71	6.64	22.25	2.37	135.86		71.48	3.01	5.80	96.70	481	481
101	GW	80.10	4.16	5.81	3.57			22.21	7.88	46.82		761	280
89	Purchased	28.76	3.21	15.94	0.00	104.57	7.81	20.31	0.00	12.68	0.00	850	415
208	SW	104.31	10.91	20.68	11.67	127.85	17.89	35.64	0.00	19.54	114.64	900	350
309	GW	44.30	9.87	13.18	19.50			25.39	16.76		23.74	983	562
202	SW	91.90	3.44	13.77			32.94	8.40	35.01		10.66	996	563
252	Purchased		15.58	6.28	9.07	62.79			82.56		53.58	1,000	426
78	SW	245.54	4.46	22.32	22.32		33.48	37.95	2.23			1,100	448
195	Purchased	37.23	4.83	0.00	5.06	128.41	0.00	6.09	115.35	14.00	0.00	1,100	538
238	GW	94.97	27.00	55.38	10.18	14.60	29.75	29.75	19.45	89.24	342.79	1,300	437
312	GW	52.91	8.62	35.57	3.93		9.32	10.61	1.63		45.01	1,326	527
114	SW	260.25	24.41	52.29	34.84		67.24	42.03	47.07	22.49	169.33	1,500	626
303	GW	4.17		20.83	5.56		4.17		50.00			1,700	720
321	GW	93.46	7.48	7.48	22.43		8.41	9.35	0.00	0.00	0.00	1,700	535
96	SW	107.00		1.76	5.50		16.21	55.45	6.48	2.02		1,850	1080
225	GW	81.43	5.89	22.86	12.50			29.46	26.07		36.43	2,000	560
194	Purchased	75.43	6.67	10.49	7.07	113.82	0.38	29.83	64.53		64.94	2,781	927
150	SW	59.65	13.74	0.00	5.17		19.52	7.23	0.00	0.00	0.00	3,100	1383
80	SW	151.11	14.81	22.96	2.96		13.33	11.11	24.44	0.00	0.00	3,300	1350
1	GW	73.28	28.45	1.17	4.01			60.15	26.43	0.81		3,500	960

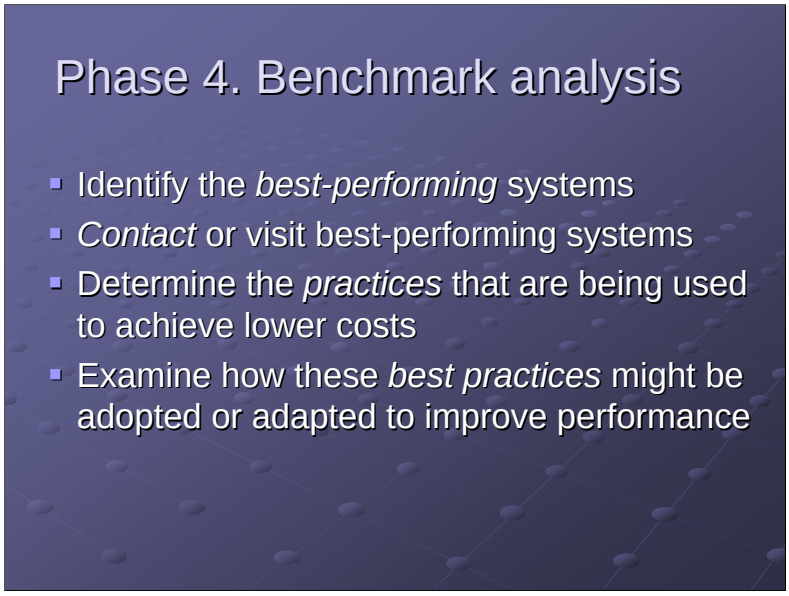
In order to identify those *best performing systems*, a sample of the systems participating in the *Benchmark Investigation* were selected to use for comparison (System 176 data is highlighted in yellow).

Energy and other operating costs are related to the type of source water and treatment trains used by a water systems, so the first peer group requirement is that they be *surface water (SW)* systems. These have been circled in red on the table presented on this slide.

Economies of size are also relevant to energy expenses, so it is also be useful to select those water systems that have a similar number of connections. All of the surface water systems with less than 1,000 connections were selected and are their *Total Connections* are circled in green.

The Utility costs per connection for the peer group selection and System 176 are highlighted in blue.

The utility costs per connection for the peer group range from $14 to $52. None of them are as high as the $67 for System 176.

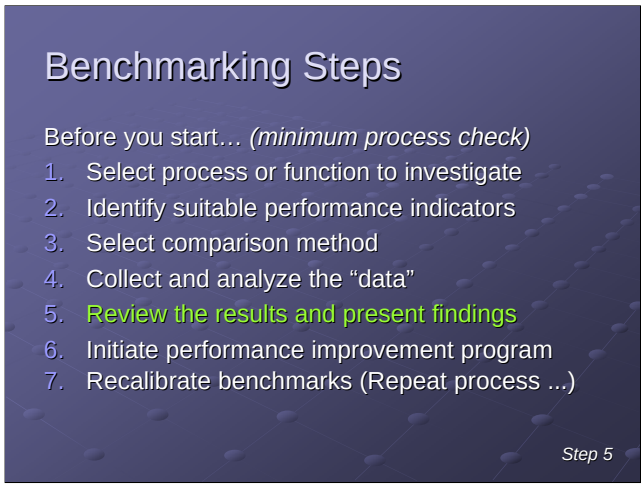


The next step in the process is to identify those system with the *best performance*, based upon the indicator measures being used.

Systems 202 and 278 all have *Operating Utility* costs below the median value of $20.66 per connection.

Staff members from System 176 can contact or visit these other system to learn what these systems are doing to keep their utility costs down.

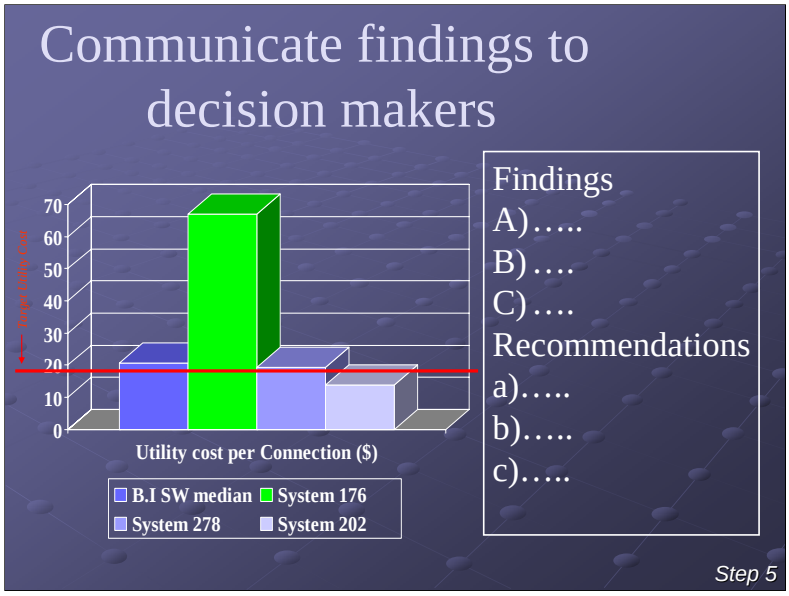
They must then investigate how these *best practices* might be adopted or adapted for System 176 so that it might lower its operating utility costs.



The fifth step in the benchmarking process is to organize and present the results of the benchmarking analysis to the relevant decision makers and the public so that a plan of action can be discussed, and if necessary, modified before implementation.

The benchmarking team from System 176 must use the lessons learned from the practices of the *best performing* systems to develop a performance improvement plan for System 176.

This plan must then be presented in a format that will demonstrate to decision makers, the source of the problem, and the practices of best performing systems, and their recommendations for improving water system performance.



Graphs and charts can offer a visual way of presenting information that makes it easier to understand. For example, this bar chart compares the utility cost per connection for System 176 (in green) to the median cost of 33 surface water systems from the *Benchmark Investigation*, and two of the peer group systems contacted for information on the practices that they use to keep their utility costs down. The benchmarking team also set a "target" utility cost value below $20 per connection that they would like to achieve with their performance improvement program, and this is displayed on the graph as a red line.

Many spreadsheet programs can be used to prepare useful charts and graphs to display benchmarking results. Several free financial performance tools, such as the *Boise State Environmental Finance Center's* ***Ratio8*** financial assessment tool, automatically generate performance indicator ratios and graphs from data entered into a simple chart of accounts.

The final result of the benchmarking process must be improved water system financial performance.

Otherwise the entire effort will be wasted.

Several simple steps can guide the implementation process.

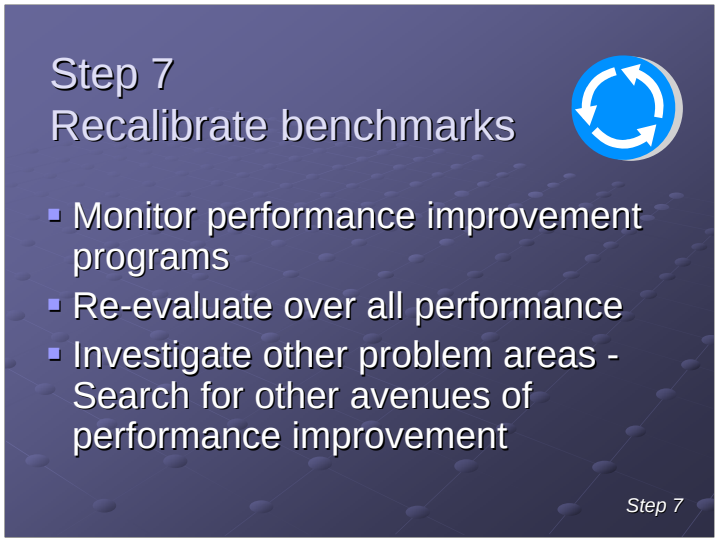
A plan of action must be agreed upon by all parties and put in writing.

It should be clearly understood who will be in charge of each step of implementation and the individual in charge must have the legal authority and financial resources available that will allow them to make whatever changes are set forward in the action plan.

Performance goals should be set based upon the indicator measures used in the benchmarking analysis.

A timeline for meeting these goals must be prepared and members of the implementation team should meet regularly with the town council or other governing body to ensure that the timelines are being met.

Timelines will facilitate a frequent re-evaluation of the action plan. If it turns out to be overly ambitious or missed some key considerations, a revised plan can be quickly drafted to prevent an unnecessary loss of time and financial resources.

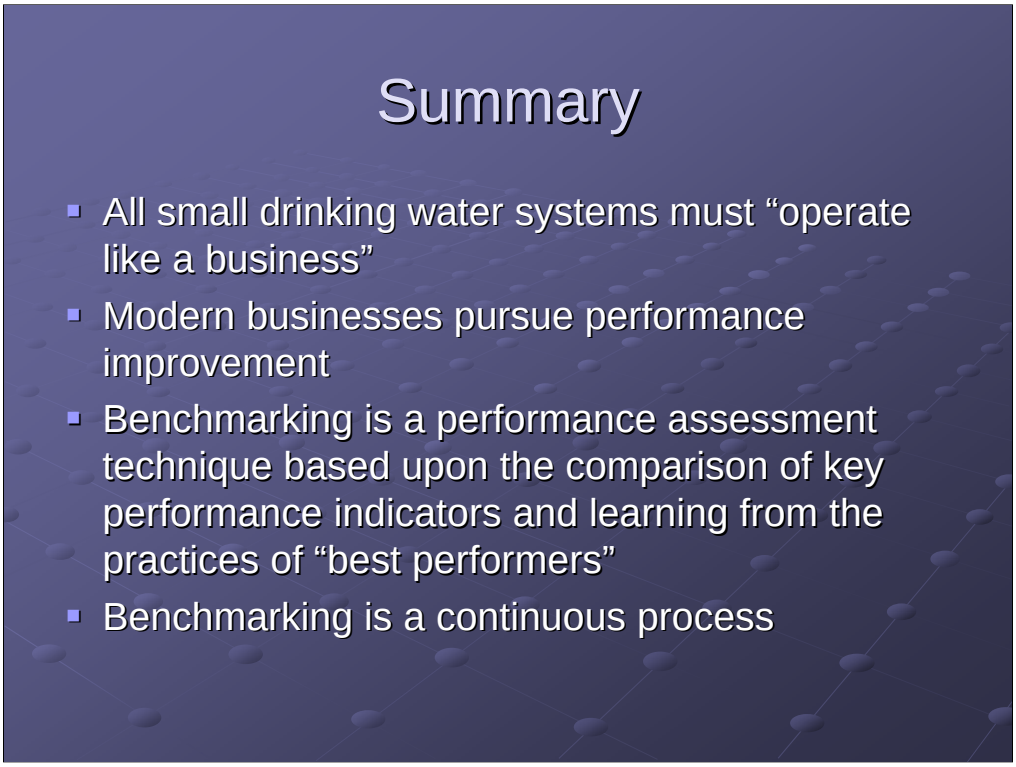


Throughout the implementation of the performance improvement program utility performance should be monitored to gauge the success of the program and to assess performance of other financial functions.

Once the utility is satisfied that it has gotten its utility costs under control, other areas of performance can be addressed.

Benchmarking must be a continuous process of reassessment and performance improvement.

Evidence from this preliminary investigation suggests that System 176 may also wish to examine taxes and employee costs, before preparing its application for funding assistance.



This introductory training module has presented a brief introduction to financial benchmarking.

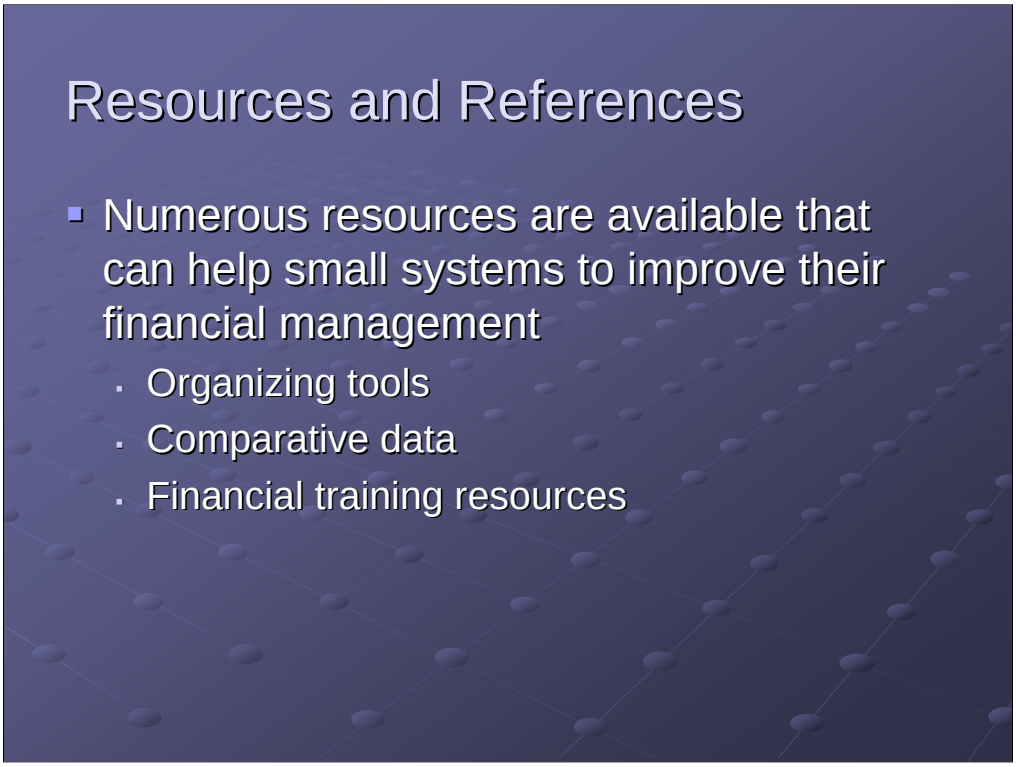
The provisions of the 1996 Safe Drinking Water Act established a new standard for the management of public water systems that directed all drinking water systems, even the smallest, to conduct their operations in a sustainable, business-like fashion, where the revenues generated from customer sales would be sufficient to cover all system expenses. Systems that lacked the capacity for sustainable operations would be encouraged to seek some form of reorganization or consolidation.

One of the characteristics of modern business operations is the pursuit of performance excellence. Business organizations use a variety of techniques to assess and improve their performance.

Benchmarking is one of the most widely used performance assessment techniques. It is based upon the systematic measurement of key performance indicators, the comparison to best-in-class performers, and learning from the best practices of other organizations.

Benchmarking is a continuous performance improvement process, that constantly strives to improve all financial and operational functions. Benchmarking is a tool that has become widely used by large water utilities, and a large variety of benchmarking instructional tools and comparative data are readily available. Benchmarking is valuable tool for the financial assessment of small water system performance and can be easily adopted by small system managers.

Those who wish to learn more about performance assessment and benchmarking, or to access organizing tools or data that can be used to perform initial data assessments may wish to pursue some of the resources described on the following slides.

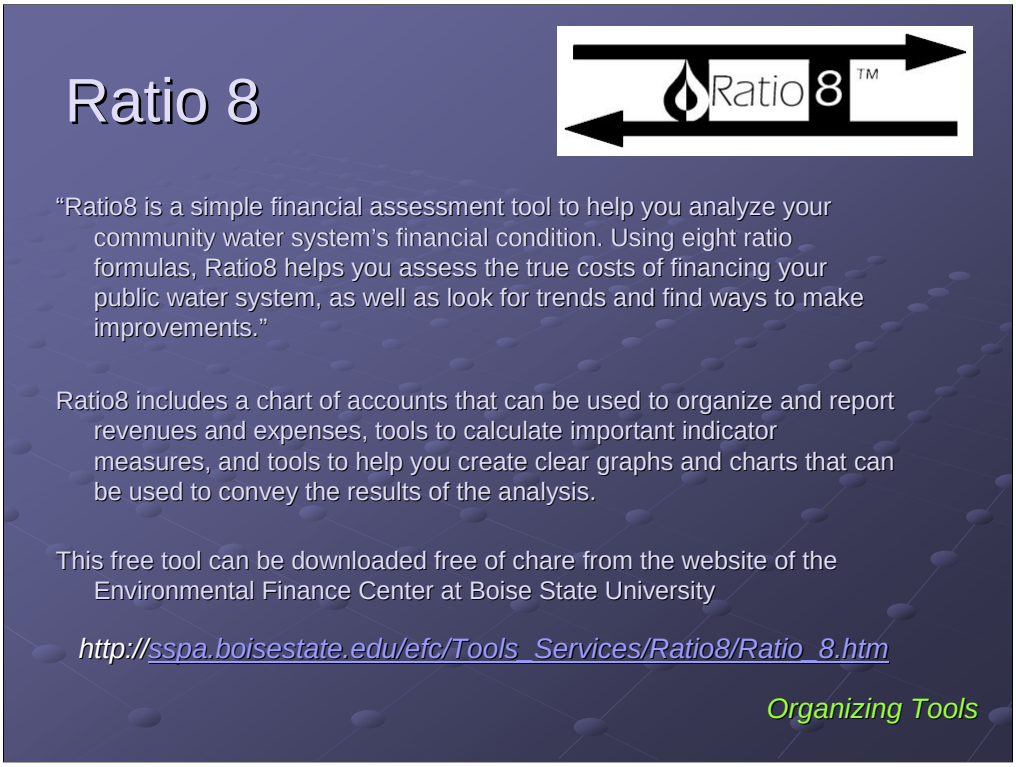


There are many resources that are available in libraries and on the internet that can be used by small system managers to learn more about performance assessment techniques and use to improve the performance of their systems.

A small sample of these resources are presented in the following slides.

These are divided into three categories:

- Organizing tools
- Comparative data
- Financial training resources



Ratio8 is a financial assessment tool that has been developed by the Environmental Finance Center at Boise State University.

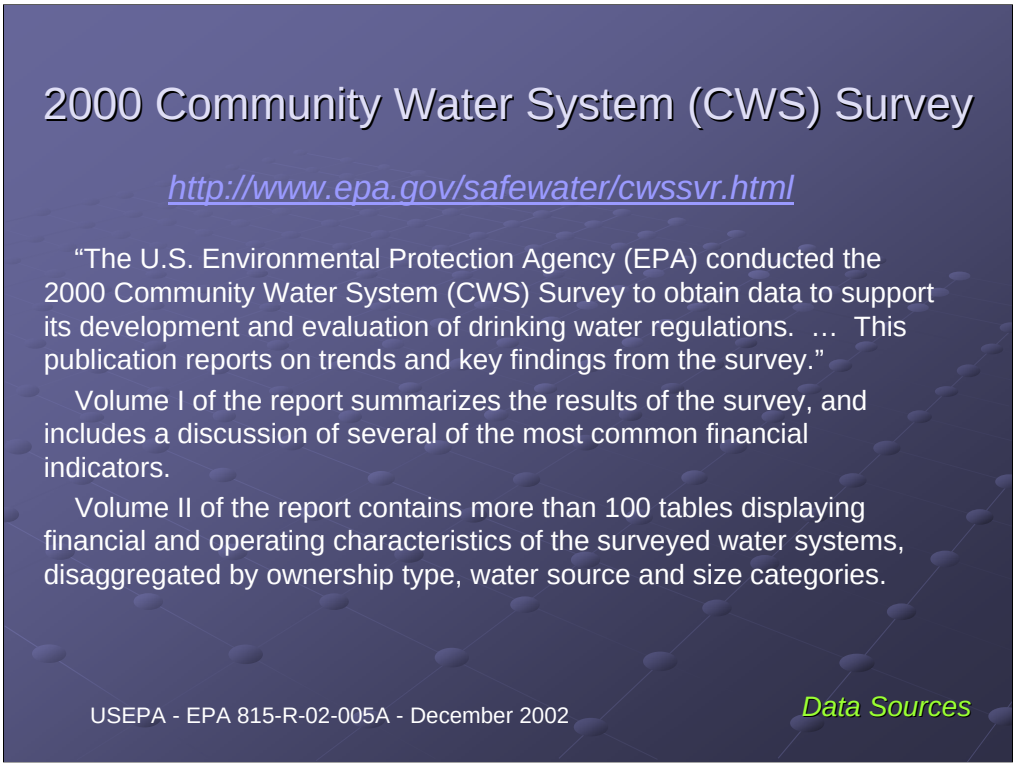
This tool is available for free and can be obtained from the Boise State EFC at:

http://sspa.boisestate.edu/efc/Tools_Services/Ratio8/Ratio_8.htm

"The **objective of IBNET** is to support access to comparative information that will help to promote best practice among water supply and sanitation providers worldwide and eventually will provide consumers with access to high quality, and affordable water supply and sanitation service." A variety of resources are available from the IBNET website, including the IBNET Toolkit.

The IBNET Toolkit includes the following resources:

- a set of core indicators on which stakeholders can build their own customized measurement and monitoring system
- a data list complete with robust data definitions
- a data capture system that also calculates the complete indicator set
- a method to share information and get the most out of benchmarking

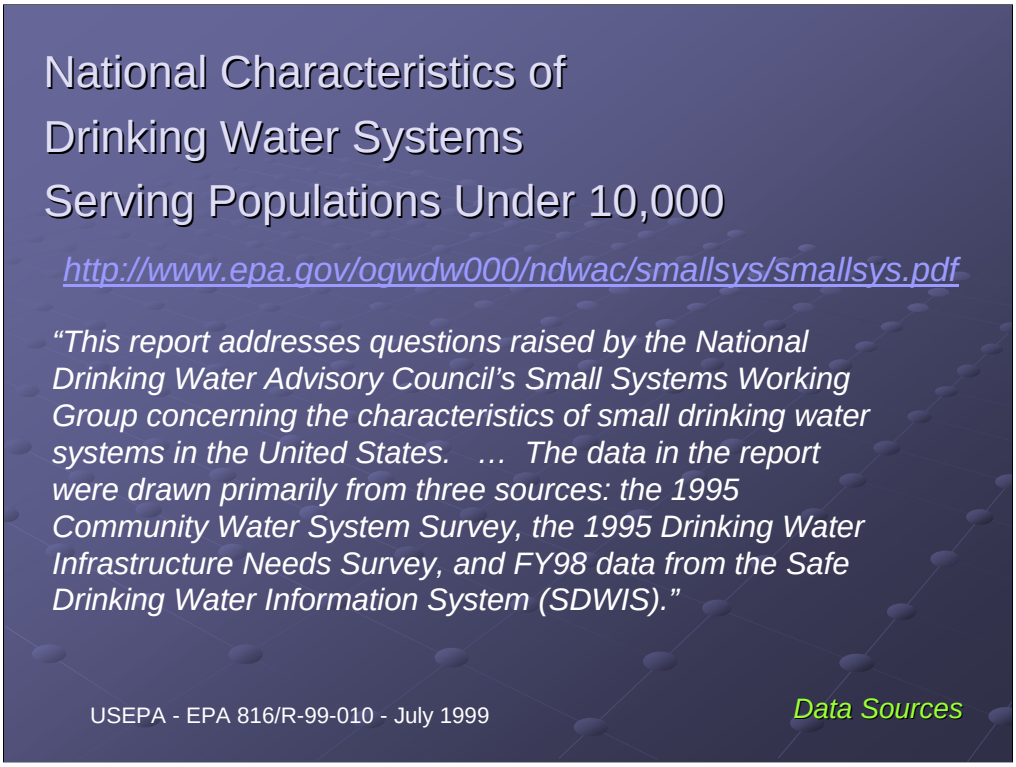


The US Environmental Protection Agency periodically collects information on the financial and operating characteristics of the public water supply industry to support the regulatory development process.

Data is collected from a large structured sample of community drinking water systems. The summary report and a large number of detailed data tables are available on the EPA website.

Copies of the 1995 and 2000 Surveys are available in PDF format at:

http://www.epa.gov/safewater/cwssvr.html



A separate analysis of information collected from various USEPA studies was prepared to evaluate the status of the nation's small drinking water systems.

The *National Characteristics of Drinking Water Systems Serving Populations Under 10,000* report contains a large number of data tables and summary results that can be useful to small system performance assessment efforts.

This report can be found at:

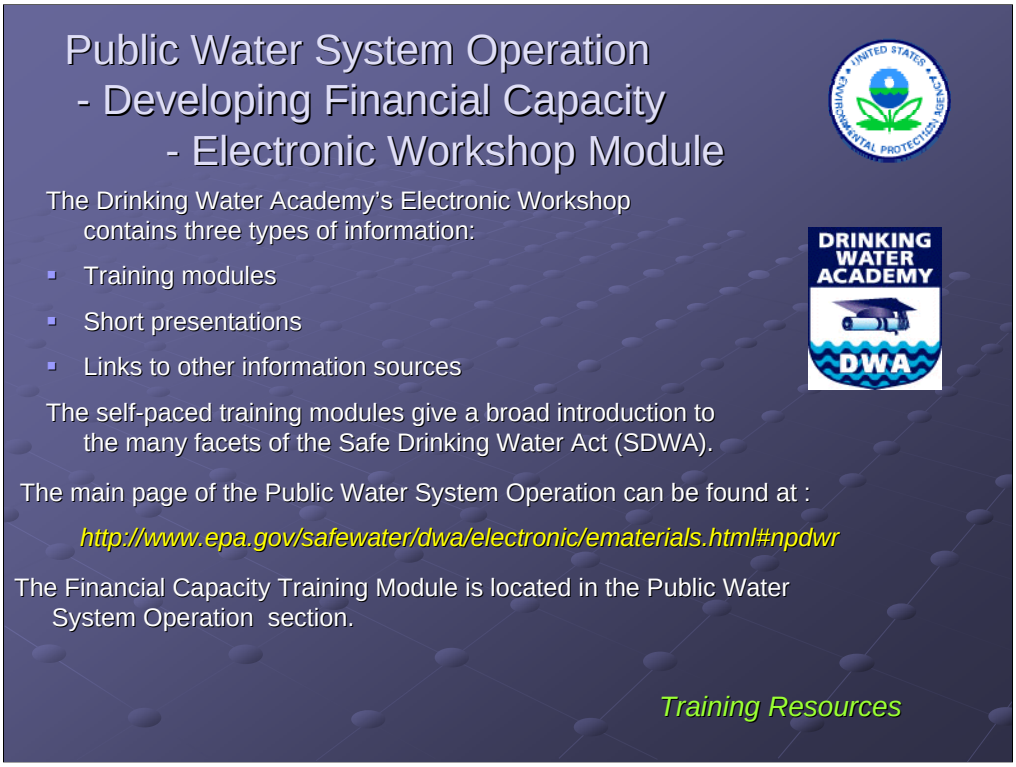
http://www.epa.gov/ogwdw000/ndwac/smallsys/smallsys.pdf

The *Benchmark Investigation of Small Public Water System Economics* was sponsored by the Midwest Technical Assistance Center to investigate the potential for the use of performance assessment techniques by small drinking water systems.

The project completion report for this project includes more than 100 data tables developed from a survey of the financial and operational data of 350 water systems in the Midwest. It also contains the results of interviews, focus groups and written comments of small drinking water system managers, regulatory officials, and technical assistance providers that may be of interest to small system managers.

You can read and/or download a copy of this report by clicking on the link below:

http://info.geography.siu.edu/geography_info/research/documents/MTAC Benchmark Investigation.pdf

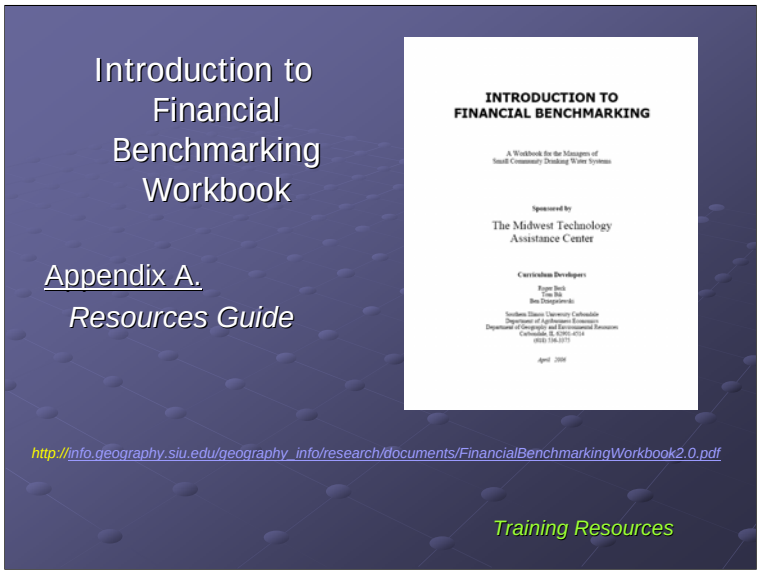


The USEPA's *Drinking Water Academy's Electronic Workshop* is a series of online self-instructional training modules that make a wide variety of information instantly available to all drinking water managers that have access to the Internet.

Several of the slides in this presentation were taken from the Electronic Workshop's *Financial Capacity Training Module*.

The complete catalog of online resources can be accessed at:

http://www.epa.gov/safewater/dwa/electronic/ematerials.html#npdwr



The *Benchmark Investigation of Small Public Water System Economics* also resulted in the development of a workshop curriculum that could be used to introduce small system managers to financial benchmarking. Many of the slides and the case study used in this training module were borrowed from that curriculum.

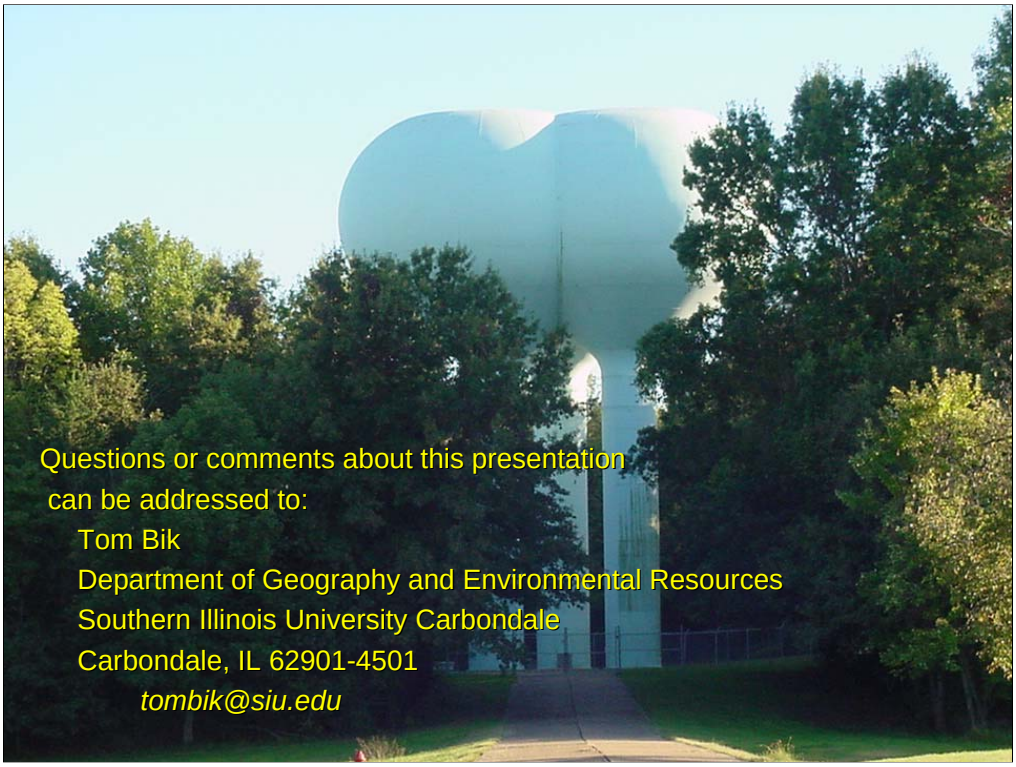
The "workbook" that accompanies the training curriculum is available online at the address below:

http://info.geography.siu.edu/geography_info/research/documents/FinancialBenchmarkingWorkbook2.0.pdf

Appendix A. of the workbook may be particularly helpful to small system managers who want to learn more about benchmarking or to start a benchmarking study at their water systems. This *Resources Guide* contains three categories of useful information:

1) Benchmarking Publications and Studies & Web Sites
2) Sources of Benchmarking Data
3) Financial Training Tools and Resources

Many of the resources included in *Appendix A*. are accompanied by extensive descriptions or annotations to that may facilitate the use of this information without having to locate the original source materials.



Readers are invited to use any to the text or slides in this training module in their own presentations.

Questions, comments, or suggestion regarding this training module would be welcome.

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