Scorecards for Utilities and Regulators

Sanford Berg and Lynne Holt
2/5/02

Benchmarking is one of several regulatory tools to encourage continuous improvement of water utility operations and to evaluate utility performance. Regulators of water utilities can use benchmarking, in conjunction with incentive regulation, to reward efficient utilities that provide high quality service. However, benchmarking requires careful planning. This article, the fourth in a series about the best practices of independent regulatory commissions, outlines the issues regulators might consider in adopting a benchmarking program. Over time, the resulting scorecards also provide an index of regulatory performance.

Introduction

In recent years, independent regulatory commissions (IRCs) have used benchmarking to induce water and wastewater utility companies to become more efficient and control their costs. Benchmarking is a process that measures the products, services, and operational practices of a given company. A company's recent performance may be compared to its past performance to reflect changes in production efficiencies and service quality. Its performance also may be compared to that of a sample group of firms or to industry averages to depict its relative standing. The benchmarking data are performance indicators used to analyze a company's operational components and identify those components needing improvement. If benchmarking and the resulting scorecards contribute to improving a company's investment plan and strengthening the organization's operating efficiencies, customers will ultimately benefit when savings are reflected in lower prices.

Why is benchmarking an important regulatory tool? An informational asymmetry exists between regulators and regulated utility companies. Because water utilities have a monopoly on information about their operations, benchmarking can promote both information sharing and a transparent reporting system. Benchmarking should make the regulatory process more credible by providing a relatively objective ranking of utility performance; this ranking will simulate competition in a sector where little or no competition exists.

The widespread availability of reliable information along a number of dimensions -- represented by performance indicators -- puts regulators and the media in a position to inform citizens how their local water utility compares with others in similar circumstances. Consumers support such comparisons because they have some information of the service level they are paying for in their monthly bills. In addition to consumers, international funding agencies have supported benchmarking initiatives because, from their perspective, well-managed utilities will make better use of external funding. For example, the Asian Development Bank issued a technical assistance report

(December 2000) for development in Sri Lanka of water supply and sanitation systems in secondary towns. Part of the technical assistance would be applied to institutional development, including establishment of a regulatory body and benchmarking for the water and sanitation sector.

IRC "Best Practices"

In designing a benchmarking tool, regulators need to address the following questions:

? What is the IRC trying to measure?
? What is the best methodology to measure utility performance?
? How does the IRC verify the data used for performance analysis?
? How does the IRC report results?
? How does the IRC ensure that utilities actually use the results?
? How are a utility's performance outcomes shared?
? How does the IRC elicit consumer participation?

The Office of Water Services (Ofwat) -- the regulator of water and wastewater companies in England and Wales--is used as an example throughout this article because Ofwat has successfully integrated benchmarking into many aspects of its regulatory oversight responsibilities. Other countries have initiated similar but less encompassing programs.

Performance Indicators -- What is the IRC trying to measure?

First, the IRC must decide which utility processes will be subject to benchmarking (what the utility will try to improve). Often, decisions of this sort are the result of complex and extensive taskforce and workshop deliberations. For example, in its benchmarking initiative (Manual of Best Practice, 2000), the International Water Association (IWA) identified the organizational functions of water supply companies. These functions were further categorized into partial functions and sub-functions. The IWA also identified a total of 133 indicators to help managers assess the performance of water company functions and categorized these indicators as: water resources, personnel, physical, operational, quality of service, and finances. Of that total, 26 indicators were identified as being of greatest importance to managers. In addition to being assigned a level of importance (of three possible levels), each indicator was defined in a quantifiable manner. For example, the number of billing complaints during the year divided by the number of registered customers captures the concept of billing complaints.

According to a recent World Bank report (Kingdom and Jagannathan, 2001), performance indicators should not only be *quantifiable*, they should also be *meaningful* and draw on data that are reliable, relatively easy to collect, and not susceptible to multiple interpretations. Indicators should reflect the obvious features of the product or service that would allow customers and other stakeholders to understand variations in

service performance between different utilities and over time. Moreover, they should reflect conditions over which the utility has control. It is better to have a few indicators that are truly informative than a mass of data full of measurement errors.

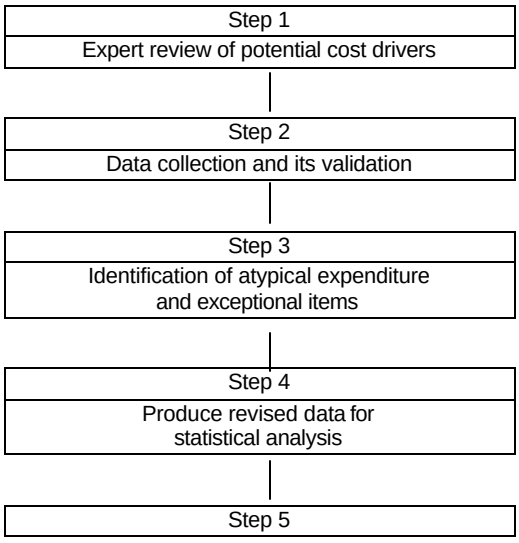
What is the best methodology to measure utility performance?

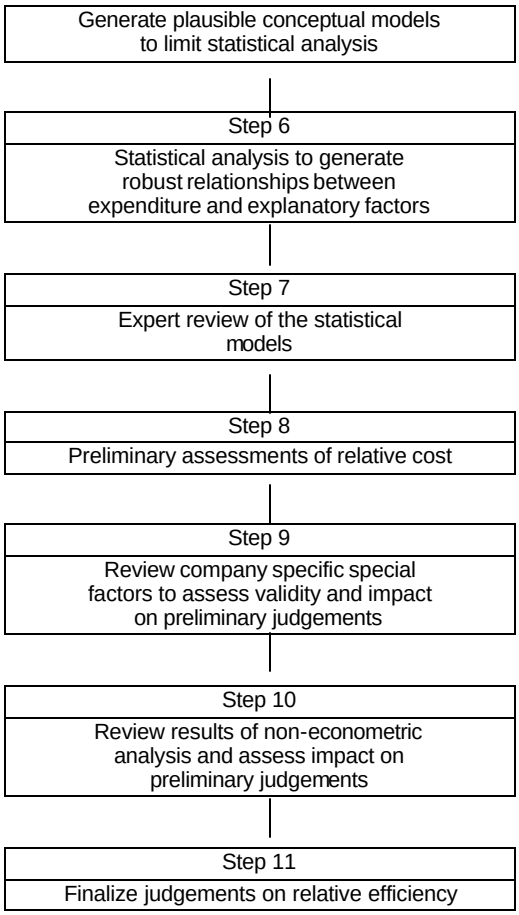
Two broad categories of benchmarking methodologies - frontier and average benchmarking - are applicable to utility incentive regulation (Jamasb and Pollitt 2001). Frontier benchmarking identifies or estimates the efficient performance frontier of an industry or sample of companies. The efficient frontier is the benchmark against which the relative performance of companies subject to the comparison is measured. Frontier benchmarking places a greater focus than average benchmarking on performance variations among companies. This approach may be suitable at the initial stages of regulatory reform when the most pressing objective is to reduce the performance gap among a selected group of utilities. The main frontier benchmarking methods are Data Envelope Analysis, Ordinary Least Square, and Stochastic Frontier Analysis. The authors explain these statistical models and review their strengths and weaknesses.

Average benchmarking methods may be used to mimic competition among firms with relatively similar costs or when there is a lack of sufficient data and sample size of comparable firms for the application of frontier methods (Jamasb and Pollitt 2001).

The selection of appropriate statistical models involves several steps, in addition to careful thought and planning. The flow chart below illustrates the steps used to derive the econometric models forming much of the basis for efficiency comparisons among water companies regulated by Ofwat.

ECONOMETRIC MODELS --(step-by-step approach used to derive the statistical models)





(Source: Ofwat, the *2000-2001 Report on Water and Sewerage Service Unit Costs and Relative Efficiency, Appendix 1*.)

How does the IRC verify the data used for performance analysis?

In benchmarking, data used for company comparisons should be reliable and accurate; otherwise, the credibility of the performance analysis and the regulatory process will be compromised. For example, Ofwat subscribes to the following verification procedure. Independent consulting engineers (reporters), nominated and paid for by the water companies and approved by Ofwat, assess information collection procedures and their accuracy. Ofwat specifies reporting requirements and the reporters check that information supplied by companies conforms to the established methodologies. Specifically, reporters check and report on: whether companies have systems to collect and record accurately the required information; whether they have allocated expenditures correctly; and whether their progress and performance, particularly with respect to capital investment programs and standards of service to customers, is properly demonstrated. The companies also appoint auditors who, among other responsibilities, work with reporters in scrutinizing the financial aspects of companies' business plans (Ofwat, Information Note No. 28, April 1994; revised September 1999).

Similarly, the Office of Regulator-General, Victoria, Australia, relies on performance data reported by three licensed water companies. For its part, the Office specifies the key performance indicators to be used in the benchmarking process. In addition, operational audits, subject to approval of the Office, are conducted annually to ensure, in part, the quality of the performance indicator data the utility reports to the Office (Performance Report: July 1999-2000; February 2001).

How does the IRC report results?

Regulators often publish indicators to reward utilities for good performance and encourage them to improve substandard performance. For example, Ofwat has institutionalized the practice of benchmarking in annual reports. Each year in June, the water companies in England and Wales provide information to Ofwat on their performance with respect to various aspects of service. Ofwat has annually published a scorecard or Overall Performance Assessment of key aspects of a company's performance into a single measure. In addition, Ofwat provides tabular data and assesses the performance of 23 water companies against eight levels of service indicators -- inadequate pressure; unplanned interruptions to supply; water-usage restrictions; properties at risk of and experiencing sewer flooding (overloaded sewers and other causes); response to billing contacts; response to written complaints; bills for metered customers; and ease of telephone contact (Ofwat, Information Note No. 40, March 1998; revised October 2000). For every indicator but one, performances are rated as good, acceptable, or needs improvement (Ofwat, *Levels of Service for the Water Industry in England and Wales* 2000-2001, July 2001, revised September 2001. See Table 2). Ofwat's assessments of the efficiencies of licensed companies are also reported annually. The methodology for those and other assessments is outlined in analytic reports, such as its annual reports on water and sewerage service unit costs and relative efficiency.

How does the IRC ensure that utilities actually use the results?

Collection of the data is only one part of an effective benchmarking program. Regulators should ensure that performance data are used effectively within the utility, as well as in the price-setting process. For example, research on water utilities and government entities conducted in the United States reveals that only a slight majority of survey respondents use performance measures.[1] Thus, the gap between those companies that have performance measures and those that use and report them is apparent. In a survey conducted by the Government Accounting Standards Board, 421 utilities used reporting measures but only 216 reported them to elected officials. In addition, 25

[1] See Paralez (2001) for a summary of findings of a custom survey -- the Water and Wastewater Utility Survey; research sponsored by the Government Accounting Standards Board of 26 state and local governments in 1998-99; and case study profile information gained through benchmarking studies conducted by the Western Regional Water Utilities Benchmarking Group over a five-year period.

percent reported outcome measures to internal management. In the Water and Wastewater Utility Survey, 44 percent of the utilities indicated that their measurement efforts did not find practical use or acceptance by the staff (Paralez, 2001). These findings were also supported by the experiences of the Western Regional Water Utilities Benchmarking Group - a consortium of water utilities in the western United States. Such a disconnect (between data collection and its use) suggests that water utilities must integrate their performance indicators into the planning process.

Not only should benchmarking data be used for internal management purposes but regulatory incentives should exist to ensure that the data serve as the basis for a utility's corrective actions. For example, Ofwat's performance measures have a bearing on the price caps it sets during its periodic review of water companies. Those companies that increase their efficiencies beyond a predicted level have been allowed to retain their profits for a specified time period. More stringent operating efficiency targets are applied to poorly performing utilities.

In contrast, the link between regulatory incentives and performance measures in Peru is tenuous, at best. Peru's regulatory agency, SUNASS, developed a system of productivity indicators in 1999, and applied them under a benchmarking scheme to stimulate and improve management of 45 municipal utilities. An analysis of various performance indicators pointed to problems in the water companies' quality and continuity of service and disclosed a lack of connection between company performance efficiencies and profits. The Peruvian water companies had little incentive to curb costs as they expanded. SUNASS lacked the necessary regulatory tools to reward water companies that performed efficiently and to penalize companies that did not (Corton, 2000).

How are performance outcomes shared?

Reports published on the Internet can foster development of benchmarking initiatives in the water sector. The World Bank has an online benchmarking initiative that facilitates the sharing of cost and performance information between utilities and countries through a network of linked web sites. Each web site presents values for a set of core cost and performance indicators for a utility, or utilities, in that particular region or country. Each data base specifies: the utility size band (population range served by utility); range of service provided (water only; sewerage only; water and sewerage; or water, sewerage and other); and the extent and type of private sector participation (none, multiple service contracts, management contracts, lease contracts, concession contracts, BOOT/BOT, or full divestiture to private sector.
(See http://www.worldbank.org/html/fpd/water/topics/uom_bench.html.) Moreover, many regulatory agencies publish reports on the Internet.

The Association of Water and Sanitary Regulatory Entities of the Americas has been created at the initiative of the Colombian Regulatory Agency (www.cra.gov.co). ADERASA's main objective is to promote the sharing of information and experience.

We can expect to see more collaborative efforts as countries discover the importance of careful yardstick comparisons.

How does the IRC elicit consumer participation?

The greatest pressure for improved utility performance ultimately comes from the consumer. In England and Wales, consumers are represented by the Ofwat National Customer Council and ten regional Customer Service Committees (CSCs) that report to Ofwat and are funded and supported by Ofwat but speak independently of the regulator. CSCs actively monitor and assess the quality of service provided by water companies through customer surveys and reviews of company responses to customers' complaints. (Ofwat, Information Note No. 33, January 1996; revised September 2000). Through surveys and complaint reviews, regulators can determine customers' needs and their willingness to pay for certain services. These factors must be weighed against quality of service considerations since higher quality generally means higher price.

Consumer participation is also bolstered by a guaranteed set of government standards pertaining to quality of service. (These standards also correspond to the measures used as part of the benchmarking process.) For example, if a customer complains in writing about water and sewerage services, the company must reply within ten working days from the date of receipt of the letter. If the company fails to comply within that timeframe, residential and business customers are entitled to monetary compensation (Ofwat, Information Note No. 4, May 1991; revised September 2001).

Concluding Thoughts

A successful benchmarking program includes:

? *Stakeholder awareness*: campaign, with media assistance, to promote improvements in utility operations;
? *Technical skills*: a comprehensive understanding of the water utility's processes and operations;
? *Benchmarking data*: the identification of comparable performance indicators;
? *Yardstick comparisons*: the selection of the appropriate comparison group of companies or standard (depending on the benchmarking method selected);
? *Data collection*: a procedure for collecting, verifying and comparing data;
? *Information dissemination*: a procedure for analyzing and sharing data;
? *Rewards and Penalties*: a procedure for planning and implementing incentives and corrective actions;
? *Performance Review*: a process for monitoring and evaluating performance outcomes.

The IRC can be instrumental in spearheading many of these activities. However, benchmarking will be much more effective if two points are met. First, regulated companies must cooperate with regulators and subscribe to improvement objectives and processes. Second, formal mechanisms need to be established for consumers and other

affected parties to raise concerns and suggest modifications to the process. Through incentive regulation and an appropriate price cap formula, regulators can use findings from benchmarking reports to reward high performance companies. They can also pressure laggard companies to promote cost-containment and the improvement of service quality. A properly designed benchmarking system should prevent poorly performing companies from increasing prices as much as the "average" water utility to which they have been compared. If companies operate more efficiently, customers will benefit from lower prices and should continue to expect and receive high quality service. The resulting system is likely to be sustainable—promoting further network expansion and the adoption of best practice by most water utilities. Regulators who accomplish these tasks deserve high marks.

References:

Alegre, Helena, Wolfram Hirnir, Jamie Melo Baptista and Renato Parena (2000). *Performance Indicators for Water Supply Services*. IWA Manual of Best Practices. London: IWA Publishing.

Corton, Maria Luisa (2000). "Performance Efficiency and Benchmarking in the Peruvian Water Sector." Public Utility Research Center.

Jamasb, T. and M. Pollitt (2001). "Benchmarking and Regulation: International Electricity Experience." *Utilities Policy* 9, 107-130.

Kingdom, Bill and Vijay Jagannathan (2001). "Utility Benchmarking." Viewpoint: Note Number 229. The World Bank Group.

Paralez, Linda (2001). "Performance Assessment in US Water and Wastewater Utilities." *Journal AWWA* 93 (10), 68-76.