

PN-ACB-995

**FINANCIAL INSTITUTIONS
REFORM AND EXPANSION PROJECT**

Debt Market / Infrastructure Component

**INTRODUCTORY GUIDE TO
PERFORMANCE MEASUREMENT FOR
MUNICIPAL GOVERNMENTS**

John Justino

**January, 1996
Washington D.C.**

**Community Consulting International (CCI)
in association with
Technical Support Services (TSS)**

Funded by
United States Agency for International Development

TABLE OF CONTENTS

	<i>Page Number</i>
Introduction to Guide	
The Importance of Performance Measurement	1
How Performance Measurement Can Help Local Governments	1
The Limitations of Performance Measurement	2
How This Guide Is Organized	2
Section I: Evaluating Financial Condition	
Effective Financial Management	4
Goals of Local Governments	4
Financial Ratios and Indicators for Local Governments	4
Section II: Service Efforts and Accomplishments Measurement	
Measuring Service Efforts and Accomplishments (SEA)	22
Types of SEA Indicators	22
Examples of SEA Indicators	24
A. Administration and General Government	24
B. Water Supply Operation	25
C. Wastewater and Sewerage Operation	27
D. Solid Waste Management Operation	28

INTRODUCTION

THE IMPORTANCE OF PERFORMANCE MEASUREMENT

Today there is renewed emphasis on performance measurement, both in private industry and the public sector. In addition to stressing more practical applications of traditional performance measures, this new emphasis focuses on performance indicators which are less financial in nature. These "new" indicators are designed to support organizational strategies, not just short-term goals, and they measure actual effectiveness and quality of services and operations to the internal or external "customer."

Why is performance measurement important? Why this new emphasis? The motivating force is the greater competitive nature of the global economy, and specifically in the public realm, the tighter fiscal policies of international agencies and national governments around the world. In the private sector, companies cannot afford to waste resources in their struggle for survival in the marketplace. Performance measures allow them to determine whether they are working consistently towards their organizational mission, how well they are meeting the needs of their clients, and how productive they are. The motivation in the public sector is not very different. Today, government agencies all over the world are under tremendous pressure to cut back on spending, and their "customers," or citizens, are more and more skeptical and demanding. Therefore, government officials must have sound information on their financial standing as well as on the effectiveness and efficiency of existing services so that they can make sound decisions in support of programs and policies.

This paper focuses on performance measurement in local government. Its goal is to assist local government officials increase their understanding of both the importance of performance measurement and the application of some key indicators that will improve financial and programmatic management. Once able to effectively measure performance, local government officials will be better equipped to make effective fiscal, administrative and policy decisions.

HOW PERFORMANCE MEASUREMENT CAN HELP LOCAL GOVERNMENTS

Setting and tracking clear performance goals is vital to effective administration and management. Performance measurement is a tool by which a government can successfully manage its financial condition as well as better perform the planning, program management and budgeting functions.

Financial Condition: In much the same way that corporations use financial ratios and indicators to gain important insight into the health of their enterprise and ways to improve it, local governments can use similar financial ratios. Carefully tracking key financial indicators can alert administrators and policy makers to potential problems and trends before a crisis is upon them. Solid financial condition and management is vital to any local government as it attempts to consistently meet the needs of its citizens, as well as in its attempts to seek capital financing of any kind.

Planning: Performance measurement can improve the planning process by providing administrators with information on the effectiveness of existing programs and services, as well as important insights into the needs and concerns of citizens. This information is very useful in designing and adjusting programs and program objectives. It is very advantageous to initiate a program with a clear idea of what aspects of performance will be measured and what defines success.

Program Management: Performance goals and measures can improve a program manager's ability to set directions, reallocate resources and staff, and set priorities. The use of performance measures alerts the manager to problems and allows them to be addressed quickly, improving program performance and implementation.

Budgeting: In budgeting, resources are allocated to different purposes. In order to ensure that the objectives and goals of a local authority or program are met, this allocation of resources should be tied to performance. This is especially important in the present atmosphere of financial constraint. When the allocation of funds is based on performance, authorities are able to make informed decisions and rational trade-offs between programs and services.

Performance measurement is vital to good public administration. In addition to tracking and ensuring a solid financial situation through which a government can consistently meet the needs of its citizens, performance measurement can also improve the effectiveness and efficiency of governmental programs and services. In the evaluation of programs and services, performance indicators are most effective when agreed upon in the planning phase, before a commitment of resources is made. During the implementation phase, the tracking and analysis of indicators is an excellent management tool. Finally the budgeting function is greatly rationalized and clarified through the use and attention to performance measures.

THE LIMITATIONS OF PERFORMANCE MEASUREMENT

Effective performance measurement is not without its costs. Implementing a system of measuring financial condition, administrative productivity and service effectiveness takes time and money. Performance indicators require data collection and analysis. Additionally, some indicators can be misleading. A performance measure that simply tracks the amount of work accomplished does not provide any indication of the quality or effectiveness of the work performed. For example, an increase in the number of repairs made to a system may not be an indication of improved efficiency. It may be that work crews are simply working more overtime. Therefore, when considering a system of performance measurement, it is necessary for key officials to evaluate and discuss which indicators make sense for their jurisdiction and develop a viable implementation plan. Finally, measuring performance is only half the story. After measurements have been documented, policy makers and administrators must evaluate the results and implement changes based on the findings. Performance measures are only tools, not solutions.

HOW THIS GUIDE IS ORGANIZED

Local governments need to track performance in two key categories:

- financial condition; and,
- service/program efforts and accomplishment.

This paper is divided into two sections. The first section focuses on how local governments can use financial indicators and ratios to evaluate and manage their financial well-being. The second section deals with how local governments can use performance indicators to evaluate the quality and efficacy of their programs and services.

SECTION I:
Evaluating Financial Condition

EFFECTIVE FINANCIAL MANAGEMENT

Effective financial management is always important in local government, but it becomes even more critical in times of tight fiscal policy and inflation. In such times, intergovernmental funds are usually harder to obtain, as are sources of credit; additionally, citizens are more skeptical about payment for services.

Money is constantly moving in and out of local governments, and the mix of the various sources and destinations of these funds is constantly changing. Controlling the mix of these sources and uses in accordance with a pre-determined plan is the essence of financial management.

Financial management for a government includes the following five basic steps:

1. Establishing the goals and objectives of the government
2. Defining how success in meeting these goals and objectives will be measured
3. Creating a plan for obtaining the funds needed to meet these goals and objectives
4. Allocating the money to the various assets and programs of the government while keeping the goals and objectives in mind
5. Tracking results based on the defined success criteria and making necessary decisions based on these measurements

GOALS OF LOCAL GOVERNMENTS

For the most part, local governments are not profit oriented entities. They should, however, seek the highest return on their investments and the greatest possible impact from their expenditures. Although not exactly the same as maximization of profit, these are certainly closely related goals. The objective of local governments include:

- Effectively meeting the needs of its citizens
- Maximizing return on assets
- Maximizing impact of expenditures
- Minimizing cost of services
- Following equitable hiring and personnel practices
- Having concern for social and environmental factors

Solid financial management is essential in order for local governments to regularly meet these goals effectively.

FINANCIAL RATIOS AND INDICATORS FOR LOCAL GOVERNMENTS

In general, the ratios used in the analysis of corporate financial statements can be applied to the financial statements of local governments. Computing and studying these ratios can be a useful means of understanding governmental financial condition. Some of the profitability ratios do not directly apply to local governments since they do not seek a profit. They do, however, apply to public enterprises which are often revenue generating profit centers.

Of course, financial ratio analysis assumes the use of accurate accounting methods and the production of financial statements. The discussion and sample ratio calculations that follow are based on the financial statements for the Wastewater and Water Operations of a fictitious U.S. county government (see Figures 1 and 2 on pages 18 and 19). These statements cover the three

year period from 1993 to 1995, and although generated specifically for this discussion, these statements are based on those of actual public enterprises. The discussion is focused on public, revenue generating enterprises; however, many of the ratios can be applied to local governments as a whole.

The ratios identified are very basic, yet cover a broad spectrum of important financial characteristics. They are arranged into the following categories: liquidity, debt and debt coverage, return and investments, revenue analysis, and operating and administrative efficiencies. The calculation and a discussion of the significance of the ratios follow. The analysis of the trends exhibited over the three years of the financial statements is a very important part of this discussion since benchmark or median figures are not well established for government finance.

This analysis is by no means exhaustive. It simply identifies some of the key ratios that can be used to evaluate the fiscal health of local governments and enterprises. A listing of the ratios and their calculated values can be found in Figure 3 on page 20.

A. Liquidity is a measure of the availability of assets that can be readily converted into cash in order to meet short-term obligation. Sufficient liquidity is critical to any operation. Poor liquidity indicates that short-term obligations associated with day-to-day operations cannot be met. It also indicates that the ability to cover debt service could be limited.

1. *Current Ratio* (Current Assets to Current Liabilities)

The Current Ratio is the relationship between current assets and current liabilities, and it roughly indicates the ability to meet short-term financial obligations.

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

A ratio of 2.0 or better is generally accepted as a good level of liquidity. In other words, for every dollar of short-term liability there are two dollars of cash or convertible assets to cover them. For a public enterprise a ratio of 1.5 may be adequate due to its predictable cash inflows from self-established user fees.

Jade County's Wastewater Operation has a positive trend in its current ratio.

Wastewater Operation:

1993:	$\frac{\$ 3,166,833}{\$ 1,992,337} = 1.59$	1994:	$\frac{\$ 3,576,784}{\$ 2,097,197} = 1.71$	1995:	$\frac{\$ 4,704,696}{\$ 2,330,219} = 2.02$
-------	--	-------	--	-------	--

This steady positive trend indicates good management of short-term resources and obligations. The Wastewater Operation is in a good position to meet short-term demands.

The Water Operation's Current Ratio has been relatively volatile:

Water Operation:

1993:	$\frac{\$ 9,268,597}{\$ 2,554,283} = 3.63$	1994:	$\frac{\$ 10,335,850}{\$ 2,688,719} = 3.84$	1995:	$\frac{\$ 11,484,278}{\$ 6,420,121} = 1.79$
-------	--	-------	---	-------	---

The dramatic drop in 1995 was largely due to a increase in current liabilities in the form of approximately \$2.5 million in new contracts payable. The 1995 ratio value of 1.79 is still acceptable, but attention should be paid to the dramatic changes in the ratio and their causes.

In comparing the two enterprises it should be noted that the Water Operation has much higher levels of current assets and, until 1995, its current liability levels were comparable to those of the Wastewater Operation. This accounted for its much higher current ratio figures in 1993 and 1994. This positive indication of liquidity for the Water Operation is, however, somewhat offset by its apparent lack of control over its short-term resources. The lower, more stable, and steadily increasing ratio figures for the Wastewater Operation may be more desirable.

2. Cash to Debt Service

The ratio of Cash to Debt Service gives a general indication of how able an entity is to handle the obligations of its indebtedness. It compares service on debt to the readily available, liquid cash assets. The ratio indicates how many times cash assets could cover the service due on the enterprise's debt. A ratio of at least 2.0 is recommended in industry; however, due to the fact that public enterprises generally do not seek as large profit margins as private enterprises, a ratio greater than 1.0 is a good indication for government.

$$\text{Cash to Debt Service} = \frac{\text{Cash}}{\text{Debt Service}}$$

NOTE: In all ratios involving Debt Service, Debt Service is defined as interest expenditure plus principal paid.

Wastewater Operation:

1993:	$\frac{\$ 500,732}{\$ 366,113} = 1.37$	1994:	$\frac{\$ 900,234}{\$ 442,593} = 2.03$	1995:	$\frac{\$ 1,730,752}{\$ 1,636,697} = 1.06$
-------	--	-------	--	-------	--

The Cash to Debt Service ratios for Jade County's Wastewater Operation do not exhibit any trend. Over the last three years it has remained above 1.0, indicating that cash reserves have maintained at a level of at least one dollar for every dollar of debt service due. Maintaining a ratio value greater than 1.0 in 1995, despite a dramatic increase in indebtedness and debt service, indicates that the investment of borrowed resources resulted in greater cash balances.

Water Operation:

1993:	$\frac{\$ 2,199,021}{\$ 4,719,833} = 0.47$	1994:	$\frac{\$ 3,319,996}{\$ 5,034,990} = 0.66$	1995:	$\frac{\$ 3,688,884}{\$ 4,509,990} = 0.82$
-------	--	-------	--	-------	--

The Water Operation's Cash to Debt Service ratio is lower, indicating a liquidity problem. With a ratio of less than 1.0, a potential investor would worry that the enterprise may not be able to meet its debt obligations regularly. The increasing trend is, however, a good sign. A comparison of the two enterprises definitely indicates that the Wastewater Operation is in a much better position to meet its short-term debt obligations.

3. Cash to Debt Service Plus Operating Expenditures

The Cash to Debt Service Plus Operating Expenditures ratio indicates not only the ability to meet short-term debt service obligations, but day-to-day operating costs as well. A ratio of 1.0 or higher would be sought in industry, again however, given the nature of public enterprises, a somewhat lower ratio may be expected.

$$\text{Cash to Debt Service Plus Operating Expenditures} = \frac{\text{Cash}}{\text{Debt Service} + \text{Operating Expenditures}}$$

Wastewater Operation:

1993:	$\frac{\$ 500,732}{\$ 3,230,795} = 0.15$	1994:	$\frac{\$ 900,234}{\$ 3,242,324} = 0.28$	1995:	$\frac{\$ 1,730,752}{\$ 4,414,860} = 0.39$
-------	--	-------	--	-------	--

Water Operation:

1993:	$\frac{\$ 2,199,021}{\$ 9,366,017} = 0.23$	1994:	$\frac{\$ 3,319,996}{\$ 9,728,105} = 0.34$	1995:	$\frac{\$ 3,688,884}{\$ 9,765,519} = 0.38$
-------	--	-------	--	-------	--

The Jade County financial statements indicate that both enterprises cash reserves only cover between 20 to 40% of their debt service and operating expenditures. Also, both are showing a steady positive trend in improving this ratio.

B. Debt and Debt Coverage ratios indicate the level of indebtedness and the ability to meet the service or interest on this debt. These measures relate debt or debt service to assets and to inflows of revenue as well as give an indication of the proportion of expenditures that go towards debt coverage.

1. Net Revenue (Deficit) to Current Liabilities

This ratio indicates what level of the current liabilities or obligations of the enterprise are covered by net revenues. In a strictly private, for profit venture a ratio of at least 1.0 would be recommended. In a public enterprise, with its limited ability to seek large profits, the expected ratio may be lower and more emphasis focused on ensuring a positive or increasing trend.

$$\text{Net Revenue (Deficit) to Current Liabilities} = \frac{\text{Net Revenue}}{\text{Current Liabilities}}$$

Wastewater Operation:

1993:	$\frac{\$ (231,807)}{\$ 1,992,337} = -0.12$	1994:	$\frac{\$ 865,749}{\$ 2,097,197} = 0.41$	1995:	$\frac{\$ 1,520,645}{\$ 2,330,219} = 0.65$
-------	---	-------	--	-------	--

Water Operation:

1993:	$\frac{\$ 356,258}{\$ 2,554,283} = 0.14$	1994:	$\frac{\$ 681,250}{\$ 2,688,719} = 0.25$	1995:	$\frac{\$ 1,083,780}{\$ 6,420,121} = 0.17$
-------	--	-------	--	-------	--

It is important to note that the Wastewater Operation's overall deficit in 1993 resulted in a negative ratio. Determining the significance of a negative value is difficult. In this case, it is enough to know that a negative ratio indicates a net loss for the enterprise. The Wastewater Operation does exhibit, however, a positive trend. This signifies that the enterprise's revenues are outpacing its short-term obligations. The Water Operation is not showing a positive trend. Additionally the ratio indicates a relatively small percentage of coverage of current liabilities by net revenue; less than 1/4 of the short-term liabilities are covered.

2. *Debt Ratio (Total Liabilities [Current Liabilities plus Long-Term Debt] to Total Assets)*

$$\text{Debt Ratio} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

This is perhaps the most common ratio used to measure the level of indebtedness in private and governmental financial analysis. In general, creditors like to see a lower ratio because this indicates that the enterprise is in a good position to meet its obligations to them in the case of liquidation. A ratio of 0.50 means that 50% of the enterprises financing is supplied by creditors. This is viewed as a very safe financing situation. A decreasing trend in the ratio indicates that the enterprise owns more and more of its assets outright. A Debt Ratio value of 75% is still considered to be a comfortable debt position, but a ratio at this level does raise the need for solid capital investment planning in order to prevent a more highly indebted or leveraged position. As the ratio approaches the 0.75 figure, it will become more difficult for an enterprise to borrow money. If the ratio increases higher to the 0.80 level, management is risking subjecting the enterprise to dangerously high leveraged position.

Wastewater Operation:

1993:	$\frac{\$4,257,557}{\$11,917,221} = 0.36$	1994:	$\frac{\$4,895,183}{\$13,584,606} = 0.36$	1995:	$\frac{\$10,887,008}{\$20,097,771} = 0.54$
-------	---	-------	---	-------	--

Analysis of the balance sheet for the Wastewater Operation shows an increasing trend in its Debt Ratio. This indicates that the enterprise has been increasing its level of debt and thus more of its assets are leveraged. The decision to borrow a significant amount of money in 1995 has pushed the Debt Ratio over the 50% level. Management should be cautious in plans to take on more debt.

Water Operation:

1993:	$\frac{\$29,521,120}{\$40,190,707} = 0.73$	1994:	$\frac{\$32,343,389}{\$39,078,135} = 0.83$	1995:	$\frac{\$32,774,791}{\$43,420,150} = 0.75$
-------	--	-------	--	-------	--

The level of indebtedness for the Water Operation is higher than that of the Wastewater Operation. There is no obvious trend, however the level of indebtedness is high. The ratios indicate that on average 75 to 80% of its financing for the operation comes from creditors. Creditors and investors would be concerned with this condition, and it is unlikely that the Water Operation could borrow money at a reasonable rate.

3. *Total Long-Term Debt to Total Fund Equity*

$$\text{Total Long-Term Debt to Total Fund Equity} = \frac{\text{Total Long-Term Debt}}{\text{Total Fund Equity}}$$

Equity represents the funds the government has invested in their own enterprise. Comparing this internal long-term investment financing with the long-term investment financing obtained from outside creditors is another measure of the extent to which the enterprise is leveraged. In the public realm, benchmark figures are not well established, and therefore, the trend analysis of the ratio is very important. An increasing trend indicates that a greater proportion of the of the long-term financing is coming from outside creditors. Anytime the ratio exceeds 1.0, long-term debt financing exceeds equity.

Wastewater Operation:

1993:	$\frac{\$ 2,265,220}{\$ 7,659,664} = 0.30$	1994:	$\frac{\$ 2,797,986}{\$ 8,689,423} = 0.32$	1995:	$\frac{\$ 8,546,789}{\$ 9,220,763} = 0.93$
-------	--	-------	--	-------	--

In the case of the Wastewater Operation the ratio appears to have been stable at around 0.30 (long-term debt equal to 30% of fund equity). However, taking on of a substantial amount of debt in 1995 caused the ratio to jump up toward the 1.0 level. This analysis indicates that the enterprise should be cautious concerning further debt financing at this time, unless additional debt would be used to finance projects or improvements likely to produce significant increases in net revenue.

Water Operation:

1993:	$\frac{\$ 26,966,837}{\$ 10,669,587} = 2.53$	1994:	$\frac{\$ 29,654,670}{\$ 6,734,746} = 4.40$	1995:	$\frac{\$ 26,354,670}{\$ 10,645,359} = 2.48$
-------	--	-------	---	-------	--

It is clear from the ratios above that the Water Operation is leveraged to a considerable extent. Long-term debt financing greatly exceeds equity financing. However, the substantial increases in 1995's position would permit additional liability on the part of the enterprise. Poor performance in terms of equity loss during 1994 may have been due to an unusual event such as theft or unexpected replacement of a major fixed asset.

4. Net Revenue to Debt Service

This ratio indicates the ability of the enterprise to raise revenues to pay off the service on its debt. Creditors and potential creditors will look to this ratio to help them determine the risk inherent in investing in the enterprise. A ratio of 2.0 is desired in private business. For a public enterprise, a ratio in excess of 1.0 (net revenue greater than debt service) is a more realistic benchmark. And once again, the analysis of trends in the ratio is very useful.

$$\text{Net Revenue to Debt Service} = \frac{\text{Net Revenue}}{\text{Debt Service}}$$

Wastewater Operation:

1993:	$\frac{(\$ 231,807)}{\$ 366,113} = -0.63$	1994:	$\frac{\$ 865,749}{\$ 442,593} = 1.96$	1995:	$\frac{\$ 1,520,645}{\$ 1,636,697} = 0.93$
-------	---	-------	--	-------	--

1993's deficit results in a negative ratio. As mentioned above, it is difficult to analyze the significance of a negative ratio, other than that a negative value indicates a net loss and, therefore, an inability to meet obligations. In 1994 the ratio increased considerably due to a significant jump in net revenue, and in 1995 the decrease in the ratio reflects the enterprise's increased level of debt. However, this investment in 1995 seems to have paid off by almost doubling net revenue.

Water Operation:

1993:	$\frac{\$ 356,258}{\$ 4,719,833} = 0.08$	1994:	$\frac{\$ 681,250}{\$ 5,034,990} = 0.14$	1995:	$\frac{\$ 1,083,780}{\$ 4,509,990} = 0.24$
-------	--	-------	--	-------	--

Once again the poor debt position of the Water Operation is apparent. Its net revenues are far below its debt service obligations. The trend is positive, yet the ratios remain far below an advisable level.

5. Operating Revenue to Operating Expenditures plus Debt Service

$$\text{Oper. Rev. to Oper. Expenditures plus Debt Service} = \frac{\text{Operating Revenue}}{\text{Oper. Expenditures} + \text{Debt Service}}$$

This ratio measures the ability of the enterprise to cover its operational costs and debt service solely with operating revenue. A ratio of 1.0 indicates that revenue from operations exactly equals the sum of the costs of the operation and the obligations on debt. Any value below 1.0 indicates a shortfall in revenue to cover these expenditures. Again, lenders of money would be wary of investing in an enterprise that cannot generate the revenue need to cover these costs because of fear that the debt service obligations of the entity will not be consistently met. In fact, in credit analysis for revenue bond issuance in the U.S., a ratio of 1.3 or better for the projected cash flows of a proposed project or bond issue is considered an indication of financial strength. A ratio of 1.0 or just over 1.0 indicates the ability to meet - but only to meet - anticipated expenses including debt service with anticipated operating revenues. Such a ratio permits little accumulation of reserves or coverage in the event of financial difficulty of even a minor nature.

Wastewater Operation:

1993:	$\frac{\$ 2,598,632}{\$ 3,230,795} = 0.80$	1994:	$\frac{\$ 2,674,379}{\$ 3,242,324} = 0.82$	1995:	$\frac{\$ 3,974,379}{\$ 4,414,860} = 0.90$
-------	--	-------	--	-------	--

Water Operation:

1993:	$\frac{\$ 8,523,345}{\$ 9,366,017} = 0.91$	1994:	$\frac{\$ 8,831,345}{\$ 9,728,105} = 0.91$	1995:	$\frac{\$ 9,001,345}{\$ 9,765,519} = 0.92$
-------	--	-------	--	-------	--

Neither the Wastewater nor Water Operation has ratio values of 1.0 or greater. Therefore, both are not generating enough revenue from their operations to cover operating expenses plus debt service. However, both are exhibiting overall positive trends.

C. Return and Investment ratios measure how efficiently physical and cash assets are being used or invested. The expected return on assets or equity is often the most critical factor in a capital investment decision. These ratios are also an excellent means for evaluating the decision making and management of a local government.

1. Return on Assets (Net Revenue to Total Assets)

$$\text{Return on Assets (ROA)} = \frac{\text{Net Revenue}}{\text{Total Assets}}$$

The ratio of Net Revenue to Total Assets indicates how much every dollar of assets earns for the enterprise. This is very important to a potential investor. When faced with numerous options for investing their money, investors must evaluate the earning or interest generating capacity of these options. It is often advisable to compare the return on assets for an enterprise with the current lending rate or the interest rates being offered by financial institutions, since these will be competing for the same investment dollars.

Wastewater Operation:

1993:	$\frac{(\$ 231,807)}{\$11,917,221} = -0.02$	1994:	$\frac{\$ 865,749}{\$13,584,606} = 0.06$	1995:	$\frac{\$ 1,520,645}{\$20,097,771} = 0.08$
-------	---	-------	--	-------	--

Water Operation:

1993:	$\frac{\$ 356,258}{\$40,190,707} = 0.01$	1994:	$\frac{\$ 681,250}{\$39,078,135} = 0.02$	1995:	$\frac{\$ 1,083,780}{\$43,420,150} = 0.02$
-------	--	-------	--	-------	--

The Wastewater Operation's "earning" power is on a steady increase and is significantly higher than that of the Water Operation. For every dollar of money invested in assets of the Wastewater facility in 1995, \$1.08 was returned; an 8% return. This compares to only a 2% return for the Water Operation. When faced with a choice of investing in either of the two operations, it appears from this ratio that the Wastewater Operation is the better investment.

2. Return on Equity(Net Revenue to Total Fund Equity)

$$\text{Return on Equity (ROE)} = \frac{\text{Net Revenue}}{\text{Total Fund Equity}}$$

ROE is another ratio that indicates the "earning power" of an entity. As described above, equity is the internal investment made by the government in its own programs and enterprises. Government, too, is looking for a good return on its investment. This is especially important for enterprises or revenue generating activities of government.

Wastewater Operation:

1993:	$\frac{(\$ 231,807)}{\$ 7,659,664} = -0.03$	1994:	$\frac{\$ 865,749}{\$ 8,689,423} = 0.10$	1995:	$\frac{\$ 1,520,645}{\$ 9,220,763} = 0.16$
-------	---	-------	--	-------	--

Water Operation:

1993:	$\frac{\$ 356,258}{\$10,669,587} = 0.03$	1994:	$\frac{\$ 681,250}{\$ 6,734,746} = 0.10$	1995:	$\frac{\$ 1,083,780}{\$10,645,359} = 0.10$
-------	--	-------	--	-------	--

The ROE figures for both operations are higher than their ROA figures. This should be expected since the debt to equity ratios indicated that both operations rely more on debt financing than equity financing. Still, the Wastewater Operation is a more attractive investment based on its higher returns.

The ROE also indicates whether the financial position of the enterprise may be improved by borrowing or issuing debt in comparison with self-financing, which depletes equity. If credit can

be obtained at a rate lower than the annual ROE, more is to be gained by borrowing than by using equity reserves. The reverse of this is also true. If the rate at which credit can be obtained is higher than the annual ROE, the enterprise has more to gain by using its equity reserves for making the investment.

3. Capital Investment to Total Fixed Assets

This ratio is an indication of how much the enterprise is investing in its future. It represents the proportion of the fixed assets which offer long-term benefits in the form of buildings, infrastructure, equipment, and other productive capital equipment. The trends of this ratio should be tracked. A rising ratio indicates an increased acquisition of productive capital assets relative to other fixed assets such as vehicles and office equipment. This suggests a likelihood of improved returns on assets. Generally, an enterprise would seek a ratio value of 0.75. In other words, for every four dollars invested in fixed assets, three would be spent on productive capital assets.

$$\text{Capital Assets to Total Fixed Assets} = \frac{\text{Capital Investment Expenditures}}{\text{Total Fixed Assets}}$$

Wastewater Operation:

1993:	$\frac{\$ 4,987,721}{\$ 8,750,388} = 0.57$	1994:	$\frac{\$ 5,250,233}{\$ 9,210,935} = 0.57$	1995:	$\frac{\$ 10,880,734}{\$ 14,507,645} = 0.75$
-------	--	-------	--	-------	--

The Wastewater Operation clearly made a significant investment in its productive capacity in 1995. This might explain its dramatic improvement in operating efficiency and revenue. With the \$5.0 investment in capital equipment, the proportion of capital equipment to total fixed assets is at an acceptable level.

Water Operation:

1993:	$\frac{\$ 20,845,720}{\$ 30,211,189} = 0.69$	1994:	$\frac{\$ 20,294,217}{\$ 27,611,180} = 0.74$	1995:	$\frac{\$ 24,543,271}{\$ 30,679,089} = 0.80$
-------	--	-------	--	-------	--

The Water Operation's ratio has remained relatively high over the three year period and is showing an increasing trend. This increased investment in capital assets may account for its improving operational productivity and revenue generation.

Note: A ratio of Capital Assets Per Customer is an effective ratio for measuring if investments in capacity and services is following increasing or decreasing demand based on the number of customers served. It also informs the analyst about the levels of capital investment per customer for purposes of comparison with other per customer or per capita indicators such as net revenue per capita.

D. Revenue Analysis indicators help a financial manager track the sources and composition of annual revenues. This information is extremely important when planning future expenditures and investments.

1. Net Take-down Ratio (Net Revenue to Total Revenue)

$$\text{Net Take-down Ratio} = \frac{\text{Net Revenue}}{\text{Total Revenue}}$$

This ratio is a measure of profitability. The value of the ratio represents the proportion of the total revenue that is in excess of expenditure and is able to be "reinvested" in the entity or used to meet obligations. It should be noted that this ratio is more useful and commonly applied to new capital projects which are treated as separate fiscal activities. It is also useful, however, when analyzing the profitability of a public enterprise as whole.

Moody's Investors Services (one of the largest bond rating agencies in the U.S.) uses this ratio when evaluating revenue bonds associated with new municipal enterprise projects. According to Moody's, for newly proposed U.S. water and sewer projects the median value for this ratio is approximately 0.40 or 40%. When applying this ratio to the financial statements of a mature public enterprise, a somewhat lower ratio of 25% to 30% would be expected.

Wastewater Operation:

1993:	$\frac{(\$ 231,807)}{\$3,505,072} = -0.07$	1994:	$\frac{\$ 865,749}{\$4,555,719} = 0.19$	1995:	$\frac{\$ 1,520,645}{\$6,078,754} = 0.25$
-------	--	-------	---	-------	---

Water Operation:

1993:	$\frac{\$ 356,258}{\$9,883,585} = 0.04$	1994:	$\frac{\$ 681,250}{\$10,707,346} = 0.06$	1995:	$\frac{\$ 1,083,780}{\$11,193,043} = 0.10$
-------	---	-------	--	-------	--

An analysis of the Wastewater Operations income statement shows that its Net Take-down Ratio is on a positive trend and approaching an acceptable level. The Water Operation is also showing a positive trend, but its values are far below those expected for a municipal water enterprises. Low ratio values such as these are possible indications of: 1) low revenue or profitability levels, 2) inefficient use of present capital investment to maximize profits, or 3) poor collections of revenue potential. Low ratios should also trigger a closer look at long-established revenue patterns, as well as revenue weaknesses relevant to new undertakings and operations. Expenditure patterns should also be reviewed to determine any significant trends or changes, such as increased maintenance costs or wage costs related to service levels.

2. Operating Revenue to Total Revenue

This ratio gives an indication of the proportion of revenue that is generated solely by operations. It is important for a public enterprise to track carefully how much of its revenue is coming from non-operating sources, such as governmental grants and subsidies.

$$\text{Operating Revenue to Total Revenue} = \frac{\text{Operating Revenue}}{\text{Total Revenue}}$$

Wastewater Operation:

1993:	$\frac{\$2,598,632}{\$3,505,072} = 0.74$	1994:	$\frac{\$2,674,379}{\$4,555,719} = 0.59$	1995:	$\frac{\$3,974,379}{\$6,078,754} = 0.65$
-------	--	-------	--	-------	--

The Wastewater Operations revenue stream does not show a clear trend for these three years, however, the investment in fixed assets in 1995 seems to have increased operating revenue and resulted in the positive change in the ratio.

Water Operation:

1993: $\frac{\$8,523,345}{\$9,883,585} = 0.86$ 1994: $\frac{\$8,831,345}{\$10,707,346} = 0.82$ 1995: $\frac{\$9,001,345}{\$11,193,043} = 0.80$

Approximately 80% of the Water Operation's total revenue is generated solely from its daily operations. This high percentage along with the fact that the profitability of the Water Operation is low is an indication of a problem with non-operating expenditures. Looking at the income statement it is clear that the operating revenues are greater than the operating expenditures, and therefore the non-operating expenditures of the enterprise are eating away at its profitability.

3. Intergovernmental Revenue to Total Revenue

$$\text{Intergovernmental Revenue to Total Revenue} = \frac{\text{Intergovernmental Revenue}}{\text{Total Revenue}}$$

Again, tracking the composition of the revenue stream is extremely important over time. Many government enterprises receive intergovernmental revenue in the form of state and federal grants and subsidies. Being aware to what extent the enterprise or government as a whole is reliant on revenue from these types of sources is important. The lower the ratio, the more self-sufficient the enterprise or government.

Wastewater Operation:

1993: $\frac{\$890,762}{\$3,505,072} = 0.25$ 1994: $\frac{\$1,857,307}{\$4,555,719} = 0.41$ 1995: $\frac{\$2,078,943}{\$6,078,754} = 0.34$

The Wastewater Operation, although indicating good profitability trends, appears to be heavily reliant on revenue from governmental sources. On average, over 30% of its revenue is coming from these sources and without this revenue the profitability of the enterprise would be greatly affected. In fact, total elimination of grants and subsidies would have translated into net losses in 1994 and 1995.

Water Operation:

1993: $\frac{\$1,325,678}{\$9,883,585} = 0.13$ 1994: $\frac{\$1,823,385}{\$10,707,346} = 0.17$ 1995: $\frac{\$2,136,020}{\$11,193,043} = 0.19$

The Water Operation is much more self-sufficient than the Wastewater Operation. Less than 20% of its revenue comes from governmental sources. However, there does exist a trend towards more and more reliance on intergovernmental funding. Given the already poor profitability indications, this trend should raise concern among managers.

4. Restricted Revenue to Total Revenue

$$\text{Restricted Revenue to Total Revenue} = \frac{\text{Restricted Revenue}}{\text{Total Revenue}}$$

Being aware what proportion of the revenue stream is restricted in its use is also important. If a large percentage of the revenue is restricted in its application, budget constraints and fund management problems can result.

Wastewater Operation:

1993: $\frac{\$0}{\$3,505,072} = 0.00$ 1994: $\frac{\$223,456}{\$4,555,719} = 0.05$ 1995: $\frac{\$350,000}{\$6,078,754} = 0.06$

Water Operation:

1993: $\frac{\$1,225,678}{\$9,883,585} = 0.12$ 1994: $\frac{\$990,211}{\$10,707,346} = 0.09$ 1995: $\frac{\$1,254,354}{\$11,193,043} = 0.11$

The Water Operation has a higher percentage (staying around the 10% level) of restricted revenue than the Wastewater Operation, although the Wastewater Operation is showing an increasing trend.

E. Operating and Administrative Efficiency ratios provide insight into the productivity of day-to-day operations and administration.

1. *Operating Ratio (Operating Expenditures (including maintenance) to Operating Revenue)*

$$\text{Operating Ratio} = \frac{\text{Operating Expenditures}}{\text{Operating Revenues}}$$

This ratio indicates the general efficiency of the daily operations of the facility. Moody's calculates the U.S. median figure for water and wastewater enterprise projects to be approximately 60%. In other words, operating expenses amount to 60% of operating revenue. If this ratio is greater than 1.0 it means that operating expenses are greater than operating revenues, or the operation itself is losing money, even before debt service obligations are taken into account.

Wastewater Operation:

1993: $\frac{\$2,864,682}{\$2,598,632} = 1.10$ 1994: $\frac{\$2,799,730}{\$2,674,379} = 1.05$ 1995: $\frac{\$2,778,163}{\$3,974,379} = 0.70$

This ratio further demonstrates the fact that the Wastewater Operation has relied heavily on revenue sources other than those from operations to account for its positive net income. It also further emphasizes the dramatic improvement in operating revenue associated with the 1995 investment in fixed assets. Also, a positive trend is indicated.

Water Operation:

1993: $\frac{\$4,646,184}{\$8,523,345} = 0.55$ 1994: $\frac{\$4,693,116}{\$8,831,345} = 0.53$ 1995: $\frac{\$5,255,529}{\$9,001,345} = 0.58$

There does not seem to be an apparent trend in the Water Operation's Operating Ratio, however, this analysis reveals that the Water Operation itself is running quite efficiently. With an Operating Ratio consistently below the national median, management is again directed to investigate and improve its control of non-operating expenses.

2. Maintenance Expenditure to Total Fixed Assets

$$\text{Maintenance Expenditure to Total Fixed Assets} = \frac{\text{Maintenance Expenditures}}{\text{Total Fixed Assets}}$$

The money spent on the maintenance of any fixed asset is important to its owner. For example, a car owner pays very close attention to the maintenance and repair costs he is putting into his automobile. When the maintenance costs become too high, he makes the decision to purchase a new one. Businesses and enterprises make similar decisions regarding their fixed assets. Management should track the proportion of maintenance costs to fixed assets. Observing the magnitude and trends of this ratio provides valuable information on the condition of these assets and helps managers make appropriate capital investment decisions.

Neither the Wastewater nor Water Operation has a high proportion of maintenance costs to total fixed assets. However, their trends, although not dramatic are different. The Wastewater Operation is showing a decreasing trend, a positive sign. While the Water Operation's trend is increasing, maintenance expenditures are becoming a larger percentage of the value of the fixed assets. If such a trend continues or if the ratio reaches the 10% level, management should definitely be concerned about the causes and the condition of its fixed assets and evaluate possible replacement or improvement.

Wastewater Operation:

1993:	$\frac{\$499,821}{\$8,750,388} = 0.06$	1994:	$\frac{\$410,982}{\$9,210,935} = 0.04$	1995:	$\frac{\$250,387}{\$14,507,645} = 0.02$
-------	--	-------	--	-------	---

Water Operation:

1993:	$\frac{\$562,211}{\$30,211,189} = 0.02$	1994:	$\frac{\$567,890}{\$27,611,180} = 0.02$	1995:	$\frac{\$890,211}{\$30,679,089} = 0.03$
-------	---	-------	---	-------	---

3. Maintenance Expenditures to Operating Expenditures

$$\text{Maintenance Expenditures to Total Operating Expenditures} = \frac{\text{Maintenance Expenditures}}{\text{Operating Expenditures}}$$

This ratio provides management another means of detecting increasing maintenance costs. If the percentage of operating costs due to maintenance expenditures is increasing, it may indicate problems with the fixed assets.

Wastewater Operation:

1993:	$\frac{\$499,821}{\$2,864,682} = 0.17$	1994:	$\frac{\$410,982}{\$2,799,730} = 0.15$	1995:	$\frac{\$250,387}{\$2,778,163} = 0.09$
-------	--	-------	--	-------	--

The Wastewater Operation is exhibiting a favorable decreasing trend, while at the same time maintaining a fairly constant level of total operating expenditures. Once again the investment in fixed assets in 1995 seems to have helped lower maintenance costs. This would be expected with an upgrade of facilities.

Water Operation:

1993:	$\frac{\$ 562,211}{\$4,646,184} = 0.12$	1994:	$\frac{\$ 567,890}{\$ 4,693,116} = 0.12$	1995:	$\frac{\$890,211}{\$ 5,255,529} = 0.17$
-------	---	-------	--	-------	---

The Water Operation is exhibiting an unfavorable or increasing trend at the same time that overall operating expenses are going up. This indicates problems with the upkeep of the facility. The 1995 figure is approaching the 20% level. This could be a sign of uncontrolled maintenance costs.

4. *Administrative Expenditures to Total Expenditures*

$$\text{Administrative Expenditures to Total Expenditures} = \frac{\text{Administrative Expenditures}}{\text{Total Expenditures}}$$

As a general rule of thumb, any operation should be concerned if their administrative costs exceed 20% of their total costs. Rising administrative costs can take funds away from operations and the provision of services to the residents. For example, a government may set aside funds for salary increases in order to ensure the employment of key administrative staff, even if this represents an increasing share of total expenditures. These funds are then no longer available for day to day operations or services.

Wastewater Operation:

1993:	$\frac{\$ 520,586}{\$3,736,879} = 0.14$	1994:	$\frac{\$ 458,025}{\$3,689,970} = 0.12$	1995:	$\frac{\$ 484,683}{\$4,558,109} = 0.11$
-------	---	-------	---	-------	---

Water Operation:

1993:	$\frac{\$ 813,792}{\$9,527,327} = 0.09$	1994:	$\frac{\$ 861,155}{\$10,026,096} = 0.09$	1995:	$\frac{\$ 875,534}{\$10,109,264} = 0.09$
-------	---	-------	--	-------	--

Both enterprises are controlling their administrative costs. The Wastewater Operation is showing a positive decreasing trend, whereas the Water Operation's proportion of administrative expenditures to total expenditures is remaining steady at 9%. Both operations' ratios are well below the 20% figure.

Jade County Financial Statements

Balance Sheet - June 30, 1995

Technical Support Services, Inc.

Page 18

January 1996

ASSETS	Wastewater Operations			Water Operations		
	1995	1994	1993	1995	1994	1993
Current Assets						
Cash and Cash Equivalents	\$1,730,752	\$900,234	\$500,732	\$3,688,884	\$3,319,996	\$2,199,021
Accounts Receivable	\$336,879	\$303,191	\$288,032	\$1,356,770	\$1,221,093	\$1,160,038
Interest Receivable	\$185,663	\$167,097	\$158,742	\$812,886	\$731,597	\$695,018
Investments	\$865,023	\$778,521	\$739,595	\$1,175,000	\$1,057,500	\$1,004,625
Restricted Assets						
Cash	\$735,489	\$661,940	\$628,843	\$1,660,987	\$1,494,888	\$1,420,144
Investments	\$850,890	\$765,801	\$850,890	\$2,789,751	\$2,510,776	\$2,789,751
Total Current Assets:	\$4,704,696	\$3,576,784	\$3,166,833	\$11,484,278	\$10,335,850	\$9,268,597
Fixed Assets						
Capital Assets (Property, Plant & Production Equipment)	\$10,880,734	\$5,250,233	\$4,987,721	\$24,543,271	\$20,294,217	\$20,845,720
Other Fixed Assets	\$3,628,911	\$3,960,702	\$3,762,667	\$6,135,818	\$7,316,963	\$9,365,469
Other Assets						
Other Deferred Assets	\$885,430	\$796,887		\$1,256,783	\$1,131,105	\$710,921
TOTAL ASSETS:	\$20,097,771	\$13,584,606	\$11,917,221	\$43,420,150	\$39,078,135	\$40,190,707
LIABILITIES						
Current Liabilities						
Accounts Payable	\$548,793	\$493,914	\$469,218	\$1,648,793	\$1,033,914	\$982,218
Contracts Payable	\$600,290	\$540,261	\$513,248	\$3,067,890	\$511,101	\$485,546
Due to Other Funds and Accounts	\$505,899	\$455,309	\$432,544	\$735,467	\$661,920	\$628,824
Due to State	\$182,808	\$164,347	\$158,130			
Accrued Expenditures	\$66,777	\$60,099	\$57,094	\$166,777	\$150,099	\$142,594
Unamortized Bond Premium	\$90,540	\$81,486	\$77,412	\$290,540	\$261,486	\$248,412
Other Liabilities	\$125,436	\$112,892	\$107,248	\$277,999	\$70,199	\$66,689
Deferred Revenues	\$200,876	\$188,888	\$179,444	\$232,655		
Total Current Liabilities:	\$2,830,219	\$2,097,197	\$1,992,337	\$6,420,121	\$2,688,719	\$2,554,283
Long-Term Debt						
Bonds Payable	\$5,000,000	\$2,569,032	\$2,001,923	\$20,786,780	\$23,786,780	\$20,218,763
Loans Payable	\$3,548,789	\$228,954	\$263,287	\$5,567,890	\$5,867,890	\$6,748,074
Total Long-Term Debt:	\$8,548,789	\$2,797,986	\$2,265,220	\$26,354,670	\$29,654,670	\$26,966,837
TOTAL LIABILITIES:	\$10,877,008	\$4,895,183	\$4,257,557	\$32,774,791	\$32,343,389	\$29,521,120
FUND EQUITY						
Contribution In Aid of Construction				\$2,180,976	\$2,726,220	\$2,180,976
Investment In General Fixed Assets	\$2,887,084	\$4,330,626	\$2,887,084	\$1,550,600	\$2,325,900	
Contribution From General Fund	\$1,560,900		\$1,560,900	\$2,058,721	\$1,200,345	\$3,609,321
Retained Earnings (deficit):						
Reserved						
Unreserved				\$3,524,499		\$3,524,499
Fund Balance						
Reserved	\$1,125,501	\$1,814,320	\$189,242			
Unreserved	\$3,647,278	\$2,544,477	\$3,022,438	\$1,330,563	\$482,281	\$1,354,791
TOTAL FUND EQUITY:	\$9,220,763	\$8,689,423	\$7,659,664	\$10,645,359	\$6,734,746	\$10,669,587
TOTAL LIABILITIES AND FUND EQUITY:	\$20,097,771	\$13,584,606	\$11,917,221	\$43,420,150	\$39,078,135	\$40,190,707

Figure 1

Jade County Financial Statements

Combined Statement of Revenues, Expenditures
and Changes in Fund Balances - Fiscal Year Ending June 30, 1995

Technical Support Services, Inc.

Page 19

January 1996

	<u>Wastewater Operations</u>			<u>Water Operations</u>		
	<u>1995</u>	<u>1994</u>	<u>1993</u>	<u>1995</u>	<u>1994</u>	<u>1993</u>
Operating Revenue	\$3,974,379	\$2,674,379	\$2,598,632	\$9,001,345	\$8,831,345	\$8,523,345
Operating Expenditures						
Fuel Oil	\$267,000	\$253,162	\$250,630	\$1,033,398	\$976,561	\$966,795
Salaries	\$668,789	\$535,616	\$530,259	\$756,987	\$715,353	\$708,199
Materials and Supplies	\$834,325	\$788,437	\$780,553	\$790,872	\$747,374	\$739,900
Communications	\$10,900	\$10,301	\$10,197	\$14,231	\$13,448	\$13,314
Transportation	\$57,890	\$54,706	\$54,159	\$90,887	\$85,888	\$85,029
Maintenance	\$250,387	\$410,982	\$499,821	\$890,211	\$567,890	\$562,211
Depreciation	\$789,978	\$746,527	\$738,062	\$1,678,943	\$1,586,601	\$1,570,735
Subtotal Operating Expenditures:	\$2,778,163	\$2,799,730	\$2,864,682	\$5,255,529	\$4,693,116	\$4,646,184
Net Operating Revenue (Deficit):	\$1,196,216	(\$125,351)	(\$266,050)	\$3,745,816	\$4,138,229	\$3,877,161
Nonoperating Revenue						
Federal Grants	\$1,228,943	\$1,161,351		\$759,321	\$717,558	
State Grants	\$500,000	\$472,500	\$890,762	\$122,345	\$115,616	\$100,000
Insurance Proceeds	\$25,432	\$24,033	\$15,678	\$55,678	\$52,616	\$34,562
Restricted:						
Federal Subsidy	\$350,000	\$223,456		\$1,254,354	\$990,211	\$1,225,678
Subtotal Nonoperating Revenues:	\$2,104,375	\$1,881,340	\$906,440	\$2,191,698	\$1,876,001	\$1,360,240
Nonoperating Expenditures						
General And Administrative	\$425,675	\$402,263	\$467,890	\$799,213	\$789,032	\$745,635
Building	\$59,008	\$55,783	\$52,898	\$76,321	\$72,123	\$68,157
Interest Expense	\$1,282,018	\$419,698	\$339,783	\$3,953,201	\$4,448,201	\$4,045,025
Bad Debt Provision	\$13,245	\$12,517	\$11,828	\$25,000	\$23,625	\$22,326
Subtotal Nonoperating Expenditures:	\$1,779,946	\$890,240	\$872,197	\$4,853,735	\$5,332,981	\$4,881,143
Net Nonoperating Revenue (Deficit):	\$324,429	\$991,101	\$34,243	(\$2,662,037)	(\$3,456,980)	(\$3,520,903)
NET REVENUE (DEFICIT):	\$1,520,645	\$865,749	(\$231,807)	\$1,083,780	\$681,250	\$356,258

Figure 2

Ratio Analysis

Technical Support Services, Inc.

Page 20

January 1996

	<u>Wastewater Operations</u>			<u>Water Operations</u>		
	<u>1995</u>	<u>1994</u>	<u>1993</u>	<u>1995</u>	<u>1994</u>	<u>1993</u>
<i>Liquidity</i>						
Current Ratio (Current Assets To Current Liabilities)	2.02	1.71	1.59	1.79	3.84	3.63
Cash to Debt Service	1.06	2.03	1.37	0.82	0.66	0.47
Cash to Debt Service plus Operating Expenditures	0.39	0.28	0.15	0.38	0.34	0.23
<i>Debt and Debt Coverage</i>						
Net Revenue to Current Liabilities	0.65	0.41	-0.12	0.17	0.25	0.14
Debt Ratio (Total Liabilities to Total Assets)	0.54	0.36	0.36	0.75	0.83	0.73
Total Long-Term Debt to Total Fund Equity	0.93	0.32	0.30	2.48	4.40	2.53
Net Revenue to Debt Service	0.93	1.96	-0.63	0.24	0.14	0.08
Operating Revenue to Operating Expenditures plus Debt Service	0.90	0.82	0.80	0.92	0.91	0.91
<i>Return and Investment Ratios</i>						
Return On Assets (Net Revenue to Total Assets)	0.08	0.06	-0.02	0.02	0.02	0.01
Return on Equity (Net Revenue to Total Equity)	0.16	0.10	-0.03	0.10	0.10	0.03
Capital Investment to Total Fixed Assets	0.75	0.57	0.57	0.80	0.74	0.69
<i>Revenue Analysis</i>						
Net Take-Down Ratio (Net Revenue to Total Revenue)	0.25	0.19	-0.07	0.10	0.06	0.04
Operating Revenue to Total Revenue	0.65	0.59	0.74	0.80	0.82	0.86
Intergovernmental Revenue to Total Revenue	0.34	0.41	0.25	0.19	0.17	0.13
Restricted Revenue to Total Revenue	0.06	0.05	0.00	0.11	0.09	0.12
<i>Operating and Administrative Efficiency</i>						
Operating Ratio (Operating Expenditures to Operating Revenue)	0.70	1.05	1.10	0.58	0.53	0.55
Maintenance Expenditures to Total Fixed Assets	0.02	0.04	0.06	0.03	0.02	0.02
Maintenance Expenditures to Total Operating Expenditures	0.09	0.15	0.17	0.17	0.12	0.12
Administrative Expenditures to Total Expenditures	0.11	0.12	0.14	0.09	0.09	0.09

Figure 3

SECTION II:

**Service Efforts and
Accomplishments Measurement**

MEASURING SERVICE EFFORTS AND ACCOMPLISHMENTS (SEA)

Citizens who support their government by paying taxes expect effective services in exchange for this support. In fact, if a populace does not see the connection between its tax contributions and the services performed by its government, the motivation to pay taxes can be lost. To be more responsive to the public, local governments are refocusing their performance measurements in order to evaluate the effectiveness of their programs and services.

These performance measures must address the following customer driven issues:

- quality
- productivity
- flexibility
- on-time delivery of goods or services
- innovation
- customer relationships

In the United States, the Governmental Accounting Standards Board (GASB) published a series of research reports in 1990 on this new focus of performance measurement. The series is titled *Service Efforts and Accomplishments (SEA) Reporting: Its Time Has Come*. GASB's resolution on SEA emphasizes the vital role of performance measurement in public administration: "SEA information is needed for setting goals and objectives, planning program activities to accomplish these goals and objectives, allocating resources to these programs, monitoring and evaluating the results to determine if they are making progress in achieving the established goals and objectives, and modifying program plans to enhance performance." One of the driving objectives of the board in redefining performance measurements in government was its belief that "financial reporting should provide information to assist users in assessing the service efforts, costs, and accomplishments of the governmental entity."

Also in the US, The Government Finance Officers Association (GFOA) is renewing its focus on performance measurement. Its 1994 research bulletins entitled *Performance Measurement: The Link to Effective Government* and *The Use of Performance Measures in City and County Budgets* both emphasize that measuring the results and impact of services and programs is very important as local governments function in difficult economic and fiscal conditions.

TYPES OF SEA INDICATORS

Five types of performance indicators are commonly used when reporting the efforts and accomplishments of a program or service:

1. Input indicators
2. Output Indicators
3. Outcome Indicators
4. Efficiency (and cost effectiveness) Indicators
5. Explanatory Indicators

Input Indicators: These measure the amount of resources needed (either monetary, personnel or other) to implement a program or provide a service. Input measures show not only the total

amount and cost of resources needed, but also give insight into the appropriate mix of resources necessary: money versus equipment versus staff. Examples of input indicators are:

- Number of person-months of labor by category
- Number of vehicles or vehicle hours employed
- Acres of land utilized
- Program expenditures
- Capital investment needed

Output Indicators: These indicators focus on work accomplished (no focus is given to effectiveness or quality). They measure the activity or services provided by a particular function or program. Examples of such measures are:

- Number of homes serviced
- Number of repairs made per time period
- Number of kilometers of roads paved
- Tons of solid waste collected

Outcome Indicators: These are designed to measure whether or not a particular program or service is meeting its goals. Their focus is primarily on quality and effectiveness. They measure the extent to which a need or goal is or is not met. These types of indicators are very useful to local government officials, but they also require a great deal of data collection, sometimes requiring special surveys or evaluations, and therefore these measures are often costly to track. Some examples include:

- Number of crimes per capita
- Value of property lost to crime
- Number of interruptions in water service
- Average time required to respond to reported water leak
- Percentage of streets meeting cleanliness criteria

Efficiency (and cost effectiveness) Indicators: These indicators measure the cost for a particular program or service in terms of dollars spent or personnel required. In general they are in the form of a ratio of cost per unit output or cost per unit outcome. Understanding the cost-effectiveness of a program or service is very important to all the functions of local government: planning, program management and budgeting. These measures also indicate the productivity of public services or programs. Productivity measure is especially important in the face of decreasing funding prospects. Examples of efficiency measures are:

- Cost per tons of solid waste collected
- Cost per million liters of water treated
- Employee hour for a particular type of road repair
- Dollar cost for material and equipment used in a particular service call
- Operating cost per capita for police protection

Explanatory Indicators: These include a number of indicators which clarify environmental, political, economic, and organizational factors that could effect the evaluation of program performance. Often these factors are out of the control of the effected government agency. Examples include:

- Demographic information on serviced community
- Quality of water source
- Unusual weather conditions
- Terrain and road conditions in collection area
- Square kilometers served

EXAMPLES OF SEA INDICATORS

The following discussion is not exhaustive. It focuses only on the most important measures of service efficiency and effectiveness. Listings of SEA indicators (grouped according to their type) for the following key governmental service areas are presented:

- A: Administration and General Government
- B: Water Supply Operation
- C: Wastewater and Sewerage Operation
- D: Solid Waste Management Operation

The listing of indicators for each of these service areas is fairly complete. It is recommended that only those indicators deemed most important in a given jurisdiction be utilized.

The indicators identified are primarily drawn from GASB's research report, *Service Efforts and Accomplishments Reporting: Its Time Has Come* and GFOA's research report, *The Use of Performance Measures in City and County Budgets*. This GFOA report consists mostly of a listing of performance indicators found in city and county government budgets submitted to GFOA as part of their Distinguished Budget Presentation Awards Program. Of the over 500 budgets reviewed, 60 percent included performance measures. The maximum number of indicators used in a budget was 4,326 measures (this was obviously the budget of a very large, sophisticated municipality).

A. Administration and General Government

Note: It is possible to develop a list of indicators for each component of general government. GFOA's research report, mentioned above, lists unique indicators for 14 separate functions of general government (i.e. legislative, judicial, executive, personnel administration, financial administration, planning and zoning, etc.). The list below is a very generic listing of measures of administrative efficiency.

Input Indicators:

- Number of elected officials
- Number of employees
- Number of employee hours
- Square meters of office space

Number of vehicles
Salary costs
Fringe Benefits costs

Output Indicators

Number of reports generated
Number of pamphlets distributed
Number of complaints answered
Number of public outreach events held
Number of educational programs initiated
Number of errors/delays in debt service payment

Outcome Indicators:

Number of people educated
Number of people attending meetings
Number of financial errors made per month
Percent of quarterly reports completed
Percent budgets submitted by deadline
Tax collection ratio (amount collected / amount due)
Collection Rate -- accounts receivable
Percent of delinquent payment
Percent of invoices, vouchers paid

Efficiency Indicators:

Number of employees per capita
Percentage administration cost to total costs
Number of people educated per outreach employee
Cost per outreach program
Average number of employee hours per complaint
Average number of working days to compile monthly financial statements
Average number of working days to compile quarterly reports
Average number of working days to compile annual budget

Explanatory Indicators:

Population served
Nature of work force (union, non-union)
Community economic condition

B. Water Supply Operation

Note: Listing extracted and modified from *Service Efforts and Accomplishments Reporting: Its Time Has Come*, GASB, 1990.

Input Indicators:

Total cost of operations
Cost per household
Kilometers of pipeline
Number of treatment facilities
Capacity of treatment plants
Number of employee hours

Output Indicators:

- Kilometers of water line maintained and inspected
- Kilometers of new line constructed
- Number of connections added
- Number of breaks, leaks, etc. repaired
- Total kiloliters pumped, metered and treated
- Percentage of total kiloliters pumped per user type:
 - residential
 - commercial
 - industrial
 - used by water department
 - free to schools
 - unaccounted for

Outcome Indicators:

- Percentage of water pumped that was metered
- Number of reports of interrupted service
- Number of main breaks
- Number of breaks, leaks, etc. per 100 kilometers
- Percentage of service interruptions cleared with in goal period
- Percentage of breaks, leaks etc. repaired with in x hours
- Number of complaints:
 - water pressure
 - water taste
 - water odor
 - water color
 - other
- Number of days standards not met:
 - primary: health related
 - secondary: aesthetics

Efficiency Indicators:

- Cost per million liters pumped:
 - treatment
 - distribution
 - containment
 - other

Explanatory Indicators:

- Type of source of water supply
- Distance to source
- Quality of water at intake
- Average daily demand (by month)
- Billing rates:
 - residential
 - commercial
 - industrial
- Total revenue from customer billing / Total costs
- Population served
- Square kilometers served
- Maximum daily demand / System capacity
- Treatment plant capacity (by treatment plant)
- Projected demand in five years / Current capacity

C. Wastewater and Sewerage Operation

Note: Listing extracted and modified from *Service Efforts and Accomplishments Reporting: Its Time Has Come*, GASB, 1990.

Input Indicators:

- Total cost of operation
- Cost per capita of waste water treated
- Number and treatment capacity of plants and level of treatment provided by each
- Kilometers of pipeline
- Number of employee hours

Output Indicators:

- Kilometers of sewer pipe maintained, repaired and inspected
- Percentage of kilometers maintained requiring repair
- Kilometers of new sewer constructed
- Number of new services connected
- Amount of wastewater treated:
 - primary treatment
 - secondary treatment
 - tertiary treatment
- Dry tons of sludge produced

Outcome Indicators:

- Number of main stoppages per 100 kilometers of sewer main
- Average service response time
- Number of complaints per time period
- Number of days effluent exceed standards
- Number of days influent exceeded capacity
- Number of liters effluent that did not meet standards / total number of liters processed
- Quality of water in receiving body downstream from discharge
- Infiltration and inflow ratio

Efficiency Indicators:

- Percentage of repairs completed within goal time
- Wastewater treatment cost per 1,000 liters treated:
 - primary treatment
 - secondary treatment
 - tertiary treatment
- Sludge disposal or use cost / dry ton
- Revenue from sale of by-products less costs

Explanatory Indicators:

- Description of what the receiving body is used for
- Population served
- Square kilometers served
- Average daily flow / maximum daily treatment capacity
- Projected need capacity in 5 years / current capacity
- Total revenues from customer billing / total operating costs

D. Solid Waste Management Operation

Note: Listing extracted and modified from *Service Efforts and Accomplishments Reporting: Its Time Has Come*, GASB, 1990.

Input Indicators:

- Expenditures (current and constant dollars)
- Number of personnel
- Employee Hours
- Number of vehicles

Output Indicators:

- Number of customers served
- Tons of waste collected
- Average daily tons collected
- Cubic meters of landfill used

Outcome Indicators:

- Percentage of scheduled collections missed
- Percentage of scheduled collections not completed on schedule
- Number of citizen complaints
- Revenue received from customers
- Total operating revenue as a percentage of costs

Efficiency Indicators:

- Cost per ton of solid waste collected
- Cost per customer served
- Tons of solid waste collected per employee
- Tons of solid waste collected per vehicle

Explanatory Indicators:

- Composition of solid waste
- Frequency of collections
- Location of collections
- Climate conditions
- Terrain and route conditions
- Average number of customers per collection route kilometer
- Type of containers used by customers
- Type of vehicles used
- Average crew size per vehicle
- Average wages of employee

These listings of actual indicators are intended to help clarify the concept of SEA reporting and the types of indicators. It should be noted that collection of the data needed for these indicators can be very time consuming and costly. To limit the costs of measuring the performance of its services and enterprises, a local government may select only those indicators which are most useful and appropriate, and focus on those indicators which require data that is relatively easy to obtain. Tracking and analyzing a few key indicators of performance can dramatically improve service quality and effectiveness.

References

Brigham, Eugene F., Fundamentals of Financial Management, 6th Edition, The Dryden Press, Fort Worth, TX, 1992.

Coltman, Michael M., Guide To Effective Financial Management, International Self-Counsel Press, Ltd., British Columbia, Canada, 1984.

Government Accounting Standards Board (GASB), Service Efforts and Accomplishment Reporting: Its Time Has Come - An Overview, GASB, Norwalk, CN, 1990.

Government Accounting Standards Board (GASB), Service Efforts and Accomplishment Reporting: Its Time Has Come - Sanitation Collection and Disposal, GASB, Norwalk, CN, 1990.

Government Accounting Standards Board (GASB), Service Efforts and Accomplishment Reporting: Its Time Has Come - Water and Wastewater Treatment, GASB, Norwalk, CN, 1990.

Groves, Sanford M. and Valente, Maureen Godsey, Evaluating Financial Conditions: A Handbook for Local Government, 3rd Edition, The International City/County Managers Association (ICMA), Washington, DC, 1994.

Hatry, Harry P. et al, Efficiency Measurement For Local Government Services: Some Initial Suggestions, The Urban Institute Press, 1979.

Hatry, Harry P. et al, How Effective Are Your Community Services? - Procedures for Measuring Their Quality, The Urban Institute and The International City/County Management Association (ICMA), Washington, DC, 1992.

Malan, Roland et al, Performance Auditing In Local Government, Government Financial Officers Association, 1984.

Maskell, Brian H., New Performance Measures, Productivity Press, Portland, Oregon, 1994.

Moody's Investors Services, Global Credit Analysis, IFR Books, 1992.

Moody's Investors Services, Moody's on Revenue Bonds: The Fundamentals of Revenue Bond Credit Analysis, Moody's Public Finance Department, 1994.

Research and Information Services, Evaluation of Fiscal Condition and Financial Indicators: Clearwater Florida, The International City/County Managers Association (ICMA), Washington, DC, 1987.

Research and Information Services, Financial Trend Monitoring System 1987: Centerville, Ohio, The International City/County Managers Association (ICMA), Washington, DC, 1987.

Research and Information Services, Performance Management System Manual: Berkeley, California, The International City/County Managers Association (ICMA), Washington, DC, 1990.

Rosenberg, Philip and Stallings, C. Wayne, A Guidebook To Improved Financial Management for Small Cities and Other Governmental Units, Government Financial Officers Association, 1979.

The Urban Institute, Performance Measurement: A Guide for Local Elected Officials, The Urban Institute Press, Washington, DC, 1980.

World Health Organization (WHO), Operation and Maintenance of Urban Water Supply and Sanitation Systems, WHO, Geneva, Switzerland, 1994.