Making Measurement Matter

The Challenge and Promise of Building a Performance-Focused Environmental Protection System

A Report of the
Brookings Institution's
Center for Public Management

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October 1998
CPM 98-2

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The Brookings Institution

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Foreword

Environmental policy in the United States is at a crossroads: while the first generation of command-and-control environmental regulation has run its course, the new generation needed to replace it is only beginning to take shape. Widespread experimentation is underway to make "performance partnerships" among regulators, and performance agreements between regulators and the regulated, an important element of this new generation. These experiments, however, hinge on critical questions with sweeping implications. Will these partnerships produce a cleaner environment? Will they lower costs? Will they move beyond paper promises to become agreements that drive action? How will they transform intergovernmental relations? And since they involve dramatic changes in the relationships among policy makers, public managers, interest groups, and citizens, how will they transform governance?

While the basic strategy—moving from strict adherence to regulatory requirements toward a system that continually drives improved environmental performance, from federal dominance to federal-state-local partnerships—is proving widely attractive, far less clear are the tactics and tasks needed to bring the strategy to life. If the practice of forging environmental partnerships is to match the promise, it will need to build on effective measurement systems that can assess the quality of—and improvement in—the environment.

In this cogent discussion of performance measurement and environmental protection, Dr. Shelley Metzenbaum offers a blueprint for creating a performance-focused environmental management system that can also serve as a valuable guide for practitioners interested in performance measurement in other policy areas. This report builds on a conference organized and hosted by the Brookings Center for Public Management, held in December 1997 and titled "Building a Performance-Focused Environmental Protection System," in which questions about the value of a performance-focused system and the challenges of implementation began to be addressed. Dr. Metzenbaum probes the questions discussed at the conference, and explores the problems of performance measurement, the possibilities, and the practicalities. Her work is an important contribution to our understanding of the potential and challenge of using performance measurement as a tool to enhance governance.

This report is a product of the Brookings Center for Public Management. The views expressed here are those of the author and should not be ascribed to the trustees, officers, or other staff members of the Brookings Institution. Financial support for this report and the conference in December 1997 is provided by the Ford Foundation, and Brookings gratefully acknowledges this support.

Donald F. Kettl
Director
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October 1998
Washington, D.C.

Acknowledgment

This paper, while solely the responsibility of the author, benefited greatly from the thoughts, insights, questions, and suggestions of many people. I am extremely grateful to them for their generosity of both mind and spirit.

An earlier version of this paper was prepared to support a conference convened in December 1997 by the Brookings Center for Public Management that brought together distinguished practitioners and academics from the states, localities, the federal government, environmental organizations, other public interest groups, the private sector, and several think tanks and universities. Conference participants raised many probing questions about the value and limits of environmental performance measurement and a performance-focused environmental protection system. Why, they asked, isn't the existing system performance-focused? How can we be sure this new approach won't be used as an excuse to dismantle some of the existing levels of protection? What value does this approach have to people in communities worried about toxic releases threatening their lives immediately? These questions have greatly strengthened (and unfortunately lengthened) this paper. Not all the questions raised at the conference have been answered; but many have been probed at much greater depth, yielding analysis that I hope will prove useful to practitioners in government, the non-profit sector, and business as they struggle to protect the environment.

The author wishes to thank the following participants for their contributions to the conference:

Betsy Adams, Food and Drug Administration; Bill Anderson, City of Minneapolis and the U.S. Environmental Protection Agency Local Government Advisory Committee; Tom Arrandale, *Governing Magazine*; Richard E. Ayres, Howrey & Simon; Gary Bass, OMB Watch; Darrell Bazzell, Wisconsin Department of Natural Resources; Jay Benforado, U.S. EPA; Audrey Borja, Food and Drug Administration; Butch Bosin, Food and Drug Administration; Jonathan Breul, Office of Management and Budget; Lynda Carroll, U.S. EPA Region VI; John C. Chelen, Unison Institute; Terry Davies, Resources for the Future; Karen Florini, Environmental Defense Fund; Christopher Foreman, The Brookings Institution; Barbara Friedman, Food and Drug Administration; Lynn Goldman, U.S. EPA; Ken Haag, Woodward & Clyde; Ron Hammerschmidt, Kansas Department of Health & Environment; Ed Hanley, U.S. EPA; Harry P. Hatry, The Urban Institute; Linda Holst, U.S. EPA Region V; Robert Hoyt, Maryland Department of the Environment; DeWitt John, National Academy of Public Administration; Laura Kathryn, Food and Drug Administration; Chuck Kent, U.S. EPA; Donald F. Kettl, Brookings Center for Public Management; Bob Kulick, Occupational Safety and Health Administration; John Koskinen, (formerly) Office of Management and Budget; E. Blaine Liner, The Urban Institute; Tom Looby, Colorado Department of Public Health and the Environment; Michael McCloskey, Sierra Club; Carl Metzger, MRJ Technology Solutions; David Monsma, President's Council on Sustainable Development; Susan Moore, Georgia Pacific; John

Mudre, Federal Energy Regulatory Commission; Pietro Nivola, The Brookings Institution; Michael O'Connor, U.S. EPA; Diane Regas, U.S. EPA; Robert Roberts, Environmental Council of the States; Dennis Santella, U.S. EPA Region II; N.J. Scheers, Consumer Product Safety Commission; Scott Sherlock, U.S. EPA; Robert C. Shinn, Jr., New Jersey Department of Environmental Protection; Jerry Speir, Tulane Law School; Marty Spitzer, President's Council on Sustainable Development; Fred Springer, Federal Energy Regulatory Commission; Michael M. Stahl, U.S. EPA; David D. Struhs, Massachusetts Department of Environmental Protection; Tracy Stanton, University of Maryland; Christophe A.G. Tulou, Delaware Department of Natural Resources and Environmental Control; Marie Urban, Food and Drug Administration; Graham Wilson, University of Wisconsin-Madison; Elder Witt, *Governing Magazine*; Greg Woods, The National Performance Review; and David Ziegele, U.S. EPA.

I am also extremely grateful to several people who took the time to provide me with detailed comments on earlier drafts of this paper: DeWitt John of the National Academy of Public Administration; Mike McCloskey of the Sierra Club; Terry Davies of Resources for the Future; Vic Kimm of the University of Southern California, Washington D.C. campus; Tana Pesso of the Cambridge Management Consulting Group; and, of course, Donald F. Kettl, Director of the Brookings Center for Public Management and of the LaFollette Institute at the University of Wisconsin, Madison. Not all the gracious reviewers agreed with what I was saying, and I take full responsibility for the content of this paper. Yet they deserve much credit for enriching the content of this paper.

My thanks also to Fred Dews at the Brookings Institution, who provided seemingly effortless and always excellent research, production, and jack-of-all-trades support throughout the writing of this paper, and the numerous people who provided helpful information and insights, including Jonathan Katz, Secretary of the U.S. Securities and Exchange Commission, Katherine Robinson, also of the SEC, and Ken Buck, formerly of the U.S. Commerce Department and now at the U.S. General Services Administration.

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Executive Summary

Governments across the country and around the world are rapidly moving to adopt performance-focused approaches to management and decision-making. Entire national governments, including the United States, Australia, and New Zealand, have adopted laws requiring agencies to adopt performance measurement and management as a way to strengthen performance and accountability, inform public decision-making, and reinvigorate citizen confidence in government. State and local governments in the United States, Canada, and elsewhere have been experimenting individually and collectively for over a decade on the best ways to use performance measurement to improve management and governance.

Environmental protection is one area where interest in strengthening the emphasis on performance information has been especially high. Numerous experiments are currently underway to explore the best ways to realize the potential of a performance-focused environmental protection system. A few, such as the ambient air quality standards of the Clean Air Act, are relatively mature. Many others are more recent. In 1995, for example, President Clinton announced Project XL, which offers regulated entities increased flexibility in return for improved environmental performance. Two months later leaders of the U.S. Environmental Protection Agency and state environmental agencies launched the National Environmental Performance Partnership System (NEPPS). NEPPS replaces a process-focused framework that prescribed allowable state activities funded with federal dollars with a performance-focused framework. This system is designed to encourage attention to the highest priority environmental issues and to invite collaboration between each state and EPA in addressing those priorities. Heightened interest in environmental performance measurement is occurring not only in the U.S. but abroad and not only in government but also in business. The Dutch government, for example, recently established performance reporting requirements for certain companies, and many businesses are working collaboratively through projects such as the Global Reporting Initiative to develop a common set of business environmental performance metrics.

Factors Motivating Change. Rising enthusiasm for performance measurement and management as a means for dealing with public problems and, more specifically, for enhancing environmental protection is driven both by a compelling need to improve the existing system and by the promise of performance measurement as a powerful tool for bringing about that improvement. Several factors underlie the recent surge of interest in performance-focused environmental protection approaches: a downward trend in the levels of public support for government over the past quarter century; frustration with the inability of current approaches to environmental protection to deal with emerging and some existing environmental problems even as public commitment to the environment has grown; and frustration with organizational rigidities in environmental agencies. In addition, performance measurement holds promise as a means to respond to the increasing inclination to devolve government implementation responsibilities to states and localities in order to tap their growing management skills and to avoid service delivery problems associated with “bigness” while

still protecting the national standards that are needed to deal with cross-boundary issues, local political pressures, and basic environmental and public health

Increased interest in performance-focused, information-rich systems has been further facilitated by dramatic changes in technology that make it far more affordable and technically feasible to measure performance and to transmit, aggregate, analyze, and disseminate performance information.

The Promise of a Performance-Focused System. Strong interest in performance measurement should not be surprising. Indeed, in some ways, what is more surprising is the paucity of performance measurement in government practice. How can managers and oversight agencies run programs without information about how well the programs are performing? How can people in the workforce exercise sound judgment without better information to inform their daily decisions and allow them to learn not only from their own experiences but from that of others in comparable situations? In some ways, a performance-focused system seems almost an inevitability.

An effective performance focused system can improve the way we address public problems in several complementary ways -- by boosting outcomes, strengthening accountability, and enhancing the transparency of processes and decisions that affect the public's well-being. Simply by creating increased awareness of problems and sharpening organizational focus, performance measurement can advance program outcomes. Communities cannot organize to fix a problem unless they know it exists and individual offices in an agency are more likely to focus resources on an agency's priorities if they clearly understand what the priorities are and know that their offices' performance in meeting those priorities will be measured. By focusing on results and not processes, performance measurement allows adaptation and encourages innovation. By linking performance measurement to appropriate incentives, performance measures motivate performance improvements. By analyzing the connection between different intervention strategies and results, performance measurement contributes to organizational learning which in turn enhances performance..

Performance measures also strengthen accountability by providing a common language to clarify expectations between two parties about the level of performance promised or expected. By agreeing on performance measures, they establish a common metric for reporting on and determining the status of agreed-upon or expected deliverables, whether between appointed officials and elected officials, elected officials and the electorate, the government workforce and their managers, one governmental body with another, contractors and the government, businesses and the public, or among government workers.

An information-rich, performance-focused system can also boost the transparency of the system if performance information is shared with the public. This, in turn, strengthens accountability, enhances efficiency, and improves the quality of public decision-making.

The value of performance measurement and management has been widely demonstrated in the private sector. The framework for public financial corporate performance reporting established

by the Securities and Exchange Commission serves as the cornerstone of a thriving American economy. Corporate leaders use internal and comparative performance measurement to guide daily management decisions. The availability and consistent use of performance measures is a healthy and constant pressure to improve the quality and price of private sector services and products, and hence enriches the quality of life for those using those services and products. Performance measures also help many people in their daily decision-making, so much so that some performance measures are taken for granted. Performance measurement of consumer products collected and disseminated by magazines such as *Consumer Reports* and *PC World* regularly inform purchasing choices throughout the country.

Public sector users of performance measures face a different situation than that faced by those who use performance measures for private decisions because governments tend not to function in a competitive environment. The challenge is to translate the dynamic mechanisms that make private sector use of performance measures so powerful to the public sector without introducing such significant political problems for those being measured that it overwhelms their ability to function effectively.

The performance-focused system that is most likely to realize its full dynamic potential is one that simultaneously employs performance measures in three distinct ways: as targets; for comparative and benchmarking purposes; and to facilitate experiential learning. Probably the most familiar sort of performance measurement system is one that uses performance measures to set targets which performers are expected to meet, linking rewards and penalties to different performance levels as an incentive or accountability mechanism. This is the approach used in the Clean Air Act, the Government Performance and Results Act, and the Australian performance system.

The dynamic capacity of performance measurement is unleashed when it is used to compare the performance of one performer to another because it creates a mechanism that automatically updates performance expectations whenever new measurements are taken, thereby motivating continual performance improvement without necessitating a complicated and often lengthy decision-making apparatus to update targets. This is an approach that nearly a hundred localities, working with the International City/County Management Association, are testing.

Performance measurement has even greater value when it is incorporated into analyses that allow organizations to learn from theirs and their peers' experience. Simple comparative analysis facilitates learning by identifying top performers to "benchmark." More sophisticated analyses that probe the links among inputs, outputs, and performance results allow an organization to learn by identifying the strategies that have yielded the best historical results. The Agricultural Extension Service is perhaps the pre-eminent example of a system that has effectively used analysis of performance measures to enhance outcomes.

Common to all three approaches, and critical to their effectiveness, is the use of performance measures to motivate improved performance and inform management and resource allocation

decisions, along with broad dissemination of performance information. What distinguishes them is the way the performance measures are used. A well-functioning performance-focused environmental protection system will not employ just one of these three approaches but rather use them all, applying each as appropriate to performers, users of performance measures, and specific uses. Performance measures used as targets are, for example, appropriate when a unique organization is being measured—such as an EPA program office setting a national goal—or when two parties—such as two states that share a watershed—need to cooperate. When customers or investors seek information about environmentally strong products or companies, comparative performance measures can function as an enormously powerful tool. Comparative measures can also be a powerful tool when similar government agencies seek to identify strong programs to use for benchmarking or to spotlight weak programs requiring attention. Once strong programs have been identified, performance measures can be used together with other information to analyze the factors contributing to program effectiveness. Used together, the three approaches generate the dynamic capacity to improve performance, accountability, and transparency.

The Challenge of Implementing a Performance-Focused System. Enthusiasm and technical breakthroughs, even when bolstered by legislative mandates, will not transform the existing system to realize the full potential of a performance-focused system. Significant implementation challenges must be surmounted. These include the technical challenge of building a system that can gather and deliver performance information that is reliable and useful; the organizational challenge of getting managers, the workforce, and oversight authorities not only to use the measurements but also to use them sensibly and sensitively to motivate improvement; the political challenge of getting elected officials, the press, and the public to use performance information constructively and mindful of the danger of using them sensationally; and the human challenge of taking collective action. For a performance-focused system to work, attention needs to be directed to tackling all of these concerns.

Implementing an effective performance-focused system requires the effective execution of many discrete activities. These include the selection, measurement, reporting, verification and standardization, collection and storage, analysis, presentation, and dissemination of performance measures. Each discrete activity must work relatively well for the system as a whole to realize its full potential.

This creation of this capacity will not occur by law or fiat. Instead, it will require the understanding, effort, commitment, and experimentation of large numbers of people and organizations who are already part of the system so that they can and will work individually and collectively to establish and maintain the various activities. That understanding and commitment is not yet widespread. Moreover, implementation of the system is likely to encounter active resistance or indifference from a few managers, workers, and even oversight parties who distrust change. Thus, a key challenge in implementing a performance-focused system must be helping managers, workers, elected officials, candidates, shareholders, customers, the press, and the public appreciate the utility of performance measures and the potential power of performance measurement for achieving enhanced results.

Perhaps the greatest challenge to the whole effort to implement a performance-focused environmental protection system is political. Efforts to create performance-focused environmental protection programs are being attempted in a highly charged political atmosphere. This raises the possibility that opponents of existing levels of environmental protection will try to use the reform effort to reopen questions about levels of performance standards. Any attempts to use performance-focused systems to justify relaxation of standards will threaten the viability of this approach and should be resisted broadly and vociferously by all proponents who appreciate the potential for gain that a performance-focused, information-driven system promises. It also raises the possibility that as performance-focused experiments proliferate throughout large bureaucracies, the flexibility message will resonate more loudly than the message of improved results, resulting in gains in flexibility without counterbalancing gains in environmental outcomes, accountability, and transparency. This danger is real and warrants serious attention and discussion by management to assure that staff understand the need to link flexibility with effective accountability mechanisms and information reliability and dissemination requirements.

Performance-focus as an Option. A performance-focused approach may not work for every organization. Some companies and even some small government entities may be unwilling or unable to assume the risk of operating in a performance-focused world. Smaller organizations, and even many larger ones, may not be able or interested in assuming the costs of experimenting with different strategies to achieve environmental performance targets. Many would and have preferred for the government to prescribe the processes they need to follow to be in compliance with the law. Forcing these firms (or governmental organizations) to take on the risks associated with a performance-focused system may not add greatly to the public benefit; instead, it makes sense to establish a two-track system with a prescriptive track for risk-wary entities.

For other organizations that can tolerate greater risk associated with their environmental activities, a performance track may be attractive because of the flexibility it offers. This may be especially true for companies required to seek frequent permits or permit revisions and government agencies seeking to innovate who find themselves caught in extensive debates with EPA about process changes. For these organizations, and for those who recognize that performance measurement will help them manage more effectively and responsibly, or who seek the publicity value of strong environmental performance, a performance-track should be created.

Not everyone should be eligible to pursue the performance track if it also offers less oversight and case-specific review. In these cases, participation should be limited to, for example, facilities with strong historic compliance records that prepare environmental reports that provide state-of-the-art information using standardized metrics whenever possible and whose historic environmental emissions levels have been better than that which would have been required at minimum compliance levels. Specific qualifying criteria have yet to be developed for such a performance track, precluding the possibility of initiating a full-fledged performance-track approach in the near future. The initiation of such an approach could be greatly accelerated if those interested in pursuing the performance

track, whether businesses or governmental bodies, would develop concrete proposals defining performance thresholds.

Realizing the Possibility. There is no right way to build a performance-focused, information-rich environmental protection system. It will inevitably be a trial-and-error endeavor. Yet the tremendous potential of performance measurement and management makes that endeavor worthwhile. We have begun to create a system that is in its infancy with enormous possibilities and significant gaps. The foundation is being put into place that can support a thriving system that continuously drives improved performance while affording far more flexibility than the current system. At the same time, gaps in the foundation need to be filled. It is time to engage each other in a discussion about what those gaps are and how to fill them so that a dynamic, healthy, thriving performance-focused environmental protection system will be the dominant mode of operation in the next decade.

1. Introduction

In May 1995, the U.S. Environmental Protection Agency and leaders of state environmental protection agencies joined together and formally committed to adopting a performance-focused system, the National Environmental Performance Partnership System (NEPPS).[1] The purpose of NEPPS is to:

> encourage continuous improvement and foster excellence in state and federal environmental programs, . . . direct scarce public resources toward improving environmental results, allow states greater flexibility to achieve those results, and enhance our accountability to the public and taxpayers.[2]

NEPPS represents a giant step by key governmental bodies charged with the delivery of environmental protection throughout the United States to try to transform the environmental management system from a process-focused system to a performance-focused, information-driven one. Overemphasis on process has long drained badly needed government and business time away from activities more likely to improve environmental quality. The EPA and states have spent far too much time negotiating process-focused details of grant agreements such as the number of specific types of activities the state will carry out and the staff time that will be devoted to those activities rather than focusing on the environmental conditions in the state, the sources of environmental problems, and the strategies most likely to reduce those problems.

NEPPS creates a framework that enables states to slice through the process-focused quagmire and create a performance-focused environmental protection capacity. It reorders the way each state and its EPA regional office agree on the coming year's work, shifting from a process that is focused on steps and activities to one focused on desired outcomes and progress relative to the outcomes. Under the prior system, negotiations began with a list of activities identified by each of the sixteen or more EPA headquarter's grant-giving offices as priorities for its grant funds that year. The sheer number of requirements made it difficult for regional–state negotiations to move beyond debate about

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[1] "Joint Commitment to Reform Oversight and Create a National Environmental Performance Partnership System," letter signed at the Annual EPA and "All-States" meeting by Carol M. Browner, Administrator, U.S. Environmental Protection Agency; Tom Looby, Director, Office of Environment of the Colorado Department of Health and Co-Chair of the State/EPA Capacity Steering Committee; Fred Hansen, Deputy Administrator, U.S. Environmental Protection Agency; and Mary Gade, Director of the Illinois Environmental Protection Agency and Co-chair of the State/EPA Capacity Steering Committee. May 17, 1995. The full text of this letter is located on the Web at http://www.epa.gov/regional/Oversight/ovrsight.htm.

[2] "Joint Commitment to Reform Oversight."

the numbers and characteristics of the activities each state (and more specifically sub-units of each state's environmental office) would undertake with EPA funding.

NEPPS changes that with the intent of starting EPA–state negotiations with an assessment of the environmental conditions and sources of environmental problems in each state, focusing EPA and state conversations on the best way to address those problems, not on time-consuming, unproductive conversations such as how many hours will be spent reviewing permits and conducting inspections under each of sixteen programs. NEPPS give states more flexibility in selecting the activities taken to address specific environmental problems at the same time that it factors federal concerns into the negotiations that follow the environmental assessment. NEPPS also encourages states and EPA regions to think strategically, outside the constructs of existing federal grant streams, about environmental issues that need attention in the state.

NEPPS is also designed to encourage states and the EPA to think about how they can address environmental problems collaboratively. Hence what were formerly grant agreements binding states to certain activities funded by the federal government are being converted into partnership agreements designed to identify not only what a state commits to do but also what the EPA will do to improve environmental conditions in the state.

Progress under NEPPS has been noteworthy both in terms of the actions taken and the collaborative nature of states' and the EPA's contributions to the effort. Since May 1995, thirty states and the EPA have entered into Performance Partnership Agreements.[3] In addition, as part of NEPPS implementation, the states and the EPA have collaboratively defined specific core performance measures to be incorporated into each Performance Partnership Agreement.[4]

The emergence of the Performance Partnership System is not a unique phenomenon. It is one of many efforts taking place around the country and around the world to strengthen government and environmental quality by increasing attention to performance measurement and performance management. Governments across the world are experimenting with performance-focused systems as a way to improve program outcomes and address declining citizen confidence in government by measuring and reporting results, not just activities. Entire national governments, most notably New Zealand and Australia, have formally adopted performance-focused systems.[5] The United States took

[3] U.S. Environmental Protection Agency, Office of Reinvention, *The Changing Nature of Environmental and Public Health Protection: An Annual Report on Reinvention* (Washington, D.C., March 1998), p. 8.

[4] "FY 98 Core Performance Measures," memorandum from Fred Hansen, Deputy Administrator, U.S. Environmental Protection Agency, and Harold Reheis, President, Environmental Council of States, to senior U.S. Environmental Protection Agency officials and senior state environmental officials, August 20, 1997. The full text of this memorandum is on the Web at http://www.epa.gov/regional/pps/memo.htm.

[5] Jose Edgardo Campos and Sanjay Pradhan, "Evaluating Public Expenditure Management Systems: An Experimental Methodology with an Application to the Australia and New Zealand Reforms," *Journal of Policy*

a major step toward creating a performance-focused federal government when Congress passed the Government Performance and Results Act of 1993 (GPRA), and state and local governments have been working for many years, both individually and collectively, on several efforts to develop performance measures and incorporate them into their daily business.[6]

Efforts to build performance-focused systems are also evident in many environmental initiatives around the world, as countries, states and localities, businesses, and non-profit organizations try to find more effective and practical ways to improve the quality of the environment. In 1991 the Dutch government began using environmental policy performance indicators to measure the nation's environmental progress. Indonesia has adopted an environmental performance rating system to rate the environmental performance of companies. Over 300 companies worldwide produce corporate environmental reports, the majority of which include quantitative environmental performance information.[7]

Greatly heightened interest in devolving federal government activities and responsibilities to states and localities has also stimulated interest in a performance-focused system as a way to ensure accountability while affording greater flexibility and continuing to motivate environmental gain.

With so much attention being directed to performance-focused systems around the world, one would expect a common understanding of both what a performance-focused system is expected to accomplish and how it works. Quite the opposite is the case.

Focusing on performance means many things to many people. Members of Congress and their staffs, federal budget office personnel, and students of the federal government tend to think about the newly enacted Government Performance and Results Act of 1993, with its emphasis on systemwide strategic planning and performance goals, as the model of a performance-focused system. Managers in the national governments of New Zealand and Australia think more about a program-wide contractual model with performance targets used as part of employment agreements with senior managers. Those familiar with the EPA's reinvention flagship program, Project XL, think about a performance focus more in the context of negotiation around specific projects, with improved

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Analysis and Management, vol. 16 (Summer 1997), pp. 423-445.

[6] The Urban Institute and the International City/County Management Association, *Comparative Performance Measurement; FY 1995 Data Report* (Washington, D.C.: ICMA, 1997).

[7] For The Netherlands, see Albert Adriaanse, *Environmental Policy Performance Indicators: A Study on the Development of Indicators for Environmental Policy in the Netherlands* (Sdu Uitgeverij Koninginnegracht, May 1993), p. 3; for Indonesia and more generally, see Allen White and Diana Zinkl, "Green Metrics: A Global Status Report on Standardized Corporate Environmental Reporting," paper prepared for CERES (Coalition for Environmentally Responsible Economies) Annual Conference, Boston, Mass., April 15-16, 1998, p.1.

performance functioning as the promised benefit to be delivered in return for regulatory flexibility.[8] NEPPS treats performance as the governing principle used to guide selection of priority governmental actions in each state and to motivate improved environmental results using a graduated reward system that provides increased flexibility linked to better state performance. The Clean Air Act and many other federal laws embrace another model of a performance-focused system, one that uses performance measures to define the minimum operating conditions that regulated entities and communities must meet.

That all these concepts come to mind when the term "performance" is uttered raises some important questions. Are they all part of a coherent model of what people are talking about when they refer to a performance-focused system or are they in fact incompatible notions competing to be the right model? Parts Two, Three, and Four of this paper begin to answer these questions. Part Two begins by looking at three distinct pressures for change in environmental management practices: concerns about the quality of governance generally, frustration with the limits of the current environmental management system, and trends in intergovernmental relations. Part Three explores why adoption of performance-focused systems appear to be a sound approach for responding to some of those pressures and the challenges that arise in addressing public policy issues. Part Four examines how different approaches to performance management work, who might use those approaches, and their compatibility.

Part Four of the paper also discusses how the most effective performance-focused systems depend on the active engagement of large numbers of people both within an organization and across organizations in contractual, partnership, collaborative, and market-like situations. Because a performance-focused system depends upon the active engagement of large numbers of people and organizations, overly vague notions about what such a system is and how it should work will inevitably hamper effective implementation. If potential participants in the system don't know what they are doing or at least why, how can they do it well?

For a performance-focused system to work, those who do or could participate in the system need to have a sense of what it is supposed to achieve, what it is, and how it might operate. Only then can they begin to form their own sense of the role they each can and need to play to make that system function well. They do not need a finely honed sense of what a performance-focused system is and how it should work; indeed, finely honed answers are only likely to arise as experience with performance-focused systems to address public policy problems increases. If they are to accomplish anything by intent rather than by accident, however, they will need some sense of what they are trying to achieve and how they can achieve it.

Parts Five and Six explore the "how" question and elaborate on the steps that need to be taken to make a performance-focused system operate effectively. Part Five looks at the difficult but critical challenge of selecting appropriate performance measures. Part Six examines additional steps crucial

[8] Briefly described on page 20.

to the implementation of an effective performance-focused system, probing how performance measures, once selected, need to be handled to enhance performance outcomes.

A performance management system will only be effective if people and their institutions use performance measures in ways that motivate improved performance. To get the system to work, the people and organizations in the system need to appreciate how the system will benefit them so that they are willing to put the work into the system necessary to make it effective. The value of using a performance-focused system is obvious in a profit-making environment if improved performance translates to bigger paychecks or higher stock prices. Improved performance does not translate so directly to benefits for elected officials or government workers; motivating the large number of people needed to implement performance-focused approaches to give more than lip service to the concept, and to take the actions needed to make a performance-focused system work, is a huge challenge. Part Seven begins to explore this, some of the other practical challenges to implementing a performance-focused system, and possible actions that can be taken to address these challenges.

One major implementation challenge is only touched upon in this paper: implementing a performance-focused system in a politically charged atmosphere. There is great fear that the rallying cry of performance will boost political efforts to relax environmental standards or dismantle the hard-won protections of the existing system. One can envision many possible ways that a performance-focused environmental protection system could be used to try to compromise environmental quality. The first is the possibility that heightened attention to performance-focused systems might reopen already settled questions about the appropriate performance standards, especially in a time when so much political energy is being devoted to attacking existing environmental laws and regulations. As discussed in Part Five of this paper, a dynamic and effective performance-focused system will reconsider the appropriateness of performance measures, but the emphasis is on shifting from process to performance-focused measures to achieve improved performance results. It is not in any way intended to weaken the performance standards that do exist.

Any effort to use performance-focused systems to justify relaxation of environmental standards will seriously jeopardize the viability of such an approach and threaten the potential benefits a performance-focused system could deliver. Advocates of performance-focused approaches should work aggressively to ensure that performance-focused activities are not abused and misused to weaken existing levels of environmental protection.

Two other political problems that might arise pertain to the way flexibility is managed in a performance-focused system. Most performance-focused proposals embrace flexibility as a fundamental attribute and benefit, affording performers flexibility in the means by which they achieve performance results but not in the ends they are expected to achieve. If confusion arises in implementing organizations (perhaps due to weak communication networks), and those charged with implementing performance-focused systems confuse flexibility of means with flexibility of ends, environmental outcomes could indeed be compromised. To guard against this possibility,

management needs to send a strong message throughout the organization that performance-focused activities are designed to afford flexibility of means, not of ends.

In addition, an effective performance-focused system necessitates that increased flexibility be paired with stronger accountability mechanisms and enhanced information management capabilities. If this does not occur, a performance focused system could impair rather than enhance environmental outcomes. Great care needs to be exercised to ensure that those charged with decision-making in a performance-focused system build strong accountability and information management and dissemination systems concurrent with affording greater flexibility.

Fears about the abuse of performance-focused efforts are not just idle speculation or cynical skepticism; they are firmly grounded in experience. For example, the EPA's recent effort to expand the Toxics Release Inventory (TRI) has been met with several lawsuits aimed at halting any expansion.[9] Since performance information of the sort collected under TRI is central to most performance-focused efforts, the response to TRI expansion generates great concern that the regulated community will not provide the support needed to put in place some of the critical components of a performance-focused system (including information collection, verification, and dissemination) even as it presses to adopt the flexibility aspects of a performance-focused approach.

The political dangers of imbalanced efforts to implement a performance-focused system are real and need to be heeded carefully. Great caution and discipline will need to be exercised in building a performance-focused system to protect and enhance existing and future environmental gains, to strengthen accountability, and to improve information management and accessibility. At the same time, as described in this report, the potential gains from building a balanced and effective performance-focused system can be tremendous.

This paper is written for all who seek to use, are expected to use, or have the potential to use performance management to improve outcomes in areas of public concern, including not only those in the public but also in the private sector. It takes the view that performance management around public issues can pertain not only to the way government manages itself internally, but to several other factors as well: the way governments can influence decisions the private sector makes; the way governments work collaboratively, collectively, and in oversight relationships to address policy issues; the way the non-profit community presses for change by both the government and the private for-

[9] See, for example, *Troy Corp.* v. *Browner*, 120 F.3d 277 (D.C. Cir. 1997); *National Mining Assoc.* v. *Browner*, Civil Action No. 97-n2665 (D. Colo.); *Dayton Power and Light Co.* v. *Browner*, Civil Action No.1:97CV03074. (D.C. Cir).

The Toxic Release Inventory is a national database identifying facilities, chemicals manufactured and used at those facilities, and annual accidental and routine releases of these toxic substances. The EPA's TRI-expansion rule requires companies to report on chemicals released to the environment that are not currently reported to the community and to apply existing TRI reporting requirements to several specific industrial sectors not currently required to report their releases.

profit community; the way citizens make choices about supporting government activities and purchasing private sector products; the way the press reports on government actions and on private actions affecting public outcomes; and even the way private for-profit firms function individually and collectively as community citizens.

Thus the paper is written for many audiences: government managers in all levels of government and their work force; government officials working with other governmental bodies; elected legislators, their staffs, and the agencies they fund and oversee; elected executive branch officials and their appointees; for-profit entities and their customers and investors; non-profit organizations and interest groups that monitor the performance of government and regulated entities; and individual citizens. It addresses itself primarily to those concerned with environmental quality, but much of the discussion should pertain to practitioners in other policy areas as well.

Writing for such a broad audience and for so many potential applications risks confusing the reader at times. This paper does not try to draw the dividing line that delineates which aspects of performance-focused systems will work most effectively in public and which in private applications or which in governmental and which in non-governmental organizations. My sense is that drawing the dividing line at this incipient stage in the use of performance measurement for advancing public purposes would only limit the possibilities. If I have confused the reader by making such a broad sweep, I can only apologize and urge others to join the discussion with clarifying voices.

Indeed, it is my hope that this paper will provoke others not only to add their clarifying voices but their opposition and enriching voices as well, committing their intelligence, energy, and experiments to exploring the possibilities and defining the limits of performance-focused approaches. The purpose of this paper is to engage readers so that collectively we can begin to build an understanding of the objectives, components, and limits of a well-functioning performance-focused environmental protection system, and then move beyond discussion to undertake the activities needed to build a strong, vibrant, and effective performance-focused, information-driven, environmental protection system.

2. Why Adopt a Performance-focused Environmental Protection System?

Performance measurement and its use in performance-focused systems are so much a part of our everyday lives, we tend not to notice them. This section begins by offering a few examples of the ways we already use performance measures to demonstrate ways performance-focused approaches help us both in our private choices and in the way we deal with issues of public concern. It then introduces and defines a performance-focused system, looks at some recent historical uses of performance-focused strategies in government, explores the value of a performance-focused orientation for managing environmental quality, and considers why a focus on performance is attractive when governments share responsibility for addressing public problems.

A Few Examples

Consider the way you buy a car. Do you research your options first, looking at car reviews by *Consumer Reports* or *Motor Trend* magazine? If you do, you are using performance measures to help manage your everyday life. When buying a car, many buyers take advantage of a wide variety of performance information readily available about automobiles: repair rates, acceleration rates, resale value, miles per gallon, cargo space, passenger space, safety in crash tests, repeat customers, and so on. Different buyers are likely to review different types of data. For example, a person buying for personal use is likely to look at a different set of performance measures (acceleration) than one buying a family car (cargo and passenger space). Personal preferences influence which performance data buyers use and how that information is factored into purchasing decisions.

The availability, reliability, and relatively low cost of obtaining performance data about cars helps many Americans with such purchasing decisions. That, combined with a wide selection of cars from (and hence competition among) different automobile manufacturers, undoubtedly contributes to the steadily rising quality of cars available in this country. Reliable, affordable comparative data, together with competition that gives buyers real choices drive continuous improvement in product quality and, ultimately, customer value in the automobile industry today.

Another well-developed performance measurement system in regular use is that employed by investors. Securities and Exchange Commission regulations require the reporting of a large variety

of performance measures.[10] Brokerage houses and others collect, organize, write about, and widely disseminate comparative information about different investment options. Trade publications, the financial pages of daily newspapers, and brokerage firms broadly disseminate financial performance information. Investment advisors and mutual funds further analyze available indicators, evaluate their effectiveness as performance predictors, and then disseminate their judgment of future performance potential based on their evaluation. Investment advisors use this analysis to sell their investment services to investors who do not have the time to undertake the analysis themselves. The performance-focused system does not stop there, however. Investment evaluation services also exist that track the performance records of mutual funds and investment analysts, providing a feedback loop on their performance in predicting financial performance.

Performance measures not only help buyers choose from among several product alternatives, but influence organizations and individuals in other ways, as well. When a Girl Scout troop leader sets a goal for the troop of selling 3000 boxes, she uses a performance goal to motivate the scouts. Corporate manufacturers set production goals for organizational units. A performance-focused, information-driven approach to crime is helping drive down crime rates throughout the country, because police forces have become increasingly sophisticated in using performance data to identify problems requiring their attention.[11] Report cards provide parents with valuable information about how their child is faring in school and whether adjustments to study habits are needed. Calculations of profitability influence business production decisions. Nationwide economic performance measures, such as the Dow Jones Industrial Average, the unemployment rate, and the trade balance, inform many personal and business decisions.

These examples illustrate the remarkable potential of performance measures for informing decisions, for motivating improved performance by those being measured, and for generating higher value outcomes for those involved in the for-profit and not-for profit world, in business and in government. The availability and consistent use of performance measures by car buyers, financial investors, organizational executives, and elected officials places a healthy and constant pressure on all those engaged in the activity to improve the quality of product for a given price, and hence the quality of life for those engaged in these spheres of activity.

What Is a Performance-focused System?

What exactly is a performance-focused system? What do all these approaches have in common? There is no single definition of a performance-focused system, but most current discussions of performance-focused systems presume three key characteristics:

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[10] U.S. Securities and Exchange Commission (http://www.sec.gov).

[11] Malcolm K. Sparrow, *Imposing Duties: Government's Changing Approach to Compliance* (Praeger 1994).

-- the use of performance measures;

-- the use of those measures to motivate improved performance and inform management and resource allocation decisions; and

-- broad dissemination of performance measures to performers, not only to those who have the authority or influence to motivate performance improvements, but to other interested parties as well.

The remainder of this paper explores more fully what a performance-focused system is and how it works. First, however, it is helpful to understand the factors heightening interest in performance-focused systems in government and as a way to manage environmental protection.

Performance management is not a new concept. The private sector has been using financial performance measures to improve the management of large organizations since at least the mid-19th century when managers of the railroads began to invent new metrics to manage expanding empires.[12] Indeed, performance measures have proven so valuable that the private sector continues to refine and enhance the measures and their application. Private sector consulting firms such as McKinsey, Bain, and Monitor even compete to identify, develop, and sell the best performance measurement techniques to give their clients a competitive edge.

What is new is the level of interest in performance measures as a tool for improving governance and environmental quality. Three factors propel efforts to build an effective performance management system throughout government and in the environmental arena:

-- declining confidence in government,

-- a recognition that the current environmental protection system may be ill-suited and incapable of dealing with some of the environmental problems that need to be addressed at the same time that the system is less effective and efficient than it could be in dealing with the problems it is addressing, and

-- heightened interest in devolution.

[12] Alfred D. Chandler, Jr., *The Visible Hand: The Managerial Revolution in American Business* (The Belknap Press, 1977).

Increased Interest in Performance Management in Government

Declining citizen confidence in government over the past several decades has prompted democratic governments throughout the world to experiment with new approaches to governance.[13] Performance management systems, and more specifically, the use of performance measures, holds particular promise as an approach that can encourage and enable government managers to be more sophisticated, proficient, and accountable because the focus on results gives managers an incentive and increased flexibility to apply their intelligence, experience, and ingenuity. Performance measures also provide them with an effective mechanism for communicating management priorities and assessing organizational performance.

Performance-focused management is not a completely new concept for government. Many governments have been slowly moving in this direction for decades. The United States government took its first small steps toward performance management right after World War II when the U.S. Congress enacted the Budget Accounting and Procedures Act in response to recommendations of the Hoover Commission to shift focus away from government inputs toward government outputs. The new law required the president to submit budget requests to Congress by functions and activities. During the Johnson administration, the executive branch inched further toward a performance orientation when it adopted a Planning-Programming-Budgeting System, attempting to apply systems analysis tools used by the Department of Defense to all federal programs. The Nixon administration tested the use of Management-by-Objectives, while the Carter budget experimented with Zero-Based Budgeting, requiring federal agencies to array priorities based on program results expected from alternative spending levels.[14] While none of these forays into performance-focused management lasted, their short lives appear to be attributable more to the hasty and ad hoc nature of their introductions than to an underlying conceptual weakness.

Interest in performance-focused systems as a tool to improve management of the federal government has advanced rapidly in the last decade . In 1993, Congress passed the Government Performance and Results Act (GPRA) with full support from the White House.[15] Except for the Budget Accounting and Procedures Act of 1950, prior federal efforts to implement performance budgeting had been initiated through executive order. As a consequence, commitment to those efforts tended to last only as long as the administration that introduced them, if that. GPRA, in

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[13] Joseph S. Nye, Jr., Philip D. Zelikow, and David C. King, eds., *Why People Don't Trust Government* (Harvard University Press, 1997).

[14] For a more complete description of these early federal efforts and a discussion of the lessons associated with them, see: General Accounting Office, *Performance Budgeting: Past Initiatives Offer Insights for GPRA Implementation*, GAO/AIMD-97-46 (March 27, 1997).

[15] *Government Performance and Results Act*, P. L. 103-62.

contrast, codifies performance measurement requirements. It is the first law to address performance issues throughout government since 1950 and the only one to address performance explicitly with the intent of focusing government on outcomes as well as outputs. Since it is a law, GPRA should have greater "staying" power than prior performance-focused federal government initiatives. The Clinton administration further boosted performance management efforts when it launched the National Performance Review soon after passage of GPRA, embracing the concept of performance management and charging federal agencies with "moving from red tape to results."[16]

The U.S. federal government is not the only locus of performance-focused activity in government. Indeed, federal efforts have lagged behind those of many pioneering state and local governments in this country, which have been experimenting with performance management and the increased use of performance measures for over a decade. In 1986 the state of Oregon launched its

Futures Commission effort, culminating in the creation of long-term goals and benchmarks for every Oregon state agency.[17] The Governmental Accounting and Standards Board began a project in the late 1980s to identify results indicators for twelve public services routinely provided by state and local governments. The product of this collaborative project, often referred to as "Service Efforts and Accomplishments Reporting," will serve as the basis for consideration within the next few years of a new accounting standard for state and local governments.[18] Hundreds of cities and counties around the country have adopted community benchmarks and use performance measures.[19] In 1995, the International City/County Management Association convened 44 local jurisdictions to identify and share best practices in performance measurement, with ninety communities participating in the project today.[20] In October 1997, *Governing* magazine convened over 40 states and numerous local

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[16] Vice President Al Gore, *From Red Tape to Results: Creating a Government that Works Better and Costs Less*, report of the National Performance Review (Office of the Vice-President, September 7, 1993). The National Performance Review also often refers to the six-month survey that preceded the issuance of the report and the work that followed implementing the report.

[17] Alan A. Altshuler, "Bureaucratic Innovation, Democratic Accountability, and Political Incentives," in Alan A. Altshuler and Robert D. Behn, eds., *Innovation in American Government: Challenges, Opportunities, and Dilemmas* (Brookings, 1997), pp. 60-62.

[18] Governmental Accounting Standards Board, "Service Efforts and Accomplishments Reporting," Concept Statement No. 2 (Washington, D.C., April 1994). See also Harry P. Hatry and others, eds., *Service Efforts and Accomplishments Reporting: Its Time Has Come* (Norwalk, Conn.: Governmental Accounting Standards Board, 1990).

[19] Governmental Accounting Standards Board and the National Academy of Public Administration, "Report on Survey of State and Local Government Use and Reporting of Performance Measures–First Questionnaire Results," September 30, 1997.

[20] The Urban Institute and the International City/County Management Association, *Comparative Performance Measurement*. See also (http://www.icma.org/resources/index.htm).

governments to discuss state and local performance measures, which *Governing* has committed to publish for at least three years.[21]

The performance-focused movement is by no means limited to the United States. Beginning in 1984, New Zealand began implementing what is undoubtedly the most radical transformation to a performance management system taking place around the world. New Zealand adopted four separate pieces of legislation to put in place the structural changes it felt necessary to implement an effective performance management system. Among these is the requirement that each department (some of which have been privatized) prepare and report on outputs included in a Statement of Service Performance and enter into a "Purchase Agreement" with its parliamentary minister. Department heads no longer have civil service employment protections. Rather, they have five-year appointments, renewable for three years if their performance warrants. To achieve their goals and in return for their increased personal vulnerability, department heads have been given greater flexibility in contracting and personnel management.[22] The United Kingdom, Australia, and the province of Alberta, Canada, are all in the midst of their own experiments with performance management systems.

The Value of a Performance-focused Environmental Protection System

The lure of performance management has been especially strong in environmental protection. The existing environmental protection system is responsible for significant improvements in environmental quality. At the same time, rigidities, complexities, and the inability to address certain environmental problems within the existing system elicit frustration from all directions. Both governments and the private sector are beginning to experiment with broader use of performance measurement as a way to minimize the weaknesses of the existing system, while continuing to achieve improved environmental quality. Focusing on performance lets government and business direct their attention to what matters, results and strategies to improve results, not prescribed methodologies.

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[21] *Governing* magazine has joined with *Government Executive* magazine and researchers from the Maxwell School of Citizenship and Public Affairs at Syracuse University to develop, collect, and publish government performance measures. *Governing* is focusing on the performance of all 50 states and 40 of the largest city and county governments. *Government Executive* is focusing on the work of federal agencies. The project, known as the Government Performance Project, is supported by a grant from the Pew Charitable Trusts. See Peter Harkness, "Publisher's Desk," *Governing*, vol. 10 (September 1997), p. 4.

[22] For New Zealand, see Graham Scott, Ian Ball, and Tony Dale, "New Zealand's Public Sector Management Reform: Implications for the United States," *Journal of Policy Analysis and Management*, vol. 16 (Summer 1997), pp. 357-381; for other nations, see Donald F. Kettl, "The Global Revolution in Public Management: Driving Themes, Missing Links," *Journal of Policy Analysis and Management*, vol. 16 (Summer 1997), pp. 446-462.

Past governmental activities to protect the environment have realized great success, resulting in measurable, and sometimes even visible, improvement in some aspects of environment quality. Long-time residents of Southern California talk about seeing mountains again that had long been hidden behind smog. Communities such as Cleveland and Boston have enjoyed a dramatic resurgence in river and harbor quality thanks to waste water treatment laws. Lead levels in the air dropped 78 percent between 1986 and 1995. Airborne concentrations of carbon monoxide and sulfur dioxide dropped 37 percent in the same period.[23]

The current environmental protection system is not broken. It is, however, stuck in a quagmire. Many environmental problems remain and the existing system lacks the tools and authority needed to tackle both intractable and emerging environmental problems. The challenge of reducing pollution emanating from numerous small (often called non-point) sources continues to confound environmental managers. Permits issued by local governments, states, and the EPA have successfully curbed emissions from tens of thousands of permit-holding point sources, but effective mechanisms to control emissions from lawns, cars, roofs, roads, and farms remain elusive. Urban sprawl and the migration of Americans to the coastline endanger species, habitat, and landscapes. Problems such as endocrine disruptors and global climate change are beginning to emerge, but the tools to deal with them have yet to be legislated.

At the same time, the current system is plagued by ignorance. The limits of existing environmental monitoring and information systems preclude an accurate assessment of existing progress and remaining problems. For example, the EPA's annual water quality report includes data on water quality for only 17 percent of the nation's rivers and streams and only 9 percent of the ocean shoreline. As Davies and Mazurek report in their recent evaluation of the U.S. environmental protection system, such a limited, non-random data set can create a very distorted picture. To illustrate their point, Davies and Mazurek point out:

> of the 9 percent of ocean shorelines covered, 89 percent provide full support for beneficial uses. Conversely, of the 98 percent of all Great Lakes shoreline assessed . . . only 2 percent provide full support.[24]

If for no other reason than the fundamental need to shift more emphasis to measuring results, a performance-focused system is needed so we can more accurately determine whether and when we have environmental problems.

Moreover, just as private companies struggle with bringing change to large organizations, the current environmental protection system can get bogged down by its size. The sheer number and

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[23] J. Clarence Davies and Jan Mazurek, *Pollution Control in the United States: Evaluating the System* (Washington, D.C.: Resources for the Future, 1998), p. 60.

[24] Davies and Mazurek, *Pollution Control in the United States*, p. 68.

complexity of environmental laws, regulations, and policies preclude any but a few experts from understanding the whole. This stymies efforts by all but the most tenacious to attempt more effective or efficient ways to achieve desired objectives. For example, when the state of Massachusetts wanted to change the way it handled inspections, the state had to obtain prior approval from each of the separate grant-giving units in the EPA's regional office and from any of the EPA headquarters offices that felt national policy might be at stake if the proposed changes were adopted. The state simply wanted to conduct multi-media (air, water, and waste) inspections of regulated facilities instead of single-medium inspections, an approach long advocated by national policy and program leaders. Despite its alignment with national policy, however, negotiating this approval consumed countless hours of valuable state and EPA staff time. To a great extent, the extensive time required could be explained by a simple fact: a large number of people at the EPA could object to the aspects of the proposed change but very few could compel a quick resolution of inter-office differences.[25]

A performance-focused system can lessen this sort of problem by focusing staff on expected changes in program results, rather than program processes. In the Massachusetts example, the system's process-orientation raised several problems. A critical question arose about how to count a multi-media inspection because the system used a process measure, the number of inspections, as an indicator of program effectiveness. If a multi-media inspection were treated as a single inspection, it would hurt the evaluation of Massachusetts' program. If, instead, the system used more outcome-focused measures such as compliance rates or reductions in emissions levels, Massachusetts could have proceeded with its multi-media inspection program without such extensive prior negotiation so long as it maintained or improved compliance or emission levels. Similarly, the requirement to report on work-years for each separate grant created significant problems. The question had to be resolved: how should time spent on a multi-media inspection be accounted for with funds from several federal grants? Dozens of hours were consumed developing a complex algorithm for charging each separate grant appropriately for the time spent on a multi-media inspection to avoid the risk of incurring a negative report by some oversight body about improperly allocated funds. Time spent on these sorts of negotiations drain staff away from more important work such as conducting the inspections themselves, an activity far more likely to improve environmental quality. A performance-focused

[25] The effort to adopt multi-media inspections was known as the Blackstone Project, and it has since won a Ford Foundation–Harvard Kennedy School Innovations Award. The project was intended to reduce three problems associated with single medium inspections: the possible shift of an environmental problem from one medium to another, the lost opportunities to catch environmental problems earlier, and the cost to facilities of unnecessary inspections. The first type of problem would arise when inspectors from one medium– say water– prescribed corrections to water problems that might add to waste or air problems because of the inspectors' ignorance of air and waste program requirements. The second might arise if an air inspector walked past a serious water problem in a facility and made no comment due to his or her own ignorance of proper waste water handling procedures. Given the scarcity of inspectors, this oversight could cause a needless delay in getting the facility to correct the environmental problem. Finally, multiple visits from single medium inspector required more time from plant personnel who accompany inspectors on their rounds. The Blackstone Project tested whether multi-media inspections would be as effective or even more effective than single medium inspections and also experimented with different approaches to multi-media inspections.

system allows organizations and their people to direct attention to outcomes and strategies to achieve them, freeing time spent ensuring strict adherence to specific processes.

Similar problems arising from strict adherence to process plague regulated facilities, as well. Companies are often required to obtain a new permit every time they change a production process even if the new production process will not have any net negative effect on the environment. The story of the Amoco refinery in Yorktown, Virginia, is probably the most well-known example of the limits of using process-focused (in this case, technology) instead of performance standards. Amoco was required to install specific EPA-mandated control technologies to lower benzene emissions at its Yorktown refinery. The company conducted extensive emissions monitoring studies and concluded that the major source of benzene emissions at the plant came from the loading docks, not from the stacks slated for control. Reducing emissions from the loading dock promised to be both more protective and less costly than the mandated control system. Because of the strict mandates of the existing system, Amoco was motivated to look for ways to reduce environmental emissions, a strength of the system that needs to be recognized and protected. The weakness of the system is that it made it difficult for the EPA to allow Amoco to make a results-focused adjustment once the possibility was identified.[26]

For the regulated entity who wants to do what is right but whose primary focus is running a business, a local government, or a federal facility, and even sometimes for the regulators themselves, the environmental protection system sometimes feels like a Rube Goldberg contraption, where the end point may be apparent from the outside, but it is perennially elusive from within. Change is needed and a performance-focused system can help.

The current regulatory system has also failed to keep pace with the world it is regulating. It is a typewriter in a computer world. The current system was built to address conditions in a world where businesses used vastly different production technologies than they do today. More advanced environmental monitoring methods and the information processing and distribution revolution have transformed the range of policy tools available to governments, citizens, and businesses. Some of today's process standards, for example, were adopted because measuring performance was technologically infeasible. Improvements in monitoring technologies may make it timely to update those early decisions and adopt alternative performance standards. Heightened public appreciation of the need to protect the environment opens up the possibility for government to employ strategies that rely more on information and persuasion and less on coercion. Design standards in existing laws and regulations dampen the incentive and slow down the process for incorporating new technologies into the environmental protection business.

The demand for reforming the system has been accelerated in recent years. The challenge in reforming the system is to do so without jeopardizing its current capabilities and accomplishments.

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[26] National Academy of Public Administration, *Resolving the Paradox of Environmental Protection: An Agenda for Congress, EPA, and the States* (Washington, D.C., September 1997), pp. 76-77.

A diverse collection of environmental, business, and community leaders have come together in numerous settings over the past several years to try to formulate a new vision for a reformed environmental protection system with this admittedly difficult goal in mind. One of the major initiatives was convened by two-time EPA Administrator William D. Ruckelshaus, who pulled together a group that came to be known as the "Enterprise for the Environment" (E4E). E4E members included four former EPA administrators, several members of the U.S. Congress, two governors, a mayor, leaders of major national and regional environmental organizations, senior executives of large and small companies, and several directors of state environmental agencies with the current EPA Deputy Administrator participating in the discussion but not voting on the final document. The E4E report, released in early 1998 and entitled *The Environmental Protection System in Transition: Toward a More Desirable Future,* calls for creating a new system that is more results-focused, information-driven, transparent, and accountable.[27]

Many other reports have been released during the late 1990s sounding a similar theme. The National Academy of Public Administration has released two reports calling for results-focused, priority-based, information-driven management of the environmental protection system.[28] In 1996 a group convened by the Aspen Institute released a report sounding a similar theme, calling for an alternative path that offers flexible regulation and lower compliance costs in return for superior environmental performance and full stakeholder involvement.[29] Calls for changing the environmental protection system originate not only from outside the system, but also from within. Before the release of many of the reform-advocating publications, U.S. EPA Administrator Carol Browner called for embarking on a "new generation of environmental protection."[30]

Most of the reports identify similar problems. The current system is too process-focused and not sufficiently results-focused. It is rigid and stifles innovations. At the same time, despite the rigidity, there is a sense that inconsistencies plague the way laws are implemented across the country confounding efforts to level the playing field and creating inequities for those who play by the rules. It ties up resources in non-productive activities. It is fragmented. Too many people have the authority to say no and too few can say yes to constructive change. Attention is concentrated on a

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[27] Center for Strategic and International Studies, *The Environmental Protection System in Transition: Toward a More Desirable Future,* Final Report of the Enterprise for the Environment (Washington, D.C., 1998).

[28] National Academy of Public Administration, *Resolving the Paradox of Environmental Protection* and National Academy of Public Administration, *Setting Priorities, Getting Results: A New Direction for EPA* (Washington, D.C., 1995).

[29] The Aspen Institute, *The Alternative Path: A Cleaner, Cheaper Way to Protect and Enhance the Environment* (Washington, D.C., 1996). See also, for example, Marian R. Chertow and Daniel C. Esty, *Thinking Ecologically: The Next Generation of Environmental Policy* (Yale University Press, 1997).

[30] U.S. Environmental Protection Agency, Office of the Administrator, *The New Generation of Environmental Protection: EPA's Five-Year Strategic Plan* (Washington D.C., July 1994).

defined set of environmental problems, diverting limited resources from emerging problems that are potentially more consequential. Environmental information is inconsistent and inadequate.

One strategy for addressing these problems suggested in almost all the recent reports is the adoption of a performance-based system. The E4E report calls for:

> continued movement toward performance-based regulatory approaches, where they are feasible. Performance-based approaches are those that give sources the flexibility to decide what technology or approach to use as long as they meet prescribed levels of performance in environmental protection.[31]

Many efforts to increase the emphasis on performance measurement are already underway in the environmental world, measuring both government and private sector environmental performance activities. A few governments are following the path of the Indonesians and applying performance measurement to individual companies. The Danish government began in 1996 to require companies in specific industrial sectors to produce corporate environmental reports that include a description of a company's use of energy, water, and raw materials, as well as information on product and non-product output. The Dutch are planning to require companies in eight industrial sectors to prepare corporate environmental reports starting in 1998, expanding beyond reporting on the country's environmental performance. Austria, Sweden, and New Zealand are currently debating mandating corporate environmental reporting.[32] Since 1988, the United States has required reporting on releases of certain toxic materials to the environment.[33]

At the same time, private companies have begun to adopt more performance-focused environmental activities on their own. Over 300 companies issue corporate environmental reports (CER) worldwide.[34] Within the U.S., approximately 120 U.S. companies from the Fortune 500 and S & P 500 issued CER's in 1995, up from one in 1988 and seven in 1989. About twenty of these are released on the Internet, 40 percent include quantified environmental goals, and 12 percent compare their performance to that of their competitors. Thirty-three percent of reports menton energy use, and six percent report on water use.[35]

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[31] "The Environmental Protection System in Transition," p. 25.

[32] White and Zinkl, "Green Metrics," pp. 14-15.

[33] *Superfund Amendments and Reauthorization Act of 1986*, Section 313.

[34] White and Zinkl, "Green Metrics," p. 3.

[35] Douglas J. Lober and others, "The 100 Plus Corporate Environmental Report Study: A Survey of an Evolving Environmental Management Tool," *Business Strategy and the Environment*, vol. 6 (1997), pp. 57-73; and Lober, "Current Trends in Corporate Reporting," *Corporate Environmental Strategy*, vol. 4 (Winter 1997), pp. 15-24.

A few corporate environmental reports are becoming much more sophisticated. Interface, Inc., a carpet manufacturer, recently released its *Sustainability Report*, in which the company establishes clear conceptual and numeric goals for achieving sustainability in its operations. In the report, the company presents a baseline measurement of its materials use, energy use, non-product waste, and pollutants released, beginning the process of measuring its performance relative to its goals.[36] Baxter International made a public commitment in 1990 to create a state-of-the-art environmental program, complete with an "environmental balance sheet" that calculates not only environmental costs but environmental income as well.[37]

Not-for-profit organizations have contributed noteworthy gains to developing and testing environmental performance measurement for both governments and business. The World Resources Institute began publishing estimates of greenhouse gas emissions for all major countries in 1990. The Organization for Economic Co-operation and Development (OECD) initiated a program of environmental performance reviews for its member nations in 1991. The Investor Responsibility Research Center's Environmental Information Service produces a Corporate Environmental Profiles Directory and software for benchmarking and assessing environmental performance trends at over 1500 U.S. companies. The Coalition for Environmentally Responsible Economies (CERES) has established a standard form for corporate reporting to the public on their environmental impact.[38] The International Organization for Standardization (ISO) has been working on the development of a standard (ISO14031) focusing on internal evaluation of corporate environmental performance to supplement the process standards ISO has developed for environmental management systems.[39]

Local, state, and federal environmental agencies have begun to accelerate their own efforts to increase the use of performance-focused approaches to government activities to protect the environment. Many states have long produced annual state-of-the-environment reports.[40] Local communities such as Jacksonville, Florida, and Houston, Texas, have compiled sustainable

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[36] Interface, Inc., *Sustainability Report* (Atlanta, GA, undated).

[37] White and Zinkl, "Green Metrics," p. 16.

[38] World Resources Institute in collaboration with the U.N. Environment Programme and the U.N. Development Programme, *World Resources, 1990-92* (Oxford University Press, 1992); Organization for Economic Co-operation and Development, *Environmental Performance Reviews* [various countries] (Paris); Investor Responsibility Research Center, *Environmental Reporting and Third-Party Statements* (prepared for the Global Environmental Management Initiative, Washington, D.C., March 1996), Appendix E.; and Coalition for Environmentally Responsible Economies, *Annual Report 1997* (Boston, 1997). CERES, *1997 CERES Report Standard Form* (Boston, 1997).

[39] Conversation with Ira Feldman, vice-chairman of the U.S. Sub-Technical Advisory Group 4 to Technical Committee 207 of the International Organization for Standardization.

[40] Vermont has been a leader in producing a state-of-the-environment report.

development or environmental reports, sometimes initiated by government and sometimes by community leaders.[41] In 1995 the president and vice-president released a report entitled "Reinventing Environmental Regulation" in which they announced Project XL, an alternative, performance-based strategy for businesses and communities that want to replace technology requirements with alternate approaches that would achieve better performance. The same report announced the EPA's intent to accelerate the use of performance and market-based regulations, specifically open-market air emissions and water effluent trading, and to seek legislative authority for Performance Partnership grants.[42] In September 1997, the U.S. EPA released its first strategic plan.[43] The plan includes explicit agency goals, objectives, and performance measures, incorporating performance measures developed in the NEPPS system for those aspects of EPA programs implemented by the states.

In sum, numerous pieces of a performance-focused environmental protection system are beginning to emerge, as more and more people and organizations begin to understand the potential of this approach and experiment with its implementation. It is therefore timely to try to think more rigorously about the value of a performance-focused system and more holistically about what the component parts of a performance-focused system need to be for that system to work well. This paper, it is hoped, will begin to advance our thinking on these issues.

The Value of a Performance-focused System in Devolutionary Times

Performance management holds special attraction during a time some have described as a "devolution revolution" in government. Many forces lie behind the impetus for devolution. One force is purely political; states' rights advocates perennially urge devolution of responsibilities from the federal government to the states as a matter of political philosophy. Much of the recent, heightened interest in devolution is far more practical, however. Many hope that affording the states increased autonomy will offer relief from the bureaucratic inefficiencies of the *big* federal government.[44] Related to the efficiency argument, states are seen as laboratories of democracy,

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[41] See, for example, Houston Advanced Research Center, The Center for Global Studies, *Seeking Environmental Improvement*, report of the Houston Environmental Foresight Committee (Houston, January 1996). EPA's Office of Policy Planning and Evaluation has supported numerous comparative risk projects in states and localities, many of which have begun with analysis of environmental conditions in the state or locality.

[42] President Bill Clinton and Vice-President Al Gore, *Reinventing Environmental Regulation* (Washington, D.C.: U.S. Environmental Protection Agency, Office of Reinvention, March 16, 1995).

[43] U.S. Environmental Protection Agency, Office of the Chief Financial Officer, *EPA Strategic Plan*, EPA/190-R-97-002 (Washington, D.C., September 1997).

[44] Much of the impetus for restructuring state–EPA relations came from EPA Administrator Browner and her senior management team, the majority of whom had worked for state or local government. Most had personally experienced either road blocks from federal officials when they had tried to innovate or had been

promising innovation leading to gains in effectiveness and efficiency.[45] Moreover, the smaller size of state and local governments is believed to make it easier to adapt programs to the needs and tastes of a lesser number of people.

At the same, devolution raises many fears. Many federal programs were created because the voices of minority and other disenfranchised groups were not being heard at the local level.[46] Many fear that devolution will harm the government's ability to respond to the needs of those groups. Others were created because interstate competition by businesses placed significant political pressure on governments to make concessions to business. As William Ruckelshaus, the first EPA Administrator, recently reflected on the push for federal environmental laws, "It was clear to many in Washington that a strong federal program was necessary for a number of reasons. Topping the list was the realization that many states were prone to becoming 'pollution havens' in order to compete for industry."[47]

Devolution is not a new idea in the governance of environmental programs. States and localities have always played a critical role in the delivery of environmental protection services. Indeed, several state and local experiments provided models for federal environmental law.[48]

Not all states and localities, however, attended to environmental problems harming their citizens so federal environmental statutes were adopted. To balance the need to ensure a minimum level of protection while allowing path-breaking states to continue to innovate, federal environmental protection statutes presume states will play a key role in the delivery of environmental protection services with oversight from the EPA. With few exceptions, federal anti-pollution statutes call on the EPA to "delegate" to states primary responsibility for implementing federal programs when a state meets certain criteria.[49] Specifically, the EPA must determine whether state laws meet minimum

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irritated by the lack of communication from federal officials when they sought help to solve a problem.

[45] John D. Donahue, "The Disunited States," *Atlantic Monthly*, vol. 279 (May 1997), pp. 18-22.

[46] Paul E. Peterson, *City Limits* (University of Chicago Press, 1981).

[47] William D. Ruckelshaus, "Remarks by William D. Ruckelshaus," speech delivered at Environmental Regulatory Innovation Symposium of The Environmental Council of the States, Minneapolis, Minn., November 6, 1997.

[48] The cities of Chicago and Cincinnati adopted the first air pollution ordinances in the 1880s, and Ohio followed soon thereafter with a regulation governing the use of coal-fired industrial boilers. California promulgated the first comprehensive air statute in 1947. See National Academy of Public Administration, *Setting Priorities, Getting Results*.

[49] For a summary of how different federal laws handle "delegation" to the states, see Environmental Law Institute, *Comparison of Federal-State Allocation of Responsibility in Five Environmental Statutes* (Washington D.C., September 1995).

federal standards and whether a state has established sufficient program implementation capacity including staffing levels, record-keeping procedures, enforcement means, and public participation mechanisms. When a state has satisfied these requirements, the EPA delegates to the state primary authority to implement federal law.

Over the last quarter century, most states have opted to assume responsibility to implement most sections of federal environmental laws. They have built up their internal program strength and adopted their own environmental statutes to meet the minimum standards of federal environmental law. Many have adopted laws and programs that exceed federal minimums. Accordingly, the EPA has delegated to more and more states primary authority to implement more and more federal environmental laws.

Even after program delegation, however, Congress assigns to the EPA continuing accountability for the implementation of federal environmental laws. Thus some form of EPA oversight of state programs continues to be necessary. This has sometimes taken the form of EPA review of permitting decisions and inspections. It has sometimes taken the form of review of enforcement activities. The EPA also retains residual federal enforcement authority (of varying forms, depending on the statute) allowing it to take enforcement actions in any state. Finally, Congress expects the EPA to report on the implementation of the laws, including the portions for which responsibility has been delegated to the states.

As states have developed a stronger capacity to protect the environment, they have sought increased autonomy from the EPA. The agency, acknowledging increased state capacity, has tried to reduce federal oversight of strong state programs hoping to devote more attention and resources to weaker state programs, cross-boundary issues, international concerns, and emerging environmental problems. Not surprisingly, the transition has not always been smooth. Tensions have arisen when states and the EPA hold differing views on the level of oversight and intervention appropriate after delegation. These tensions have been exacerbated when states perceive differences among EPA regions and programs in assessing state program performance and defining the appropriate post-delegation role for the EPA. Tensions also tend to boil when the agency reviews changes in a state's management policies when reorganizations occur, funding levels drop, or the EPA receives a petition from a local citizen group expressing concerns about changes in state policies or activities. Nonetheless, the EPA has the responsibility to ensure that the state continues to satisfy minimum federal requirements.

An increased emphasis on performance holds the promise of relieving many of these tensions. Holding states accountable for environmental and program results rather than specific program activities balances the needs of states to exercise their management prerogative and tap their potential for innovation with the need for the country to maintain minimum federal standards that protect against political pressures local leaders sometimes face to relax environmental protection.

States and the EPA together face the challenge of implementing a system that affords the flexibility allowed by focusing on performance and standards, while ensuring a high level of accountability to each other, to their respective elected officials, and to the public.

3. The Promise of a Performance-focused System

A performance-focused system can begin to attack the litany of problems identified in the previous section by improving performance outcomes (increased quantity and quality); boosting accountability; enhancing transparency; increasing flexibility; and supporting fairness. A performance-focused system cannot, however, fix all of them and will fix very few if insufficient management attention is given to the tasks and challenges of implementing a performance-focused system, a subject addressed in a later part of this paper. This section looks at each of the desired outcomes and how a performance-focused system is likely to advance them.

Improved Outcomes

Performance measurement can boost program outcomes (increase quality and quantity) by creating increased awareness of problems, sharpening organizational focus, and linking to mechanisms that motivate improved performance. It can enhance program outcomes by encouraging innovation, allowing adaptation, and facilitating organizational learning.

Increased awareness. Let's start with the most obvious effect of a performance-focused system. People will often act on problems when they know they exist. They certainly won't act on them until they are aware of their existence. Performance measurement can reveal the existence of problems which, in turn, can create the motivation to fix the problems. A good example of this occurred in the Neponset River watershed in Massachusetts. Within six months of publishing water quality assessment results for the Neponset River watershed, but even before organizers could prepare an action plan, awareness of the problems prompted local authorities and manufacturers in the watershed to initiate actions to begin to correct them.[50]

Sharpened focus. Performance measures can also sharpen organizational focus in government, business, or a multi-party endeavor. Clarifying performance goals can be especially important when more than one person or organization is involved in advancing a goal. It improves the probability that members of a team will work together to meet the same objective. Defining performance goals or even measures articulates a shared goal or problem. This is especially important when an organization has many possible goals it could try to meet; collaboration is needed to accomplish any of the goals; and insufficient resources are available to accomplish all of them. If

[50] Council of State Governments, "Massachusetts Watershed Management," *ecos–The Environmental Communique of the States* (Lexington, KY, September 1996), p. 13.

members of the organization all pick different goals, they are unlikely to achieve any of them. Defining goals accurately and where possible defining the performance metrics for measuring attainment of the goals makes it more likely that the goals will be attained.

Managers can use performance measures as a powerful tool to signal priorities to operating units and employees. Management how-to books are filled with advice about defining a mission, setting performance objectives in line with that mission, and then regularly communicating goals and expectations throughout the organization. The business planning process of Cadillac's Detroit-Hamtramck assembly center illustrates the way managers use performance goals to communicate priorities with front-line workers:

> Once a week Cadillac's Detroit-Hamtramck assembly center shuts down completely for a half-hour plant meeting, during when an employee reviews the plant's performance to its annual plan. The review reinforces the employees' understanding of the division's and plant's business (read *quality*) plan, as do the single-page daily progress sheets that track six key indicators. It is all part of a strategic planning process Cadillac calls "Aligning the Arrows."[51]

Articulation of performance goals and performance measurement helps both managers and employees not only in the private but also in the public sector because it provides a clarity of direction and expectations. Indeed, it can be an especially important tool for politically appointed public sector managers, because it greatly enriches the limited vehicles they have for managing (for example, hiring and the budget).

Moreover, it can help signal priorities not only to those within an organization, but to those who monitor organizational performance. As public management expert Mark Moore writes about police chiefs and performance measurement, performance measurements are:

> one of the most powerful instruments [police chiefs] have for being able to exercise personal leadership over the definition of the department's mission. After all, it is in negotiations over performance measurement that police executives may have the chance to educate political overseers about the varied functions of the police, and to help shape their expectations.[52]

In sum, performance measurements can greatly enhance the ability of a group of people or organizations to work together to achieve shared goals. Active and savvy use of performance measures can greatly strengthen a manager's ability not only to communicate priorities both within and outside the organization, but to enhance the chance the work force will adopt them.

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[51] Stephen George and Arnold Weimerskirch, *Total Quality Management: Strategies and Techniques Proven at Today's Most Successful Companies* (John Wiley & Sons, 1994), p. 52.

[52] Mark H. Moore, "Police Accountability and the Measurement of Police Performance," Harvard University, Kennedy School of Government, November 11, 1991.

Motivating Improved Performance. Despite the well-worn aphorism, "What gets measured gets done," performance measurement alone is seldom sufficient for creating a fully functioning performance focused system. If performance measures are going to be used, they need to provide value to performers themselves or those who influence them, either by being useful or by being linked to an incentive mechanism that works.

Sometimes, performance measures motivate improved performance when they make it easier for the performers to do their job, or make it possible for them to do it more effectively. For example, if facility-specific performance measures provide information about which facilities have the worst environmental performance, a state can more easily target its resources to working with those facilities to improve their performance, whether by providing technical assistance or by enforcing against non-compliant behavior.

Other times, performance measures motivate improved performance because they are linked to a reward or penalty that promises performers benefits or threatens them with a loss. As public policy expert Robert Behn argues, "What gets done is not what you measure but what you measure *and* reward."[53]

Behn describes how managers of the Massachusetts ET (Employment and Training) CHOICES program embraced the use of performance measures, incorporating them into an accountability system, motivating employees by clarifying management's goals and expectations, and rewarding organizational units for good performance, thereby transforming a previously demoralized section of the Department of Public Welfare.

> At the Massachusetts Department of Public Welfare, the leadership team that created the ET CHOICES program to help welfare recipients become economically self-sufficient employed a very clear bottom line: 50,000 job placements over five years. This five-year bottom line was divided into annual bottom lines, which, in turn, were divided into monthly bottom lines for each of over fifty local welfare offices . . . The department kept and publicized the data indicating which local offices met their monthly bottom line and which did not. And those local offices that achieved their annual bottom line were publicly praised with ceremonies, plaques, and press attention . . .
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> Some employees resisted the new, success-oriented bottom line, clung to the old non-failure definition, and never signed on to the new role that the leadership was attempting to create for the department. Many of these left – some willingly, others with a little help. But many found the new demands placed upon them a challenge

[53] Robert D. Behn, "Linking Measurement and Motivation: A Challenge for Education," in Paul W. Thurston and James G. Ward, eds., *Advances in Educational Administration*, volume 5: *Improving Education Performance: Local and Systemic Reforms* (Greenwich, Conn.: JAI Press, 1997), pp. 15-58.

> and were pleased when the agency for which they worked received attention in the press, not for failing to comply with some rule, but for actually achieving an affirmative success. Public employees who had been ashamed to say where they worked were now proud to claim (even if they themselves did not place welfare recipients in jobs) that they worked for the Department of Public Welfare and the ET CHOICES program.[54]

As the ET CHOICES example demonstrates, effective incentives need not always be financial or material. For the Massachusetts ET workers, the psychic rewards of praise and recognition, something they had lacked for so long, proved the right incentive.

The Clean Air Act, Safe Drinking Water Act, and Clean Water Act all include a variety of requirements for the administrator of the EPA or the states to measure environmental conditions, establish performance goals, and implement actions to meet those goals. The sections of those laws that link the requirement to set and meet standards to a reward (state grants) or a sanction (threatened withdrawal of federal highway funds) have motivated far more response than for those where the link has been missing.[55] The key to effective implementation of a performance-focused system is not just taking performance measurements, but taking the sorts of performance measurements that will directly effect performers and those who can influence them.

Encouraging Innovation. Because a performance management system is outcome-oriented, it affords performers the freedom to devise their own methods for achieving a desired outcome. In some cases, performers enjoy savings associated with their innovations and this then motivates them to improvise smarter ways to achieve the target outcome. For example, when the Clean Air Act placed emissions caps on sulfur dioxide at half their historic levels, it spurred the railroads to develop new technologies to reduce costs for delivering low-sulfur coal to utilities.[56]

Allowing Adaptation. Performance-focused systems can be used to accommodate differences in conditions or needs. For example, people have different tastes, talents, and characteristics. Organizations have different needs, capabilities, and operating cultures. Different regions of the country have different cultures, climates, and political structures, as well as different topology,

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[54] Behn , "Bottom-Line Government," Working Paper (Durham, NC: The Governors Center at Duke University, Terry Sanford Institute of Public Policy, 1994).

[55] Thirty-one lawsuits have been filed over the past few years to compel the states and the EPA to implement a requirement of the Clean Water Act that did not have a reward or automatic penalty linked to it, the requirement that states (or if they failed, the EPA) establish maximum daily load standards for waters that remain contaminated even after all the major sources of pollutants to the waters have been permitted. States are now beginning to take action in response to court orders. (See Tom Arrandale, "Dirty Water in Paradise," *Governing*, vol. 11 (April 1998), pp. 40-46; and conversation with Jeff Grubbs, EPA Office of Water).

[56] Byron Swift, "The Acid Rain Test," *Environmental Forum*, vol. 14 (May/June 1997), p. 20.

hydrology, and geology. A focus on performance rather than on process allows adaptation to these different situations that would otherwise be difficult. Adaptation allows us to take advantage of or compensate for specific local conditions. For example, when the EPA proposed a standard for sulfate in drinking water, it focused on performance outcomes. It proposed a rule that recognized that those who lived in areas with high-sulfur content water would not face the same health risks as those drinking it for the first time. By focusing on the health outcome, the proposed rule would have allowed localities to develop protective strategies that distinguished between local residents and tourists and the varying levels of high-sulfur content water each could tolerate, thereby increasing the health value to tourists without imposing unnecessary costs on residents.

Organizational Learning. Performance measurement also facilitates organizational learning, which in turn enhances the ability of an organization to generate improved outcomes. Performance-focused systems can be used to assess the effectiveness of different intervention strategies, allowing organizations to modify their activities and processes. For example, by monitoring the quality of water in wetlands that have been managed differently, water quality managers are able to compare the relative effectiveness of no-till farming practices, streamside buffers, and retention ponds.

Another way performance measurement can help organizations learn is by enabling them to define problems more accurately by detecting patterns or other factors that explain the problem. This is what happened when the state of Maine revised the way it measured the performance of its workmen's compensation program and began to track the number of claims for days lost at work due to injuries. The state discovered that workers at 0.7 percent of all employers were responsible for 44.3 percent of all compensation claims. When the Maine office of the U.S. Occupational Safety and Health Administration reviewed these newly available outcome measures and compared them to its own list of target companies to be inspected, it found only 5 percent of the high-claims companies on any of its target lists.[57] The potential of performance measures to boost organizational learning is tremendous and receives further attention below.

Accountability

Advocates of performance-based management frequently write and talk about its ability to provide "flexibility with accountability." The Clinton Administration report *Reinventing Environmental Regulation* introduces the notion of alternative performance-based strategies with the promise that flexibility–with accountability–will spark technological innovations that demonstrate that economic and environmental goals can be achieved simultaneously.[58]

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[57] Harvey Simon for Malcolm Sparrow, "Regulatory Reform at OSHA" Part (A), Case Study C102-97-1371.0 (Kennedy School of Government, Harvard University, 1997), pp. 10-11.

[58] *Reinventing Environmental Regulation*, p. 14.

What does accountability mean in this situation? For most government programs, accountability generally refers to the ability to count, literally, the dollars the government has granted to another agency or organization. Thus years after grants have been made to local governments for waste water treatment systems, the federal government ensures accountability by visiting the locality to make sure that every dollar charged to the grant was allowable under the conditions of the grant.

Traditional versions of accountability often take on a broader meaning–the repulsion of any and all possible forms of corruption. Highly specific laws, regulations, and policies that characterize so many government programs today evolved from an effort to ward off "the politics of personal favoritism and gain from meddling in the administrative decisions about personnel, procurement, finance, and service delivery."[59] These are all terribly real and important, but some of the mechanisms adopted to protect against these ethical trespasses such as the need to count every person-hour purchased or to restrict equipment bought with funds from one grant exclusively to the uses of that grant (for example, not allowing a video camera purchased with air program dollars to be used during idle time for a water inspection) too often evolve over time into overly rigid and prescriptive restrictions.

Accountability assumes a new meaning in the performance management context. It shifts its focus from the dollars spent or problems avoided to accountability for results promised. This new accountability implies that if promised results are not met, performers would bear the liability and costs of non-performance. The use of performance measures makes it possible to strengthen this sort of accountability by providing a common language to clarify expectations between two parties about the level of performance promised or expected, and establishes a common metric for reporting on and determining the status of agreed-upon deliverables.

Accountability can apply to a hierarchical relationship between, for example, an employee and a boss, a contractor and the client, or a contractor and sub-contractor. Accountability can also exist in reciprocal relationships, as between partners. In democratic governments, accountability often refers to the expectation that appointed officials are answerable to elected officials, and that elected officials, in turn, are answerable to the electorate. It can also refer to government officials, in general, reporting to the general population on their activities, performance, or both. The dissemination of performance measures from the performer (or whoever takes the measurement) to the other parties in an accountability relationship is critical. Accountability in a performance management system also requires that performers bear at least some of the consequences of non-performance. Performers need to be the accountable entities.

How well these new accountability mechanisms work in environmental performance management systems is one of the primary concerns voiced by public interest groups. As one

[59] Behn, "The New Public-Management Paradigm and the Search for Democratic Accountability," paper presented at the Eighteenth Annual Research Conference of the Association for Public Policy Analysis and Management, October 31 to November 2, 1996.

environmentalist has observed, the rhetoric associated with performance management sometimes seems like a Trojan Horse that proclaims to be bearing environmental gifts when in reality it carries only flexibility warriors. They fear that programs professing to improve performance will deliver to employers greater flexibility without simultaneously improving outcomes and increasing accountability. This fear grows from years of experience with past attempts to create performance-focused standards which have proven far easier to talk about than to establish. Performance standards place much greater risk on the regulated entity, a risk that many prefer to avoid.[60] Not infrequently, regulated entities have resisted efforts to compel reporting or incorporate sanctions into laws even as they advocate increased reliance on performance-focused systems. Without links to both motivating and accountability mechanisms, however, a performance-focused system is unlikely to generate the desired performance improvement, its *raison d'etre.*

Transparency

Closely related to the accountability objective is that of transparency. A key principle of the American system of governance is that government should operate in the sunshine. Louis D. Brandeis described "publicity" as the "remedy for social and industrial diseases. Sunlight is said to be the best of disinfectants; electric light the most efficient policeman."[61] Transparency is a tool for improving accountability to the public, perhaps a way to arrest the declining level of public confidence in government and in business. An effective performance-focused system can promote transparency by providing better information about government activities and impacts than the primary source of such information today, the function-focused, line-item budget (even those that include retrospective data on actual expenditures.)

Transparency, sharing information about activities that affect the public with the public, has value beyond accountability, however. Economists have long stressed the importance of "perfect

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[60] Environmental laws and rules of yesteryear "settled" for design standards rather than harm-based (results-focused) standards for two key reasons: the risk associated with performance standards and the technical difficulty of setting them. Performance standards place much greater risk on the regulated entity, a risk that many prefer to avoid. The technical difficulty of setting performance-based standards is exacerbated by a lack of data needed to set those standards. It is difficult to assess the danger of different levels of exposure to certain substances if data about the prevalence of that substance in an area are unavailable. See, for example, U.S. Congress, Office of Technology Assessment, *Environmental Policy Tools: A User's Guide*, OTA-ENV-634 (Washington, D.C., September 1995).

[61] Louis D. Brandeis, *Other People's Money, and How the Bankers Use it* (New York: Frederick A. Stokes, 1914). Brandeis was actually referring to the value of publicity to shed light on private sector financial activities. My thanks to Joel Seligman who identifies this quotation in *The Transformation of Wall Street: A History of the Securities and Exchange Commission and Modern Corporate Finance* (Houghton-Mifflin, 1982, p. 42.

information" for markets to work efficiently. Transparency, by contributing to the motivational effect of a performance-focused system, is essential to the magic of the invisible hand.

In addition, transparency also contributes to the quality of public decision-making. Sharing information with the public engages them in several ways that can lead to improved outcomes. Just as the process of choosing performance metrics can strengthen communication among diverse public participants, the need to define performance metrics begins to create a common language for understanding collective goals and problems. Better information allows citizens to engage in the decision-making process, redirecting government priorities through democratic processes when government actions are unaligned with citizen preferences. Better information also allows citizens to offer suggestions about smarter ways to do business, inviting people with diverse experience to apply their expertise to discovering solutions to problems. And, sometimes, better information educates citizens and prompts them to assume some of the responsibility for fixing community problems -- to take "ownership" of them. An effective performance-focused system, in sum, can and should boost transparency to strengthen accountability, enhance efficiency, and improve the quality of public decision-making.

Flexibility

For some proponents of a performance management system, a key attraction of the system is the possibility of increased flexibility. Flexibility can be a means to the end of improved environmental outcomes. The existing process-focused system tends to specify activities and methodologies. By focusing on results, performance-focused systems make innovation and case-specific adaptation much easier. By specifying the target goal and not the means, emissions caps on sulfur dioxide not only spurred innovation by the railroads, mentioned above, but provided utilities with a far greater range of internal options for meeting their targets, including the use of fuel blending, and facility shifting, and allowance trading.[62]

Flexibility can also be an end in its own right. Those who feel constrained by prescriptions and other directives and who value autonomy consider flexibility a desired objective on its own.

As discussed above but worth reiterating, if a performance management system is to become a viable long-term strategy for improving environmental management and quality, it must make the flexibility–accountability link robust. Otherwise, the pendulum is likely to swing back toward overly prescriptive accountability.

Fairness

[62] Swift, "The Acid Rain Test."

There is some concern that allowing flexibility as a tool to improve performance will compromise fairness among regulated entities, because allowing discretion in the methods for improving environmental outcomes will allow regulators to favor one company over another. In fact, focusing on results should not introduce any unfairness into the system. Indeed, holding everyone responsible for meeting or reporting on the same performance results can remove some of the unfairness or, at least, inconsistencies that may currently exist because of the discretionary permit review and inspection process. While discretion, per se, is not a problem, the absence of any feedback mechanisms that allow those exercising discretion to understand their own decisions in a larger context can be. Performance measurements can help by providing that feedback.

A Note on Equity and Efficiency

One further aspect of a performance-focused system warrants discussion. A performance-focused system will not automatically improve either the equity or efficiency of a system, although it can help improve both if explicit goals and metrics for them are established.

While a focus on performance may make a system more fair to regulated entities, it will not necessarily make it more fair or equitable for those affected by environmental problems. Equity is not necessarily a goal of a performance-focused system; it can be, however, if separate equity performance measures are established. Through recent activities to measure environmental effects on vulnerable populations, the EPA and several states may be pioneering the development of equity performance measures that can be incorporated into a performance-focused environmental protection system.

Similarly, efficiency can be improved through a performance-focused system, but will not automatically result from such a system. In the private sector, competition among suppliers to sell the highest quality goods at the most affordable costs integrates efficiency and effectiveness as goals. In the public sector and among non-competitive segments of private markets, a focus on performance will not necessarily introduce efficiency as a goal. Efficiency goals, such as cost reductions and service delivery (cycle) times, must be adopted as explicit performance goals.

An enhanced accountability system and the use and reporting of performance measures can ultimately enhance equity and efficiency, but will do so only if the appropriate performance measures are explicitly specified.

The Limits of a Performance-Focused System

A performance-focused system holds tremendous promise, but performance measures alone will not automatically fix all the problems that contribute to the declining confidence in government or the more specific problems of the environmental protection system.

Performance measurement alone cannot, for example, fix the fragmentation problem caused by the "stovepipe" structure of the EPA. The problem is not the lack of performance targets, but the surplus of them. Only if cross-program (multi-media) performance measures are adopted and if managers (including single-media managers) manage to them can a performance management system speed the pursuit of multi-media goals. A performance-focused system can make shared program goals more apparent, but there is nothing inherent in a performance management system that breaks down stovepipes; what is critical to breaking down the stovepipes effectively is the selection of shared performance measurements, clarity about whose performance will be measured using the shared measures, who is accountable for meeting shared performance targets, and who, if anyone, has responsibility and authority for ensuring the attainment of the target or continuing improvement in performance outcomes. One of the greatest challenges for using a performance-focused system to deal with fragmentation is getting someone to assume responsibility (or be assigned it) for defining shared measures, and then getting those who can affect performance relative to those measures to cooperate in achieving them.[63]

A performance-focused system also cannot cure the problem that so many can impede performance-focused innovations and so few can compel a resolution. That is more a management problem than a performance-focus problem. By providing a setting and clearly placing decision-making authority and policy-resolution responsibility with the EPA's regional administrators (when the EPA has internal conflicts), NEPPS provides a context for quickly correcting these problems when they arise between the agency and a state. The correction to this problem derives primarily from decisions about how the system would be managed, though, not from any unique characteristic of a performance-focused system.

A performance-focused system will also have problems working effectively if the wrong performance measures are chosen, if measurements are not accurate, if they are not linked to a motivational mechanism, or if they are not disseminated to interested users. For a performance-focused system to work well, a measurement system must be managed well, and managers and other parties who can influence performance behaviors must actively use the system.

In sum, a performance-focused system holds great promise for improving environmental results, enhancing accountability, boosting transparency, increasing flexibility, and supporting fairness

[63] In a praiseworthy example of trying to break down fragmentation by developing shared performance measures, the Office of National Drug Control Policy recently released *Performance Measures of Effectiveness: A System for Assessing the Performance of the National Drug Control Strategy* (Washington, D.C., 1998), a document that begins to identify the key performance measures for drug control in the U.S. across agencies and then specify which federal agencies should be responsible for generating different measures.

among regulated entities. It can also be used to advance equity among those affected by pollution, boost efficiency, and reduce fragmentation, but only if performance measures are selected and managed to accomplish those objectives. We now turn our attention to how performance-focused systems promote these objectives and what it will take to create a well-managed system.

4. How Performance Measures Are Used

How are performance measures used to achieve these objectives? There are three distinct, although not mutually exclusive, approaches to using performance measures: *a target-focused* system, a *benchmarking–comparative* approach, and a *learning* one. Common to all the approaches is the notion of using *performance goals, performance measures, or both as key tools for improving performance.*

What distinguishes the three approaches to performance management is how they use performance measures. A target-focused approach uses performance measures to set a target that functions as a goal or a minimum (or where relevant, a maximum). A benchmarking–comparative approach does not require anyone to set a target. Performance measures are used to compare performers. A learning approach uses performance measures to assess the relative value of different actions for improving performance outcomes. That is, it focuses attention on how different input activities affect performance outcomes. It is helpful to consider these differences before exploring further the implementing capacity necessary to ensure an effective performance management system, and to consider how the three approaches, used together, promise the most effective approach to performance management.

A Target-focused Approach

A target-focused approach uses performance measures to define a target that serves as a goal or minimum requirement. Consider several examples of the target-focused approach. The conceptual framework underlying the Government Performance and Results Act of 1993 requires agencies to define performance goals. Many sections of the Clean Air Act specify performance minimums for air quality. The buyer of a new home still to be constructed who negotiates with a contractor prior to the construction of a house a time for completion, the project cost, and milestones for payment employs a target-focused approach. A child who must take an exam and exceed a certain test score to qualify for enrollment in an honors algebra class participates in a target-focused system.

In a target-focused approach, a performance metric is first established and then a specific point within the range of possible performance outcomes is defined as a goal or a minimum. In other words, two distinct steps occur: the selection of the performance metric and the selection of the target point within the range of possible outcomes of that metric. Using performance measures to define targets is the most commonly articulated vision of a performance-focused system. Indeed, in its benchmarking study of best practices in performance measurement, the National Performance Review equates performance management with a target-focused approach. The NPR report writes:

> *Performance management:* The use of performance measurement information to help set agreed-upon performance goals, allocate and prioritize resources, inform managers to confirm or change current policy or program directions to meet those goals, and report on the success in meeting those goals.[64]

Those who set the targets can run the gamut. Performers can set performance targets for themselves. Organizations can establish performance targets as part of a strategic planning process. Runners often establish distance and time goals for themselves and measure their own performance. Adopting a weight goal complete with daily monitoring on the home scale is familiar to many Americans. Setting goals through New Year's resolutions is a time-honored ritual; in some traditions, a special day is set aside for an annual performance review.

Even the most self-motivated, however, find it useful to enlist external assistance to set targets and boost motivation. Entry into a contest can serve this function. Qualifying to run the Boston Marathon serves as a performance target for many runners, with the (some might think dubious) prize of winning the right to race officially in the Marathon. Enlisting a *faux* coach or boss can also serve this function. Weight Watchers, Jenny Craig, and the other diet-support companies are an entrepreneurial testimonial to the value of external motivation for meeting performance goals. In a similar way, we sometimes find it useful to enlist government to require us to do what we know we should do but don't always find the time to do without external motivation. A story in *The Boston Globe* illustrates how the press of daily life can sometimes distract performers from doing what they know they should do. As reported in *The Boston Globe,* the U.S. Food and Drug Administration found numerous violations at a local fish processing plant. The owner's response indicates the value of external performance expectations, "A lot of the basic things that should have been done just should have been done. They were basically right. We said, 'Fine, we'll fix it.'"[65]

Managers set performance targets for their organizations to motivate improved performance, as in the Massachusetts ET CHOICES example In Florida, the Department of Environmental Protection (DEP) recently embarked on an exciting experiment using performance measures and managing to them. On October 31, 1997, the Florida DEP issued its first-ever Secretary's Quarterly Performance Report.[66] One especially noteworthy aspect of Florida's new performance management effort is a set of memoranda from DEP Secretary Virginia Wetherell delivered shortly after the issuance of the quarterly report to each division chief. A memorandum commends each division for the division's specific accomplishments and identifies priority items needing work. Each division chief

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[64] National Performance Review, *Serving the American Public: Best Practices in Performance Measurement, Benchmarking Study Report* (Office of the Vice President of the United States, June 1997), p. 6.

[65] Patricia Wen, "FDA Helps Fish Dealers Clean Up Act," *The Boston Globe,* June 14, 1998, p. A1.

[66] Florida Department of Environmental Protection, *Secretary's Quarterly Performance Report*, vol.1 (October 31, 1997).

is then instructed to "prepare a one page course of action . . . [for] each of the focus areas noted" to be shared with the Governor and the press.[67]

Oftentimes, performance targets are set not by the performers or their managers but, as for the fish processing plant, by an external party, whether a partner, an oversight agency, a grant-giver, or some other entity with the ability to influence the behavior of the performer. Performance targets help partners clarify expectations and reduce friction from misunderstandings as they strive to achieve shared objectives. The Chesapeake Bay Program Agreement, for example, includes performance targets to which Virginia, Maryland, Pennsylvania, the District of Columbia, and the EPA have all committed.[68] Legislators stipulate in law performance targets or timetables for regulated entities and government agencies. One example of this is the Resource Conservation and Recovery Act (RCRA), which sets a performance target of zero migration of hazardous waste from a disposal unit or injection zone.[69] Sometimes, legislators instruct implementing agencies to set targets. The Clean Air Act requires the EPA to establish minimum air quality standards that communities must meet. GPRA requires all federal agencies to define their own performance targets. Occasionally, a customer or investor, especially one purchasing complex one-of-a-kind items, may use target-focused performance measures to motivate improved performance and ensure accountability. Performance targets, in this case, ensure accountability more than they motivate improved performance.

For the self-motivated, achieving performance targets brings its own reward, but for government agencies and other organizations, extrinsic rewards or penalties are useful. In the Massachusetts ET CHOICES program and Florida's DEP, management set performance goals for their organizational units and linked them to incentives. Massachusetts management reinforced the importance of its goals by rewarding good performers with public praise. The Florida secretary put her managers on alert that their performance would be subject to scrutiny by the Governor, the press, and the public. As these two examples demonstrate, rewards need not be material. Praise and embarrassment can be powerful motivators.

Incentives can be linked automatically and explicitly with attainment or non-attainment of a target, or the link can be left more tentative. The Clean Air Act (CAA) automatically triggers a series of sanctions that ultimately require the withholding of federal highway monies. In New Zealand, managers enter into a "purchase agreement" between the department and the relevant minister. If they fail to meet their promised performance targets, their employment contracts will not be renewed. The manager loses his or her job, and since the manager had been given hiring and firing discretion, mid-level managers and other employees may be at risk as well. How a department meets its targets

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[67] Memoranda included in "Briefing Materials for Presentation to Governor Lawton Chiles, Florida Department of Environmental Protection, *Secretary's Quarterly Performance Report*," December 2, 1997.

[68] The Chesapeake Bay Program (www.chesapeakebay.net/bayprogram).

[69] *Resource Conservation and Recovery Act*, 3004(d), 42 USC, 6924 (d).

is subject to the manager's discretion. A party with authority, in this case the government, has made an explicit agreement to offer its agent, department managers, flexibility in return for a high level of management accountability.[70]

GPRA takes a more tentative approach, dangling the possibility that elected representatives will take some sort of responsive action such as budget-cutting if targets are not met. The key to the success of either approach is if and how it is managed by those doing the rewarding or penalizing, and whether incentives are used affirmatively and constructively to help performers improve or they are used destructively to demoralize a performing organization's reputation and morale or the self-esteem of individuals.

Benchmarking–Comparative Approach

The second performance management approach could be called a *benchmarking–comparative* one.[71] This approach does not require targets to be set. A comparative approach measures performance relative to past performance or to the performance of others, and therefore does not require the identification of a target performance level.

We use benchmarking–comparative performance analyses all the time. In daily life, we consult *Consumer Reports* to inform our purchases of cars, appliances, and electronic gadgets. We turn to computer magazines for comparative data on the latest computer products. We check the shelf labels at the supermarket for per unit pricing. The financial pages of the newspaper and the specialized financial press offer comparative performance information about stocks and bonds, while the sports pages provide comparative performance data about sports teams and individual players.

Comparison is valuable because measures, without context, lack meaning. Most measures take on their import because of their relative value. A runner's time means little to those unfamiliar with average or winning times for that particular type of race. A high production error rate cannot be distinguished from a low one unless the industry standard or the error rate for the industry leader is known. Knowing the earnings per share for a corporate stock means little without knowing the same ratio for other companies. Learning that a contaminant constitutes X parts per million is an incomprehensible fact for most of us; it needs to be put in context.

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[70] Scott and others, "New Zealand's Public Sector Management Reform."

[71] I have chosen a rather awkward label because of the political sensitivities that are provoked when the adjective "comparative" is used by itself. As discussed here, many performers are hesitant to participate in a comparative system. It is my contention that a comparative approach is invaluable for enabling a performance-focused system to achieve its objectives. Nonetheless, I have chosen this label to avoid having the reader, especially the practitioner, reject the concept at the outset, without even considering its value.

A comparative system has an additional advantage of being more dynamic and self re-generating than a target-focused one. Performance targets are continually updated every time another performer is measured and the measurement arrayed in a manner that allows comparison. A problem encountered by target-focused systems is that discrete decisions need to be made to update targets. This can be a time and resource-consuming process. It can also become a highly political process, depending on the relationship between the target-setter and the performer as well as the consequences linked to performing at different levels. Comparison minimizes problems associated with target-setting because it *de facto* re-generates a new performance target whenever a new performance level is achieved.[72]

Another advantage of the benchmarking–comparative system is that it can, in some cases, take into account background variables not under the control of performers that nonetheless affect performance outcomes. For example, when a teacher grades an exam using a curve rather than pre-determined thresholds, the curve controls for how well the teacher taught the class or how hard the test is. When the economy is weak, it can affect air quality outcomes as much as can corporate behavior. Retailers find it useful to monitor nationwide sales levels for a specific product because it helps them distinguish between shifts in customer taste and problems within a particular sales unit. Comparative systems tend to detect and account for changes in background variables likely to affect outcomes more quickly and automatically than can target-focused systems.

Using performance measures for comparison–benchmarking introduces new tasks to the challenge of creating an effective performance-focused system. Those who use performance measures as targets to monitor their own actions or the action of others within their own organization and those who use performance measures as part of an accountability agreement with another party can function independently of other measurement users. In contrast, performance measures used for comparison–benchmarking purposes require cooperative action. Collectively used performance measures require a collective implementation capacity external to the organizations being measured because they have to select, standardize, verify, assemble, and analyze measurements from multiple performers.

How comparative performance measures are used depends on the user. Self-motivated individuals may use comparative performance measures to motivate themselves because they care about their relative standing. Companies such as Mary Kay Cosmetics and the Girl Scouts in their annual cookie drive tap competitive instincts very effectively to motivate improved performance.

Comparative performance measures help managers motivate improved performance within an organization. Consider several examples. Retail companies with multiple outlets or franchises

[72] Many environmental statutes and regulations recognize the value of comparative targets when they call for the use of "best available control technologies." Although the target is a process-focused standard, it embraces the notion that performance targets should get more stringent as knowledge about enhancing performance improves.

routinely assemble comparative sales figures and share the data with all the store managers to encourage them to boost their sales. A recent study of efforts to replicate the success of the New York City police department's award-winning performance management effort (COMPSTAT) in the city's Department of Corrections (TEAMS) and parks department (PARKSTAT) found that senior managers of both the Corrections and Parks departments "continually used the availability of comparative performance data to put pressure on managers to improve performance."[73]

Managers also use comparative performance measures to assess the overall health of their own organization, interpreting their operation's results by looking at the performance of others, and helping to distinguish system-wide patterns from organization-specific ones. Private sector managers monitor key financial indicators such as corporate profitability, growth, return on investment, market share, and customer satisfaction in the context of how well other companies are doing along the same dimensions. Public sector managers can benefit from the same sorts of comparisons, if comparative information such as student SAT scores or industrial sector compliance rates across states is available. Comparative data can serve managers at all levels of an organization, in the boardroom and on the shop floor, in the Commissioner's office or on the front-line.

Comparative performance data allow organizations to benchmark with others, using performance measures to identify better-performing competitors or peers, and then comparing their own operational processes and approaches with them. Organizational leaders may look to compare themselves with those achieving the highest performance; but even those toward the back of the pack can find performance data, such as industry and peer averages, instructive.

Comparative information also help managers refine their performance metrics. When sales of Japanese cars began to outpace that of American cars, American auto companies found themselves searching for more informative performance indicators and, based on their study of the Japanese experience, turned their attention to quality performance indicators such as customer satisfaction and product defect rates.[74]

Not only managers find performance measures useful. Comparative performance measures enable oversight agencies and other external parties with authority or power (grant-giving entities, legislative bodies, college admissions offices) to assess performance quality and make informed decisions about future funding. A few years ago, when Minnesota faced a decline in federal and state

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[73] Dennis C. Smith, "What Public Managers Learn From Police Reform in New York? COMPSTAT and the Promise of Performance Management," paper prepared for presentation at the 19th Annual Research Conference of the Association of Public Policy Analysis and Management, Washington, D.C., November 6-8, 1997, p. 16. COMPSTAT, which stands for Computerized Statistics, was awarded a prize from the Innovations in American Government program funded by the Ford Foundation and administered by the Harvard University Kennedy School of Government. TEAMS stands for Total Efficiency Accountability Management System.

[74] H. James Harrington, *Total Improvement Management: The Next Generation in Performance Improvement* (McGraw-Hill, 1995), pp. 2-3.

funding for its water quality programs, the state agency sought a budget increase from its state legislature. Believing the state agency was one of the best funded in the country despite the agency's protestations to the contrary, the legislature established a blue-ribbon task force to conduct an analysis benchmarking Minnesota's performance and funding levels against that of fifteen other states. The comparative study not only convinced the state legislature to increase funds for the state's water quality program, it also generated valuable management data to state officials identifying specific program weaknesses.[75]

The ability to choose from among an assortment of available products or services gives comparative measures some of their greatest power to motivate improved performance. Producers and merchandisers hoping to sell their products feel pressure to improve their performance (and often price) relative to their competitors. The potential loss of revenue and threat of eventual failure effectively motivate improved product or service performance when reliable comparative performance information is available and when customers have genuine choices. Efforts to strengthen and standardize corporate environmental reporting are an attempt to tap the motivational effect of customer and investor choice to induce improved corporate environmental performance.

Unfortunately, the same power of choice does not always hold true in the public sector. Because of the scarcity of providers and products, the public and their elected representatives have a much more limited opportunity to use comparative performance measures to inform product and service choices than do customers buying private goods. Governments often serve as sole-source providers. A citizen generally must rely on a single highway department to provide good quality roads, and if the highway department fails to maintain the roads in adequate condition, it is unlikely to go out of business. This limits the motivational capacity of comparative performance measures in the public sector.

Nonetheless, the public and its elected representatives can exercise choice in some ways that can influence performance. Legislative bodies can choose one agency over another to manage a problem. Legislatures, for example, can choose whether a poverty program should be handled by an income-focused agency (such as Treasury or state tax departments), a welfare agency, or an employment and training agency. Elected officials can also make choices about how to balance their "portfolio" of investments, deciding how much "human services" return they seek compared to how much "natural resources" return. In many cases, though, values are far more relevant than performance information to the choices made.

In recent years, a number of governments have tried to introduce the dynamic and motivational value of comparison shopping into more and more spheres of public activity. Some communities are beginning to offer their citizens genuine choices in the provision of public services

[75] Blue Ribbon Task Force on Funding Minnesota's Water-Quality Program, *Report of the Blue Ribbon Task Force on Funding Minnesota's Water-Quality Program: Findings and Recommendations*, (St. Paul, Minn., December 1995).

and providing comparative information to support those choices. Residents of the Town of Concord, Massachusetts, choose from among multiple private sector trash haulers and the town's service. The town provides residents comparative cost data for each of the haulers. Municipal electric companies in states that are deregulating to allow competition are starting to provide customers with comparative performance data. Education-sensitive house buyers routinely check comparative school system statistics, such as student test scores.

Indianapolis has used comparative market mechanisms to encourage improved performance by its employees, rather than trying to manage them with a target-focused set of measures. Indianapolis now expects city employees to bid against private vendors to provide most public works. The city then selects among suppliers by reviewing the level of performance and the cost promised by the bidder.[76] If government workers are not able to offer costs and performance comparable to the private sector, they lose the bid and the workers face layoffs. The motivation for improved performance through comparison is clear.

Comparison motivates not only through increased sales but also through embarrassment. The potential for embarrassment (and its converse, the possibility of earning honor and distinction) can be a powerful performance incentive. When Florida's environmental agency started to publish comparative compliance rates for each of its regional offices, the compliance rate for one region was going to be significantly worse than that of the others. That region housed very few regulated facilities and one of those facilities had been out of compliance for years. The facility's environmental staff had unsuccessfully petitioned their management in the past to secure the funds they needed to correct the compliance problem. As soon as the facility managers learned their compliance problem was going to be apparent to the public, they fixed the problem.[77]

Because environmental protection is so widely valued by Americans, providing citizens with access to data so that they can compare the environmental performance of businesses, local governments, states, and EPA regions holds great promise for driving improved environmental performance. The dynamic tension from comparison may not be quite as direct as when actual purchases are made, but it is strong, nonetheless. This argues for boosting the comparative capacity of an environmental performance management system, as a complement to a target-focused system. It also argues for creating comparative performance data sets that can stand on their own when minimum standards do not exist, for example, for non-point sources or urban sprawl. Moreover, it places great weight on the need to disseminate environmental performance data broadly in a comparable, reliable, user-friendly form.

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[76] Howard Husock, "Organizing Competition in Indianapolis: Mayor Stephen Goldsmith and the Quest for Lower Costs," three cases studies prepared for the John F. Kennedy School of Government, Harvard University, 1995.

[77] Conversation with Mike Phillips, Director of Strategic Projects and Planning, Florida Department of Environmental Protection, April 1998.

Comparative use of performance measures can create problems, however, that don't exist with a target-focused approach. The problem with using non-comparable performance data is illustrated in an article by Jonathan Walters in *Governing* magazine. Walters relates a story that captures how inappropriate comparisons create problems for line managers, in this case a county police chief:

> It seems that a performance audit of the county [Prince William County, Virginia] by one of the Big Six accounting firms had turned up the fact that when it comes to clearing cases, Prince William County's performance just doesn't stack up very well when compared with a sample group of other jurisdictions nationwide. The local newspapers got copies of the report and proceeded to happily hammer [the Prince William County] department for what seemed to be comparatively ineffectual work.
>
> The problem, though, is that [the Prince William County] department does good work. In fact, given its resources, it does as good a job or better than just about all the jurisdictions with which it was compared, and it has the data to prove it. Unhappily, . . . the reason for the big gap in crimes cleared on paper has less to do with [the] department's performance on the street than with how different jurisdictions calculate clearance rates.[78]

Collective use of performance measures requires far more attention to data comparability, accuracy, and interpretation than when performance measures are used in a target-focused system. Correcting errors can consume valuable staff and management time, draining it away from improving performance. The problem that arises is not with the principle of using performance measures to compare, however. The problem lies with the non-trivial challenge of ensuring quality implementation of the collective tasks essential for using performance measurement for comparison. Nonetheless, the challenge is worth overcoming because of the great potential benefit of using comparative performance measures. Moreover, collective action may generate peripheral benefits, such as savings that could be realized if states started to work together to collect and analyze performance information.

Learning

The third performance-focused approach, call it a learning approach, uses studies of performance measures in order to learn what causes stronger or weaker performance. A learning approach does not stand on its own; it supports the target-focused and comparative use of performance measures. The Agricultural Research Service is probably the pre-eminent example of a public system that has improved real world outcomes by evaluating the link between different intervention activities and performance outcomes.

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[78] Jonathan Walters, "Performance and Pain," *Governing*, vol. 10 (June 1997), pp. 26-31.

Good managers analyze performance measures to learn smarter ways to do business. They develop prototypes, test market products, and pilot new programs. Development of the prototype or piloting a new program has little value unless it is evaluated, however. You cannot "just do it," you need to measure results as well if you want to learn from the lesson of the pilot.

Many learning opportunities are foregone because managers fail to study the lessons of their pilots. Some managers fear the cost, because they feel it will deplete resources from more immediate production. Others fear the scrutiny of projects that are experimental. Objective evaluation risks highlighting problems. Unless the management environment encourages risk-taking and allows managers to fail without taint, analysis can be personally costly to the manager-innovator. An effective performance management system needs to celebrate analysis and treat failed experiments as a healthy and welcome part of the system.

Program evaluation is complicated when it necessitates involvement of multiple parties beyond the immediate control of the manager. This can be a special challenge facing the states. Louis Brandeis's description of the states as the laboratories of democracy is often quoted. Brandeis suggests that the different ways states implement programs function as pilots and allow comparisons of best practices. This analogy is appropriate only if there is a scientist in the laboratory gathering data about inputs and outcomes and learning from the experiments. Elaborate formal analysis is not always necessary, but if states are going to learn from one another and advance the state of the art, some form of objective, collective study of the results of laboratory experiments is needed.

Environmental managers need to learn the lessons from both the scientific and the operational aspects of managing environmental programs. Scientific analysis that helps environmental managers learn about fundamental scientific issues, such as how contaminants in the water affect health levels, has long been recognized as a core and invaluable component of the environmental protection system. In contrast, state or EPA management analyses of issues as operational as whether increased inspections, more technical assistance, or publicizing permit conditions have greater effect on materials reduction and compliance rates are rare and those that do exist are not widely distributed. They should be increased and those that exist disseminated so they can be employed and applied by the government work force.

Analysis is greatly strengthened when output and input data complement outcome information. (Outcomes are generally defined as real world program results; outputs as the amount of workload accomplished or the activities completed, and input as the resources used to deliver the good or service.) Corporate managers track cash flow as well as profits. If a manager wants to determine the effectiveness of an advertising campaign (whether for Campbell's soup or for pollution prevention), both the sales levels and the advertising hours need to be tracked, along with, if possible, descriptions and numbers of advertising recipients. The ability to track outcome, output, and input data associated with specific experiments in educational reform has made it possible for education experts to compare not only the effectiveness of different experiments, but the comparative costs of

the experiments as well, useful information for planning program expansion or replication.[79] Building a learning capacity in a performance-focused environmental protection system can be greatly strengthened by collecting input and output information and analyzing it along with results data.

Which Is Best?

If we were playing the old TV game show "What's My Line?" and asked the "real" performance management approach to stand up, which one should rise? Let me suggest that a truly effective performance-focused system would require all three of our "players" to stand.

For a performance management approach to work most effectively, the more familiar target-focused approach needs to be complemented by the two other approaches, the benchmarking–comparative and the learning ones. The target-focused approach is needed to set minimum levels of performance. In the environmental field, minimum standards are essential for prohibiting performance levels that impose unacceptable costs on other parties.

A comparative–benchmarking performance management system has the capability to build on that floor. It is more dynamic and self-updating than is a target-focused approach. The use of performance measures for comparison introduces a healthy tension stimulating constantly improving targets and performance. In the way thriving competitive markets work, generating more bang for the buck for the customer, comparison introduces a tension for continuous improvement even for those who meet minimum standards. Comparison also functions as a first-order level of analysis for the performers themselves, alerting them to problems and possibilities.

The use of performance measures for learning supports the use of performance measures as targets or for comparison. Analyses can help set and revise targets in a target-focused system. It is used to discover why some performers are able to achieve higher levels of performance than others. It can direct managers to opportunities for improvement, either through enhanced problem identification and correction or through experimentation with wholly new approaches.

In sum, implementing all three approaches together holds tremendous promise for improved public management and environmental quality. For the promise to be realized, however, an implementation capacity needs to be created and maintained and the public, elected officials, managers, and the work force need to use but not abuse performance information. We now turn our attention to this challenge.

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[79] W. Steven Barnett, "Economics of School Reform: Three Promising Models," in Helen F. Ladd, ed., *Holding Schools Accountable: Performance-Based Reform in Education* (Brookings, 1996), pp. 299-326.

5. Selecting Performance Measures: The First Step in Building an Effective Performance Management System

One of the most difficult tasks in creating any kind of performance-focused system is picking the right performance measures. It is certainly the task that has attracted the most attention to date within federal agencies as they move to implement GPRA. What is a good performance measure? "The value of individual performance measures and systems of measures should be judged by whether they are relevant, transparent, credible, feasible, functional, and comprehensive," concluded a report by the EPA's Office of Enforcement and Compliance Assurance after a year-long public process to hone its own measures.[80] Building a strong performance-focused system starts by selecting the appropriate set of performance measures—measures that focus organizational efforts on results; provide insights about the connections between activities and outcomes; link to specific units of accountability; and are user-focused and user-friendly. Moreover, the selection process is never over; performance measures need to be updated continuously, at the same time that consistency is maintained so that trend analysis is possible.

Results-focused Performance Measures

A key challenge in designing a performance-focused system is finding measures that focus on the desired result. Performance measures guide organizational direction, whether used to set a target or as the basis for comparison. If it is true that "what gets measured and rewarded gets done," it is also true that what does not get measured is unlikely to get done. If the goal of a performance measurement system is to change real world outcomes, then ultimately real world outcomes must be measured. As those who have tried to measure performance of public policies in the past know only too well, this is not easy. At the same time, experience has shown that effective performance measures can be developed.

In the case of the environment, selecting outcome-focused performance measures means measuring public and environmental health. As the Secretary of Florida's Department of

[80] U.S. Environmental Protection Agency, Office of Enforcement and Compliance Assurance, "Measuring the Performance of EPA's Enforcement and Compliance Assurance Program," Final Report of the National Performance Measures Strategy" (Washington, D.C., December 22, 1997).

Environmental Protection writes in her introduction to Florida's second *Secretary's Quarterly Performance Repor*t:

> When I became Secretary in 1993 of the newly formed Department of Environmental Protection, I took a hard look at the measures that had traditionally been used to gauge the effectiveness of our environmental protection programs and policies. For some 25 years, our performance has been based upon such measures as the number of enforcement cases initiated during a given year, the number of inspections conducted, and the amount of the penalties assessed. The condition of the environment was presumed to be directly correlated to the number of activities undertaken; i.e., if the activity counts were high, then the environment must surely be in good shape. Quite frankly, I was dissatisfied with such activity counts being used as a yardstick of our performance, as well as the conjectures drawn from them.
>
> This dissatisfaction compelled me to charge agency staff with developing an environmental measurement system that focuses on environmental results and provides more meaningful data for managers to make better informed decisions.[81]

Thus Florida's quarterly performance report begins by reporting on Florida's environmental and public health conditions to the public, presenting, for example, information about the percentage of the monitored population breathing good quality air.

Measuring public health and environmental quality is neither easy nor inexpensive. Ultimately, however, it is essential to determining the effectiveness of environmental protection programs. Fortunately, experience and technology advances are making outcome measurement and consequently performance measurement more feasible and affordable.

The Need for a Continuum of Measures

Outcome measures alone are not enough to guide performance improvements. Outcome measures often need to be paired with output measures because they have practical limits in accountability agreements. Variables outside the control of environmental performers, such as the weather, the performance of others not subject to the measured performer's influence, or long lag times between the realization of desired outcomes and the performer's action, can all complicate the use of outcome measures, especially in accountability agreements. Because of this, architects of the New Zealand system made sure their agreements focused on outputs, as explained below:

> to seek to extract accountability for outcomes ignores the fact that virtually all outcomes of significance to government will be influenced by a variety of government agencies, as well as

[81] Florida Department of Environmental Protection, *Secretary's Quarterly Performance Report*, vol. 1, no. 2 (February 19, 1998), p. 2.

> by external events . . . Thus, the focus on outputs is not a denial of the importance of outcomes–it simply reflects the judgment that better performance can be achieved by creating incentives for departments to offer to ministers outputs which meet the ministers' outcome/policy objectives, coupled with arrangements which then hold departments accountable for the delivery of the specified services.[82]

Thus a results-focused system cannot just rely on the measurement of outcomes. Although it needs to measure outcomes to maintain a focus on results, it will also need to measure outputs and inputs to allow people and organizations to learn from experience and to establish reasonable expectation for accountability. This is especially the case when outcomes are difficult to measure, are not realized until long after the performer acts, or when variables other than just the performer's actions affect the outcomes.

The August 1997 NEPPS agreement on core performance measures for federal fiscal year 1998 among the EPA and the states recognizes the need for a continuum of performance measures. It refers to a:

> hierarchy for core performance measures–comprised of core environmental indicators, core program outcome measures, and core program output measures–as an important management tool for strategic planning and program planning.[83]

The various measures function as a "family of measures" that:

> link environmental indicators to the stressors that contribute to the environmental condition, then to the source of the stress, and finally to the activities necessary to impact the sources. In other words, we can determine what to do about the sources of the stressors, having identified the environment at risk, and the stresses that threaten it. It is at the activity levels that program integration can be demonstrated. This is where air, waste, and water programs can clearly see how their activities contribute to a single goal.[84]

Many of the state Performance Partnership Agreements developed under NEPPS describe the interconnection among the various types of measures. Florida tries to show the interrelation between

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[82] Scott and others, "New Zealand's Public Sector Management Reform," p. 364.

[83] "Joint Statement on Measuring Progress under the National Environmental Performance Partnership System," signed by the Administrator and Deputy Administrator of the U.S. Environmental Protection Agency, the President and Vice-President of the Environmental Council of States, and co-chairs of the EPA/State Core Performance Measures Workgroup, August 14, 1997. The full text of this statement is located on the Web at http://www.epa.gov/regional/pps/joint.htm.

[84] U.S. Environmental Protection Agency, Region 3, *Environmental Results Based Management in the Mid-Atlantic Region* (Philadelphia, December 1996), p. 31.

department activities, behavioral changes of the regulated community, and environmental results, looking at air quality indicators, compliance rates, inspection levels, and permits issued.[85] Delaware's Federal Fiscal Year 1998 Performance Partnership Agreement describes "Air Indicators" as "trends in air quality for each of the six criteria air pollutants" while "Air Outcome Measures" include the "number of nonattainment areas and their populations that reach attainment," as well as the "reductions in emissions of air toxics" which in turn are linked to "Air Output Measures" including information such as the "status of state progress in developing and submitting required State Implementation Plans."[86]

The Need for a Balanced Collection of Measures

A performance-focused system needs more than just a continuum of measures linking government actions to real world outcomes. It also needs a variety of measures to reveal different dimensions of performance. Two authors of a recent book on private sector performance indicators illustrate the need for what they call a "balanced scorecard" with the following imaginary scenario:

> Imagine entering the cockpit of a modern jet airplane and seeing only one instrument there. How would you feel about boarding the plane after the following conversation with the pilot?
>
> Q: I'm surprised to see you operating the plane with only a single instrument. What does it measure?
>
> A: Airspeed. I'm really working on airspeed this flight.
>
> Q: That's good. Airspeed certainly seems important. But what about altitude? Wouldn't an altimeter be helpful?
>
> A: I worked on altitude for the last few flights, and I've gotten pretty good at it. Now I have to concentrate on proper airspeed.
>
> Q: But I notice you don't even have a fuel gauge. Wouldn't that be useful?
>
> A: You're right; fuel is significant, but I can't concentrate on doing too many things well at the same time. So on this flight I'm focusing on air speed. Once I get to be

[85] Florida Department of Environmental Protection, *Secretary's Quarterly Performance Report*, p. 2.

[86] Delaware Department of Natural Resources and Environmental Control, *Environmental Partnership Agreement for FFY97 and FFY98* (as amended October 8, 1997).

> excellent at air speed, as well as altitude, I intend to concentrate on fuel consumption on the next set of flights.
>
> We suspect you would not board the plane after this discussion.[87]

Just as the pilot needs to pay attention simultaneously to fuel levels, altitude, and air speed, the EPA, states, localities, and businesses need to know about air quality, water quality, compliance levels, waste production, and numerous other indicators in their sphere of influence. Insufficient information can lead to irresponsible or at best inadequate management and operations. For example, if environmental managers paid attention to air emissions only from major industrial sources, they would fail to detect emissions originating from houses, cars, and small enterprises, and might be unable to achieve the aggregate level of performance improvement sought.

Too little information can present a misleading picture, but the opposite situation—an over-abundance of information—can also be a problem. Too many indicators can overwhelm would-be performers and performance-measure users. States have expressed serious concerns about environmental reporting requirements and reporting costs increasing under a performance management system. The concern is so strong that the issue is explicitly articulated in the "Joint Statement on Core Performance Measures" the states and the EPA released in August 1997.[88]

The fundamental problem is neither having too many measures nor too few. The most serious problem is that so little is done with the measures once collected. Too much data reside unused and unusable in massive data depositories. As a result, data providers have stopped caring about the quality of data they submit. If, instead, measures were analyzed and incorporated into reports that helped data submitters do their jobs more easily and effectively, attitudes toward data reporting might improve. Indeed, so few analytic reports have been prepared using input and output data that the EPA collects, some states have proposed that any data currently submitted to the agency that have not been used in an analysis during the preceding five to ten years automatically be "sunsetted." Caution would have to be exercised in using such an approach, however, not to lose data that could be used for valuable trend analysis.

The challenge in building an effective performance-focused system is to find the right measures, the right balance in the number of measures, and then to use those measures well. To help Internet users stay focused on their inquiry, information organizing programs have emerged to help us manage the surfeit of information on the World Wide Web. Comparable tools will need to be developed to give coherence to varieties of necessary environmental and management data. Sophisticated, user-focused search engines and web-pages will be needed, as will customer-focused

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[87] Robert S. Kaplan and David P. Norton, *The Balanced Scorecard: Translating Strategy into Action* (Harvard Business School Press, 1996), pp. 1-2.

[88] Hansen and Reheis, "FY 98 Core Performance Measures."

"expert systems" that harvest (geographic) site-specific and population-specific data and analyze them in a way that answers users' questions and addresses specific user needs.

The Need for Performer-specific Measures

Most environmental outcomes depend on the performance of a large number of performers doing a large number of activities. Choosing the right measure necessitates thinking about who and what to measure and the units of accountability. The Florida report, for example, identifies both *who* and *what* it is trying to measure: *environment* and *public health* outcome indicators (what), *community* and *business* (who) behavioral and cultural measures (what), *governmental* (who) activity (what) data, and *government* (who) resource efficiency (what) information. In a symposium convened at the Brookings Institution in 1995, educational researchers debated the most appropriate unit of accountability, the schools (principal), the classroom (teacher), or the students, considering not only what to measure but whom to reward for strong performance. They concluded that an "effective incentive system should be directed at all three groups."[89]

The need to clarify who and what to measure applies not only to government, but to private sector efforts to introduce environmental performance measures, as well. Corporations and non-profit organizations trying to develop standardized corporate environmental performance indicators are wrestling with similar questions about of who and what to measure. They are debating whether to measure products (labeling environmental costs of production or operation), processes (environmental management systems), facilities (facility-specific releases), or corporate-wide performance (company-wide releases).[90]

Decisions made about who and what to measure affect the nature and level of both innovation and accountability. When performance targets are established for larger segments of an organization (a plant) compared to smaller units (a smokestack), for example, more options are possible and the likelihood of innovation increases. Alternatively, if measurement is applied to the performance of a sub-segment of an organization that is not managed as a discrete unit or a large unit that includes many managers with no single manager in charge, it is difficult to assign and hence achieve accountability in either a public or private organization. This is a particular challenge when managers share responsibility for outcomes, which is so often the case. Even then, however, time needs to be spent sorting out who and what will be measured and who will be accountable for what.

[89] Ladd, "Introduction," in Ladd, ed. *Holding Schools Accountable*, p. 12.

[90] White and Zinkl, "Green Metrics," pp. 21-22.

The Need for User-focused Performance Measures

Another key to selecting effective performance measures is identifying measures that meet the needs of specific users, whether the user is the performer himself or a manager, investor, customer, elected official, or other interested observer. Performance measures need to provide utility to those being measured and to those who can influence the actions of those being measured.

Consider the potential variety of performance measures that could prove useful to those in the airline business. A pilot needs one set of measures to fly a plane safely and smoothly. The airline company needs a completely different set of measures to determine if it is attracting and retaining its customers, and still another to determine if it is running a financially viable airline. Other units within the airline may also develop their own performance measures, such as the cycle time for delivering baggage to arriving passengers or the time to check-in a passenger.

The needs of external parties may differ from those within the organization. Continuing with our earlier airline example, external users such as the shareholder may desire a set of measures to assess the long-term financial attractiveness of the airline company compared to other investment options. Airline customers would benefit if they could see indicators of the percentage of flights such as late arrivals, safety record, and percentage of passengers with baggage handling complaints before purchasing tickets.

As with the air transportation system, the environmental protection system necessitates different measures for the different participants in the system. Consider the wide variety of needs just for those within government environmental protection agencies. Ambient environmental conditions can guide the resource allocation decisions of managers and budget offices, but supervisors of permit writers are more likely to need permit inventory aging reports, permit cycle times for each type of permit, and telephone caller customer satisfaction rates. Supervisors that deploy inspection staff might want information on the number of permitted facilities compared to the number of facilities operating in a state that can be identified by business information sources, percent of permitted facilities inspected, and percent of inspections leading to an enforcement action of some sort. Technical assistance providers would want to gather information about reductions in toxic production, toxicity per unit of business output, and payback analyses on pollution prevention projects that they can share with businesses (and even with assistance-oriented inspectors).

Distinguishing among the needs of multiple potential performance measure users can greatly enhance their quality and utility. Those outside government agencies are likely to need different information than government managers and workers. When they update NEPPS core performance measures, the EPA and the states should hone their understanding of the varying needs of different potential users and their likely uses of environmental performance measures by consulting directly

with potential performance measure users. Swimmers and fishermen, for example, might want to know about water quality at specific locations. Asthma sufferers may want daily air quality information. Local governments who have expressed frustration about not getting questions answered by either the EPA or their states might value comparative performance measures on the speed and accuracy of responses to phone inquiries.

In sum, attention needs to be directed to identifying the potential users of performance measures, and then defining specific performance measures to meet their needs. This will lessen the chance that measures will be generated that no one uses, and increase the chance that performance measurement will lead to the sought after improvements in environmental quality.

The Need for User-friendly Measures

For performance measures to work, they need to be defined in terms that can be understood by and are useful to potential users. The city of Phoenix conducted "customer focus groups" with citizens on the city's proposed performance indicators and concluded that its citizens couldn't make sense of its performance categories, input, output, outcome, and efficiency. It changed the categories to customer satisfaction, cost, cycle time, and mission.[91] The general public and elected officials need information more relevant to their needs than X parts of contaminant per Y units of receiving air or water body. They are much more likely to want to know the probability of drinking contaminated water. As governments move to performance measurement, they will need to refine their understanding not only of who but also how to present their information to the public in a manner that can be understood and is relevant. The public won't always be able to define the exact measures they need because they have not been thinking about it, but close work with subsets of potential performance users to help them identify their concerns will enable ideas about better measures to begin to take form.

Users also need information that is affordable. Data collection, analysis, and presentation take time and cost money. Simply put, performance measures that are too costly don't help anyone. Each of the steps in the implementation of a performance management system requires resources. A key challenge for building an effective performance-focused system is developing low-cost ways to accomplish each of the necessary steps through collaboration in data management efforts, innovation, and the use of data for multiple purposes.

An Iterative and Collaborative Process

Just as the business community is continuously trying to improve its performance indicators even as it maintains a consistency across some measures to allow trend analysis, finding the right set

[91] Jim Flanagan, City Auditor, City of Phoenix, "Results Indicator Project," memorandum to Quality Board members and City Manager, August 16, 1995.

of environmental performance measures and setting the right targets will be an iterative process that should never stop, even as historical environmental data that ensures consistency of measurement over time are protected. Environmental indicators have been under development by the EPA and the states for over fifteen years and have evolved significantly.[92] Numerous states have made great strides developing sophisticated performance measures for use in NEPPS agreements or state performance plans. A recent symposium on Environmental Regulatory Innovations convened by the Environmental Council of States enabled states to share information on the new performance measures that Florida, Illinois, Washington, and Indiana are developing for use in their individual NEPPS agreements.[93]

Corporate environmental performance indicators have also evolved significantly over the past decade. The materials consumption and waste generation indicators used by Interface, Inc., for example, represent a conceptual breakthrough. They offer a way to focus organizational attention on pollution prevention, which has long been an expressed priority of both states and the EPA but which has had trouble competing with priorities that could be tallied more easily, such as the more tangible counts of permits issued and inspections conducted.

Developing an effective set of performance measures likely to improve performance results will require patience not only for an iterative process, but for a collaborative effort, as well. If performance measures are going to be used for anything beyond internal target-setting or an accountability agreement between parties, a decision must be made about the measures to be used by multiple parties. That decision can be made by fiat from an authority with power over all the measured parties, or by collective agreement. In either case, it will be more complicated than selecting measures just for internal use or as part of an agreement among a small number of parties. Nonetheless, precedent exists for developing collective performance measures through organizations such as the Financial and Governmental Accounting Standards Boards.

The right performance measures are the foundation of any performance management system, yet choosing a balanced continuum of measures requires much thought and deliberation. It requires attention to the results sought, but it also necessitates consideration of other characteristics as well, including the appropriate units to measure, the end-user's needs, relevance, and resonance. Those trying to select environmental performance measures, especially those in government, could greatly enhance current efforts to define effective measures if they would first identify the units or types of

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[92] Florida State University, The Florida Center for Public Management, and U.S. Environmental Protection Agency, Office of Policy, Planning, and Evaluation, "Environmental Indicators Information for the States and U.S. EPA," prepared for the All States Meeting, May 17, 1995.

[93] Case studies prepared for the Environmental Regulatory Innovations Symposium, Environmental Council of the States, Minneapolis, November 5-7, 1997. The Illinois Environmental Protection Agency began a public process to refine its performance measures in 1994. Illinois Environmental Protection Agency, *Measuring Environmental Progress in Illinois: The IEPA Performance Measurement Project* (October 1994).

performers to measure, who will use the measures, and how, and then test the relevance and resonance of the proposed measures with likely users.

6. Managing a Measurement System

Selecting performance measures is just the first step in building an effective performance-focused system. The measures must be "worked." A variety of discrete actions need to be taken to make measures more useful once chosen. Specifically, in addition to selecting performance measures, it is necessary to:

1. Measure
2. Verify
3. Standardize and normalize
4. Report the measurements
5. Collect and store performance data
6. Analyze performance information
7. Present performance measures and analysis
8. Disseminate analysis

If the capacity to carry out these functions does not already exist, it will need to be created. This capacity will also need to be maintained over time because it constitutes the infrastructure that promises the most vibrant and effective performance management system, one that sets targets to ensure minimum performance levels, uses comparative performance measures to ensure a dynamic and continuing incentive for improvement, and employs a continuum of measures to learn where problems and opportunities are. We now turn our attention to understanding better what the components of that infrastructure should be.

Taking the Measurement

The first step in a performance measurement system is taking the measurement. Measurement is often easier said than done, and often costlier, too. Decisions about what, where, and when measurements are taken will inevitably influence conclusions drawn. For example, air-sampling devices located in cities can only impart information about air quality in urban areas, but cannot provide information about air impacts outside urban areas where sprawl may impose its greatest negative impact. To detect variations in ambient conditions in different regions or at different times of the day, additional measurements would be needed.

Moreover, it is not always clear who will take the measurements, even when performance measures have been selected. Measurement can be done by performers (the parties being measured), by another party, or even by an automated measuring instrument. For internal management purposes, managers need to assign responsibility for measurement. For ensuring accountability between two parties, the parties involved need to negotiate responsibility for measurement and the method of measurement.

When more than two parties are involved, decisions about taking measurements often require greater attention simply because the number of interactions required to reach agreement or accommodate decisions about who, how, and when measurements will occur multiplies with each additional performer. Several strategies are possible for accomplishing collective or coordinated measurement. A party in authority, such as the SEC, can require measurement of performers, as well as methods for measurement. An organization representing a collection of parties being measured can create a forum for the performers to reach agreement. Alternatively, performance measure users, such as *Consumer Reports* or the insurance industry (which analyzes car crash rates), can take the measurements themselves. Companies seeing a profitable opportunity to measure results and sell them, such as Bloomberg's Financial Services or Standard and Poor's, can do just that. This happened recently when Dun & Bradstreet decided to conduct customer surveys of government buyers to rate vendor performance with hopes of selling the surveys to the federal government. Dun & Bradstreet saw a market opportunity because federal procurement policy had changed, placing much greater emphasis on past performance as a factor to be considered in awarding bids.[94] Sometimes, the performers themselves recognize the value of performance measurement and benchmarking and work collectively to develop standardized performance measures, as dozens of cities have been doing through the International City/County Management Association.

Verification

Measurements need to be verified to ensure reliability when the person doing the measuring is different than the one using the measure. Data quality is essential to an effective performance-focused system. A performance focused system that holds people or organizations accountable for meeting performance targets must use accurate performance information. *Consumer Reports* can stand behind its data quality because it is an objective third-party and generates the data it uses for performance assessment. In contrast, relying on performers to measure themselves and report their performance results honestly places a very heavy burden on trust. If the environmental protection system already relied heavily on trust as a core value for all participants and had self-enforcing mechanisms to ensure honesty, a self-reporting system might work. It does not, however, nor do most other social programs in the United States. Thus it is necessary to follow the counsel of former President Reagan, "trust, but verify."

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[94] The firm is Dun & Bradstreet. Conversation with Steven J. Kelman, former Administrator, Office of Federal Procurement Policy, United States Office of Management and Budget, 1997.

The federal government has played an important role in ensuring financial data quality. American stock exchanges have long been the most sophisticated in the world because the federal government set standards for reporting data that allows cross-company comparisons and enforces data honesty. High quality data lowers the risk of investment, increasing investors' interest in American companies around the country and around the world.

A comparable capacity to ensure and enforce performance indicator quality, whether about governments or private organizations, is essential to an environmental performance-focused system. That capacity can be provided by the U.S. government, an international body, or a widely trusted non-profit organization, but its existence is critical.

Standardizing and Normalizing the Measures

Recall our story in Part Four about the Prince William County police chief whose performance was maligned by a "Big Six" accounting firm because of the different ways the compared jurisdictions calculated clearance rates. As the police chief can attest, measurements need to be standardized and normalized when more than one performer is being measured to ensure comparability.[95] Differences in the way performance results and management data are measured around the country confound efforts by government managers to compare the effectiveness of their programs to that of others. For example, when the Colorado state legislature called for a study to evaluate Colorado's current air compliance program by comparing it to programs in other states, the study's authors were severely hampered by the absence of an "accurate, reliable, commonly accepted indicator of compliance."[96]

When those being compared are different, measurements also need to be normalized. Small communities are likely to face higher per capita costs in delivering many services to their residents than larger communities. For this reason, city, county, and town managers and elected officials tend to prefer comparative cost information organized by community size. Emissions data from corporations of different sizes are easier to interpret when normalized for units of production.[97]

The EPA and the states have tried for years to work on standardization and verification efforts, but have run into both internal and external resistance. Some resistance arises because standardization inevitably creates winners and losers. Those who already use methods closer to

[95] For an excellent discussion of standardizing corporate environmental reporting, see White and Zinkl, "Green Metrics."

[96] Woodward-Clyde International-Americas, *Colorado Compliance Study*, prepared for the Colorado Department of Public Health and Environment, Project No. 24267 (August 1, 1997).

[97] White and Zinkl, "Green Metrics," p. 20.

proposed standards or who have more adaptable production methods can gain a competitive advantage by the adoption of a new standard, while others may face significant costs.

Standardization of performance measurement is essential to ensure comparability, but it is not enough. Standardization of key elements of measurement systems is also essential to allow information from different data bases to be integrated for analysis. The difficulty of integrating EPA and state data bases has proven enormously frustrating to those who have tried to analyze currently available environmental data. A consortium of over 185 national and community-level public interest organizations wrote to EPA Administrator Carol Browner in late 1996 calling on the EPA to standardize the way industrial facilities are identified across all data bases:

> Finding, compiling, and comparing environmental information is a formidable task. The data are fragmented among different states and EPA program offices, each with different data systems and rules for public access. Once obtained, information is incomplete and inconsistent. Neither the EPA nor the public can readily obtain the information needed to make effective environmental decisions.[98]

In the late 1980s and 1990s several states started to play a more active leadership role to speed cross-program data integration within a state, experimenting with ways to link information about the same facility from multiple data bases. One state, Minnesota, even took an entrepreneurial approach to its system standardization effort, hastening technology transfer in this area.. Working with a private firm, Minnesota developed software that integrates facility information across environmental programs and then marketed the concept to other states.

The EPA set up an effort a few years ago dubbed the "Key Identifier Project" to deal with the problem of linking regulated entities across all data bases at the federal level. A complimentary effort, the One Stop Program, has been set up to facilitate the development and cross-fertilization of numerous state efforts to fix the data integration problem within a state. The agency provided grants to five states under this program in FY1996, eight in FY1997, and eight more in FY 1998.[99]

Comparability of data elements across databases and across states, and ultimately across industry, must be achieved for a performance-focused system to move beyond the target-setting approach. States and businesses eager to realize the potential flexibility of a performance-focused system should aggressively support standardization efforts whether run by the EPA or by the performers themselves.

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[98] Letter to Carol M. Browner, Administrator, U.S. Environmental Protection Agency, from Facility Identification (Key Identifiers) Initiative Supporters, December 23, 1996.

[99] U.S. Environmental Protection Agency, "Reinventing Environmental Information: Making Data Resources Work for Better Environmental Results" (May 1998) (http://www.epa.gov/reinvent/new598).

Reporting the Measures

The next step in handling the measures may seem too obvious to be mentioned, but it can suffer from lack of attention: once something is measured, the measurement usually needs to be delivered to someone. Reporting is a relatively simple task when only two parties are involved, the performer and the performance measure receiver. Decisions can be made between the two parties about how, where, and when measures should be delivered. When measures are being used to ensure accountability between two parties, it is useful to use the accountability agreement to clarify who will undertake the measurement and measurement transmission.

Reporting gets more complicated when it involves more than two parties. Often, other parties, whether a manager, an oversight authority, a partner, a client, peers, a customer, or the public, also want to receive performance information. Managing the transmission of measures to or from a large number of performers is much more complicated than sharing data between two parties because it necessitates coordinated action. This can be accomplished by an external authority mandating the transmission, an entrepreneurial presence gathering it, or those being measured opting to collaborate and collect it.

Attention to the methodology as well as the tasks of data transmission will also prove fruitful to the ultimate effectiveness of a performance-focused system. For example, the cost of transmitting information in the private sector has been drastically reduced by those who sell transmission technologies. Bar code technology allows grocery stores to send messages instantly and simultaneously to both external suppliers and the finance department. Hand held bar code readers and signature recorders allow the UPS and FedEx field operations to transmit tracking information instantly to where it is needed. Internet service providers compete on transmission speed and services. Telephone companies, cable operators, and utilities are battling for transmission dominance in communities across the country.

For over a decade, states and the EPA have been experimenting with methods to improve the transmission of performance measures and other data, both from industry to the states and from the states to the EPA. In the 1980s, the State of Georgia worked with the EPA's Region IV office to develop a new cooperative data sharing program arrangement. The purpose of the program "was to ensure data quality and timeliness by bypassing the traditional shipment of data on tapes, discs, and paper."[100] The EPA supported cross-state fertilization of experimental state data management efforts through the State–EPA Data Management program, but the program was funded only for a few years.

Several current data transmission experiments include electronic data exchanges that are testing the transferability of technologies developed for accounting purposes to environmental data

[100] Sparrow, *Imposing Duties.*

transfer, and an electronic integrated grants management project under development by the EPA and Massachusetts, New York, Delaware, Texas, and Arizona. Similar efforts should be encouraged because breakthroughs that lower the cost of transmitting measurements about environmental conditions, performance of regulated entities, or the performance of the regulators greatly improve the likelihood that performance-focused systems will be adopted

Collecting and Storing Performance Data

It is not enough to report data properly, however. An even greater challenge lies in assembling and storing them in an affordable and manageable way. Data cannot be used for analysis unless they are deposited somewhere in a format that allows retrieval. Assembling data so they can be used for subsequent analysis requires planning the structure of a filing system that allows hard copy retrieval and for a database that permits electronic retrieval. Collecting information takes resources: people, file space, and computer space. It takes time, it takes money, and it takes attention.

Enormous value can be lost to potential users if thought is not given to the mechanisms and structures of data collection. The fate of health data illustrates a societal loss associated with not collecting data. Throughout the country, doctors' offices record performance measures of human health, data that could prove enormously valuable for analyzing likely causes of medical problems. Those data are not routinely collected by anyone, so concentrations of diseases often go undetected, and analysis of the correlation between environmental conditions in an area and the incidence of disease are much more difficult than they would otherwise be.[101] Or consider another aspect of medical care where collection of performance data already reported could prove valuable to customers. The rate of Caesarian deliveries as a percentage of total deliveries is measured by most hospitals. However, in most communities, pregnant mothers preferring a hospital with a low C-section rate have to collect the comparative data themselves unless they are lucky enough to live in a community that has a government agency, consumer interest group, or city magazine that collects and reports comparative data of this sort.

How data are collected and stored directly affects a key performance measure characteristic—its affordability. Significant economies of scale can be associated with the task of collecting or assembling data. Once performance measures are collected by one entity, they can be used by many others for virtually no additional cost. Unless the data collecting entity is collecting it to achieve a competitive advantage, there is value to sharing the data if other users agree to share in the costs of data collection. Thus a key challenge for ensuring data affordability may be to work through cost-sharing arrangements for data collection.

[101] The recent trend toward managed health care delivery is changing this. Doctors are being required to report more and more data, but journalistic accounts suggest that the data being collected are primarily to control costs, not to improve, or understand causes of, poor health.

Strengthening the data collection capacity of a performance-focused environmental protection system does not necessitate centralization. Investor information repositories, for example, will be different than those for line managers. What is important, especially for potential collective users of public performance measures, is a growing mutual understanding of who will collect what measures, how they can be accessed by those who need to use them, and how to ensure comparability across measures. What will also be important is getting organizations to step forward to organize others to join with them in carrying out the necessary collective endeavors. ECOS, for example, might organize a central repository to collect comparative data about, for example, inspections per permitted facility, or regulated entities that show patterns of repeat state violations across states.

Analyzing Performance Measures

Taking measurements and collecting and storing them in an easily accessible manner are just the first components of a healthy performance-focused system. Analysis of performance data is a key capacity that can greatly enrich the meaning and value of performance measures.

Two elementary forms of analysis have already been mentioned: comparison and normalization. Comparison is a simple form of analysis that can highlight problems that warrant management attention. Normalizing performance measures is an elementary but powerful form of analysis that aids interpretation. Other forms of analysis can achieve different purposes. Trend analysis is a powerful tool for assessing internal management progress. Benchmarking allows organizations to identify which organizations have the best practices so they can be studied further. Some forms of analysis allow data to be presented in the context of constrained resources or production activities that can inform resource allocation decisions. For example, calculating return on investment requires only a simple calculation, yet it presents far more useful information than just revenue data; it provides outcome information in the context of a key input measure and a constrained resource. Similarly, calculating return on sales, a simple sort of analysis that involves merely division of an outcome measure, revenue, by an output measure, sales, provides managers with information about the effectiveness of their sale's efforts. In the environmental arena, calculating inspections per permitted facility could be far more informative than just tallying the number of inspections, especially if the ratios are then correlated with compliance rates.

Analysis can also detect where operational problems may exist within an organization and what they are. W. Edwards Deming, perhaps the most famous advocate of the value of measurement to boost corporate success, illustrates the value of analysis for problem identification. He writes about an airline employee having trouble handling customer calls. Deming suggests that management track calls handled by each person and plot the data against age of incumbent, length of service, and other factors that might be relevant. The analysis allows managers to detect when there is a problem (when erratic patterns in the number of calls being handled are apparent) and helps them identify those who

may need extra training.[102] This analysis allows both managers and employees to see where the problems are and devise a problem-focused strategy to fix them. Similarly, to help with environmental problems, analysis can begin to clarify which sources may exhibit patterns of non-compliance and which may exhibit patterns of strong environmental behavior.

Analysis can interpret performance measures so that they become more outcome-focused. For example, most toxic release information reports the pounds of a variety of different toxics released to the environment, but fails to distinguish the level of toxicity of the different types of chemicals. In an effort to link data about toxic releases more closely to likely health impacts, the city of Minneapolis has prepared an analysis showing not only the pounds of toxics released by companies in the city but also the toxicity of their releases, providing more useful and accurate information about the severity of the dangers associated with corporate production activities.[103]

Analysis can also be used to translate raw measurements into indicators that make complex data easier to understand. The cost-of-living index is just one of many simplifying performance indices we incorporate into our daily lives. Statistics from multiple sources or multiple statistics can sometimes be combined through analysis to tell a story more clearly than arrays of statistical tables can. For this reason, the World Resources Institute is developing indices, such as a resource depletion index, to enable cross-country and trend comparisons.[104]

Analysis allows people and organizations to probe the links between inputs, outputs, and outcomes. Studying the running, jumping, or stroking styles of winning athletes helps other athletes improve their times. Testing different advertising strategies (advertisements in television, radio, or newspapers; coupons; different advertising tag lines) helps companies determine their comparative effect on sales levels. Performance measures allow pharmaceutical companies to assess the relative effectiveness of different medicines or treatment protocols. They permit management consultants to review different corporate strategies and assess which ones were most successful and why. In the environmental field, analysis could be used more effectively to identify the strategies most likely to influence personal and organizational decisions and behavior that create stresses on the environment.

Program evaluations can help public organizations learn to perform better. The Manpower Demonstration Research Corporation (MDRC), a non-profit organization founded and supported by both foundations and government agencies, has long conducted program evaluations of different

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[102] W. Edwards Deming, *Out of the Crisis* (Massachusetts Institute of Technology, 1986), pp. 73-74.

[103] Guy Fischer and Ron Franz, "Minneapolis Air Toxics Brief–draft 5/12/97" (Minneapolis Environmental Management, 1997).

[104] Allen L. Hammond and others, *Environmental Indicators: A Systematic Approach to Measuring and Reporting on Environmental Policy Performance in the Context of Sustainable Development* (World Resources Institute, 1995).

employment and training strategies, providing interested practitioners with information about the relative effectiveness of different program designs. Because of its focus, MDRC also functions as a de facto repository of expertise, or at least as a resource and referral center, on employment and training programs. Nothing comparable exists in the environmental management area, especially concerning government programs. To a limited extent, organizations such as CERES, the Investor Responsibility Research Center, and for-profit social investment firms that track the environmental performance of corporations for investment purposes are beginning to fill this gap regarding corporate best practices.

Analysis can confuse more than it helps, however, so care must be exercised to ensure that users understand the underlying principles and assumptions. Designers of a performance-based system for the Dallas schools encountered this problem when they tried to develop indicators that ensured fairness by taking into account the backgrounds of the school children. The resulting indicators proved incomprehensible to the principals of the schools being measured. As a result, the goal of motivating improved school performance was frustrated by the principals' inability to comprehend their own performance rankings.[105]

Arguably, a similar problem complicated the EPA's review of state air quality implementation plans, which are conducted using a model that predicts likely future outcomes resulting from proposed state activities. While the underlying models used for the predictions may be excellent, the "black box" nature of the model undoubtedly exacerbated the frustration of state and local officials unhappy with the model's conclusions. It is not possible, in retrospect, to say whether more attention to explaining the model's assumptions prior to applying it to specific state plans would have moderated reactions to plan rejections. It is a reasonable guess, however, because we all like to understand how and why determinations are being made if they impose costs on us.

Problems with analysis and performance measurement will inevitably arise as people experiment with better ways to use and interpret performance data. Those who do not fare well under certain methods of analysis will inevitably feel tempted to challenge the analysis. Sometimes the challenge will be appropriate, because the analysis is flawed. They should, however, exercise caution in how they mount their defense. If they believe in building a strong and effective performance-focused system that will afford performers greater flexibility, they should respond to flawed analysis with constructive suggestions for improvement, and if they can afford it, revised and improved analysis. If they just criticize the analysis without a constructive response, they will simply weaken the viability of the system itself.

Some tremendously exciting experiments in new environmental management approaches are currently underway in states, localities, federal agencies, non-profits, and businesses. The tragedy is that so little analysis of these experiments is underway that enables anyone to learn from them.

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[105] Clotfelder and Ladd, "Recognizing and Rewarding Success in Public Schools," in Ladd, ed., *Holding Schools Accountable*, p. 35.

Building a stronger analytic capacity would greatly enhance the value of a performance-focused strategy.

Presentation

Good data presentation can give greater meaning to data and analysis, placing performance measures in a context for interpretation. Pictures can often be used to tell a story more effectively than can simple tables arraying numbers on charts. A color-coded map showing the numbers of extreme incidents of rainfall and temperatures throughout the country conveys the message of climate change far more convincingly than a table listing the same data. Proportional pictures of the size of different plants fed with different fertilizer starkly demonstrate which fertilizer is most effective.[106]

As part of its effort to build a performance-focused system, the U.S. Commerce Department's Procurement Office has been experimenting with ways to depict the performance of the department's procurement offices with a simple graphic that looks like a web. The power of the graphic is that it quickly imparts information about multiple dimensions of performance: the smaller the web size, the higher the overall office performance; and if a web is exploding off in any one direction, it immediately highlights a potential problem area.[107]

Building a strong performance-focused system requires building a strong capacity to display performance data and its analysis both verbally and visually.

Disseminating Data and Analysis

The best presentations and analyses of performance measurements are of no value unless users can get access to them. As with the transmission of raw data measurements, information dissemination is a relatively simple task when only a few parties are interested. For numerous parties to use performance measures, however, to enhance transparency and strengthen accountability to the public or to motivate improved performance through comparison necessitates broad and strategic dissemination within and outside organizations.

Simply stated, users need to know where to find and how to obtain performance information and analyses. Masses of environmental data are collected in the private sector and government and many of these data are analyzed and written about in reports. To get a copy of the reports, however,

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[106] Edward R. Tufte, *The Visual Display of Quantitative Information* (Cheshire, Conn.: Graphics Press, 1983).

[107] U.S. Department of Commerce, Office of Acquisition Management, "Performance Measurement Assessment Tool: Procurement Executive's Annual Report for Procurement Officers," charts entitled "glyphs" (Washington, D.C., April 1997).

one needs to know to ask for them. Over half the states have prepared Performance Partnership Agreements including the environmental self-assessments that precede each agreement, but the initial rounds of public hearings on the PPAs have been sparsely attended despite state and EPA outreach efforts. Corporate environmental reports are on the rise and many companies have printed tens of thousands of copies for distribution but many potential readers of those reports do not know they exist, because not all corporations issue them, and few in the interested public even know to ask for them.[108] If performance-focused systems are going to realize their potential, more attention needs to be directed to educating reporters, environmental activists, and community leaders about their purpose and value.

Copies of management analyses done by a state, an EPA region or office, or others are even more difficult to obtain. Thus although the study of a management innovation in one place could greatly benefit others, little sharing occurs because no public or private organizations function as a repository or clearinghouse for such studies. High-functioning performance-based systems necessitate a dissemination infrastructure that assures users timely and easy availability of performance measures and user-focused analyses. ECOS, the EPA, or a non-profit should consider creating such a repository, both for the public and for the private sector.

To build an effective performance-focused system, one needs to think about the users and uses of performance information and plan its dissemination accordingly. A marketing mentality is needed. This will be especially difficult for an agency such as the EPA, which has never had much funding for information dissemination, risks Congressional attack for lobbying when it does try to disseminate information, and has, in the past, relied primarily on the *Federal Register* to fulfill its dissemination responsibilities, counting on the threat of penalties to inspire regulated entities to chase down information they are supposed to know.

Performance information needs to be disseminated both inside and outside the organization being measured. As the Cadillac model illustrated, dissemination of performance measures within an organization heightens attention, sharpens focus, and stimulates thinking about innovations. Strong accountability suggests dissemination of performance information to managers, contractors, or external oversight parties. Transparency necessitates dissemination of performance information to the public. Peers need performance information for benchmarking. Customers and investors need environmental results to inform purchases.

The most sophisticated and efficient dissemination capacity is likely to be a collective one external to the organization being measured. One of the great strengths of financial market performance measures is that key performance measures are available every business day in every

[108] In their survey of corporate environmental reporting, Lober and others report that (as of August 1995) the mean number of corporate environmental reports printed was 28,250, with 16 companies printing under 5,000 and 16 printing over 50,000. Fifteen companies posted their reports on the Internet. See Lober and others, "The 100 Plus Corporate Environmental Report Study," pp. 63-64.

major newspaper in the country. Anyone who wants timely financial performance information can buy it for a quarter. Private financial firms further boost information availability by sending individual clients performance data about specific companies or industrial sectors. The public library system makes it easy to find comparative data on cars and other major appliances, since most include *Consumer Reports* and *Consumers Digest* in their reference collections. In a similar way, environmental performance information needs to become readily and predictably available, through the Internet, local libraries, government agencies, and non-profit organizations such as the World Resources Institute.

Trade associations and their publications can play an important role in targeted dissemination, making sure their members receive the sorts of performance data they need. Trade publications such as *CIO* (targeting chief information officers), *Institutional Investor* (targeting pension fund managers and other institutional investors), or *Stores* (targeting the retail business) play an extremely important role keeping their "niches" of performance measure users informed about the availability of comparative performance data and analyses of them. The Environmental Council of the States is beginning to play an important information dissemination role for states, sharing case studies, but it has not yet decided to take on the task of disseminating comparative environmental performance information. The Council of State Governments through its *Resource Guide to State Environmental Management* has taken on that challenge, providing comparative performance information on all fifty states, and its analysis provides a valuable foundation for further work, but far more sophisticated analyses would strengthen the ability of environmental managers to learn from each other and for elected officials to ask smarter questions of their agencies.[109]

The Internet is revolutionizing the affordability of information dissemination by driving the marginal cost of disseminating information to additional people down to virtually zero. Targeted web sites, search engines, and e-mail distribution lists allow matches between user-interest and information availability when someone assumes the responsibility for posting the data. The Internet has greatly simplified the challenge of transmitting information directly to the subset of the public that is wired. A few states, including Pennsylvania and New Jersey, and the EPA are experimenting with efforts to place permits, inspection, enforcement information, and ambient conditions on the Internet so they are directly transmitted to the public. The technological advances in information dissemination is transforming the potential for creating an effective performance-focused system, because it so drastically changes the economics of implementation. It makes the dream of creating a performance-focused system not only possible, but practical, as suggested by the following two examples.

Putting it All Together: Two Early Success Stories

[109] The Council of State Governments, *Resource Guide to State Environmental Management*, fourth edition (Lexington, KY, 1996).

The potential of performance measurements, when they are pulled together, put in context, and shared with the public has been vividly demonstrated by two recent accomplishments. In late 1997 the EPA's Office of Water realized a significant achievement in building a performance-focused capacity when it posted the Index of Watershed Indicators on the Internet. The Index displays eleven layers of performance data for every watershed in the country.[110] The project represents a triumph in many ways. It displays masses of performance data in a relatively simple way, and disseminates the information throughout the country. It also provides information about data reliability, distinguishing more reliable data from less reliable data.

An equally noteworthy development took place in April 1998. ABCNEWS.com broadcast a news story titled "How Dirty is Your Town?" and Netscape Navigator flashed the headline on its homepage. The story reported on the creation of a new online database, dubbed the Chemical Scorecard, developed by the Environmental Defense Fund (EDF). The EDF analyzed and packaged data that had been collected and standardized by the states and the EPA in a way that made it more relevant to citizens, showing companies ranked by chemical hazard in specific geographic locations. EDF reported four million hits on the Scorecard within its first two weeks online.[111]

These two accomplishments use data standardization, collection, analysis, presentation, and dissemination tools to bring environmental performance information directly to the public in a way that promises to transform the way the environmental protection system in this country is managed.

The accomplishments have their obvious limits. They are accessible only to those who have the computer technology to access them on-line and to those who know to look for them. In the former case, this primarily involves those who closely follow news about the activities of EPA offices. In the latter, it includes those who monitor the work of EDF, but also a larger group, those who read the news flash from ABCNEWS.com on the Netscape Navigator home page in early April. Despite their limits, both examples are hopeful harbingers for the future. They help us envision what the future might look like with a fully functioning performance-focused system.

The transition to that system will not happen overnight, but it is already starting to happen and will continue to evolve as participants in the current system take on new roles and responsibilities to make a performance-focused system work. In this section, we looked at the tasks that need to be done and who might do them. In then next part of this paper, we turn our attention to the challenges likely to arise in making the transition.

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[110] U.S. Environmental Protection Agency, Office of Water (www.epa.gov/OW).

[111] ABCNEWS.com, "How Dirty is Your Town," April 14, 1998 (www.abcnews.com/sections/us/DailyNews/edf041498.html).

7. Tensions and Possibilities

Efforts to create performance-focused systems to improve government management and to advance environmental quality have moved far beyond the theoretical stage and into practice. Many exciting and important programs are well underway. The Government Performance and Results Act is now the law of the land, compelling all federal agencies to adopt a performance-focused plan. The International City/County Management Association, the Governmental Accounting and Standards Board, and *Governing* magazine have major, multi-year initiatives underway to develop tools to help states and localities adopt performance-focused management systems. Over thirty states have voluntarily entered into Performance Partnership Agreements with the EPA since 1995. More than 100 companies in the United States and 300 worldwide voluntarily prepare corporate environmental reports. A few countries now mandate corporate environmental reporting. The World Resources Institute and the OECD have begun to assess the environmental performance of whole nations. The EPA publishes water quality indicators for every U.S. watershed on the Internet, and the EDF offers an online rank-ordered list showing who emits the most hazardous chemicals in every zip code in the country.

Nonetheless, building a fully functioning, healthy, effective performance-focused environmental protection system still remains an aspiration. Both GPRA and NEPPS represent giant steps to undertake fundamental structural change within government and government management of environmental protection. Still, their success depends on how and whether managers and oversight bodies will embrace these and other performance-focused strategies in their day-to-day management and operational activities. Similarly, the success of efforts by ISO, CERES and others to introduce a performance focus in private sector behavior depends on how aggressively industry adopts voluntary standardized performance reporting, on decisions by governments worldwide to mandate them, and on the demands of investors and customers for environmental performance information.

There is cause for optimism that performance-focused government and environmental capacity will continue to evolve, but there is also reason for concern. A performance management system can only be effective if people and their institutions use performance measures and somehow link performance results to consequences that motivate the performers. Performance measures cannot "live" on their own power. People and institutions need to use them. Managers need to manage to them. Investors, customers, citizens, elected officials, and the media need to integrate them into their daily management, investment, purchasing, political, and journalistic decisions in ways that constructively motivate improved environmental behavior. Potential users also need to support and encourage the aggregation and presentation of performance information so it can be used for benchmarking and the subsequent analysis of the data so performers can learn. In other words, for

a performance management system to work, a whole host of people and organizations have to be motivated to use performance measures, and to use them in a way that motivates improved performance.

Personal and organizational instincts will inevitably provoke tensions and raise resistance to adopting a performance focus. Some of these tensions are part of the dynamic forces that motivate positive change. At the same time, they can induce behavior that threatens the viability and effectiveness of the whole approach. We turn our attention to these cautionary concerns and look at opportunities for responding to them to accelerate the implementation of an effective performance-focused environmental protection system.

Resistance to a Performance Focus

Tension. It would not be surprising if employees or organizational units resist a performance focus when it is first introduced. Organizations and the people within them tend to resist change and adopting a performance-focused system promises significant changes in daily activities, if effective. For example, a performance-focused system will require workers and organizations to focus on fewer goals and give up activities they believe more important, enjoyable, or at least familiar. Unless employees understand the purpose of the new approach and how they are expected to adapt their own activities, introducing a performance-focus is likely to meet with resistance, or at best, indifference.

Possibility. Increase training about the purpose and advantages of a performance-focused system. Brainstorm with employees about their new roles in a performance-focused system. As employees begin to understand the intent of the new approach, they can begin to define a new role for themselves.

Resistance to Performance Evaluation

Tension. Workers and organizational units are even more likely to resist being measured if they fear they will be identified as a poor performer. Measuring performance increases the risk of exposing organizational or individual weaknesses that exist. Poor performance, however, is not necessarily the problem of the individual or the organization; it often derives from a systemic problem such as insufficient employee training or insufficient communication across organizational units.

Possibility. Performance management systems that look for problems so they can be fixed rather than a catalyst for punishment can lessen resistance to measurement. Apply performance measures to organizations more than to people. Deming warns of the danger of mishandling performance measurement. He writes, "Management by numerical goal is an attempt to manage without knowledge of what to do, and in fact is usually management by fear."[112] For Deming,

[112] Deming, *Out of the Crisis*, p. 76.

quantitative performance measurement is essential, but only to inform analysis that allows an organization to understand the causes of its performance problems. Performance measurement that is then analyzed feeds the learning capacity of the system.

Tension: Deming's advice was written for private corporations and applied primarily to the sorts of measurements companies generate for internal use. In contrast, much (although not all) environmental performance measurement will be generated for public consumption. Poor performance levels that are publicized will inevitably prove embarrassing to the performers. This embarrassment functions as an intentional part of the dynamic system motivating performance improvements, but if the cost of embarrassment is too high, the performer may refuse to be measured or somehow try to distort the measurements taken. Even more problematic is when the measurements are presented out of context; for example, a significant performance improvement can look like a major performance failure if the measurement is presented in absolute terms rather then being compared to prior year's performance levels.

Possibility: Problems with performance measurement and analyses will inevitably arise. Those conducting the analyses of performance measures should try to engage performers and performance measure users in a review of the measures and analysis prior to releasing them to the public. Performers, in turn, should participate in the review. If problems remain after the data or analyses are made public, exercise caution not to attack the analysis per se, but rather identify specific weaknesses that warrant correction and suggest specific improvements that should be made. If they can afford it, they should revise the analysis themselves. This is obviously easier said than done; the temptation to attack will be enormous. Still, advocates of performance measurement should work hard to establish a culture of constructive correction rather than destructive criticism.

Resistance to Bearing Risk of Meeting Performance Targets

Tension. Performance standards place much greater financial risk on regulated entities than do design standards because the regulated party needs to assume the costs of testing new methods that might fail, continuing to invest until they find an approach that succeeds. Some regulated entities are willing to take on that risk if it affords them flexibility, but others prefer a more conservative approach to their environmental practices.

Possibility. Create a two-track system, one for the risk-averse and one for risk-takers. A traditional system with design- and other process-standards could be employed for those averse to risk, while a performance-focused system could be opened up to risk-takers.[113]

[113] Some environmental regulations already take this approach, specifying "best available control technology" or its equivalent.

Tension. Time lags between the time when pollution control equipment is installed and when performance results can be measured complicate the risk-taking option. The public can end up paying the cost for the risk-taker who fails. The difficulty of adequately compensating those who endure the cost make this an unsatisfactory strategy.

Possibility. Make the flexible, performance-focused track a privilege, an incentive that would be made available only to companies that have demonstrated strong past environmental performance. This idea, discussed in the next section, has been described by some as a "green track."[114] A key distinction between some "green track" proposals and what I am proposing here is the eligibility criteria. One early advocate of a dual-track system calls for allowing companies that "*make a commitment* to enhanced environmental management activities to opt out of the traditional command-and-control model" [italics added]. I am suggesting different eligibility criteria: that only companies which have *demonstrated* an historical commitment to enhanced environmental practices be allowed to opt into the alternative track.

Difficulty of Distinguishing Levels of Performance

Tension. Creating a "green" or "performance track" necessitates defining performance thresholds that must be exceeded by those eligible to enter the track. Setting performance thresholds for whole classes of performers is difficult because it requires judgments to be made about people or organizations, judgments that are complicated by the multi-dimensional and qualitative nature of performance. It is relatively simple when performance is being measured along only one dimension, such as a company's actual air emissions in the prior year compared to allowable air emissions levels. When performance needs to be measured along multiple dimensions simultaneously, decisions must be made about the import of air emissions relative to water emissions or other incomparable conditions.

Past efforts to develop nationwide criteria for strong performing businesses or state programs have tended to fall back to process-focused criteria, despite efforts to create performance criteria. Efforts to develop a corporate "green track," for example, seem to rely on a commitment to environmental excellence and the use of a comprehensive environmental management system. Similarly, the early state effort to develop criteria under NEPPS for "leadership" states proposed a subjective and process-oriented set of characteristics. The draft state proposal for defining "leadership" states suggested that states self-certify their own "sound program performance" based

[114] Ira Feldman, "ISO 14000 Can Underpin a New 'Dual-Track' Regulatory System; Greentracking Could Provide Alternative to Command & Control," *Environmental Business Journal* (January 1997), pp. 11-15.

on the "confidence of EPA headquarters and regional officials based on its track record in traditional program implementation" and on the state's participation in state or EPA initiatives.[115]

Possibility. Despite the difficulty, judgments about performance levels and likely future performance levels are made all the time. Private and public purchasers pre-qualify bidders based on their past performance. Colleges balance a whole collection of performance measures to decide whom to admit.

Now that states and the EPA have developed the initial set of core performance measures and the EPA has articulated performance goals in its strategic plan, more sophisticated approaches to performance distinctions should be possible. The agency's national program offices can now begin to gather, organize, and analyze core performance measures from all states. Among other uses (looking for patterns to understand causes of problems), the analysis could be used to identify state programs that have particularly weak performance levels and those strong enough to be free of EPA intervention except that which the state requests. For example, the EPA could prepare a list showing the percentage of a state's population drinking clean water. Any state that exceeded the goal established by the EPA in its strategic plan (95% of the population served by community water systems supplying safe drinking water by 2005 compared to 81% in 1994) would automatically be deemed to have a strong program and the agency would not intervene in the state at all except to audit for purposes of verifying the performance data reported by the state (or if the state requests assistance).[116]

States and the EPA could consider taking a comparable approach in working with industry performance efforts. Businesses that have a strong historic compliance record, exceed certain performance thresholds (perhaps the performance equivalent of full compliance), and publicly and regularly report on their environmental impacts using state-of-the-art, standardized performance metrics could be relieved of any government intervention except government audits or third-party audits in accord with government-set standards to verify reported performance results. Eventually the EPA and state governments could support work by the incipient Global Reporting Initiative (GRI) by incorporating GRI policies on data standards (as GRI develops them) into the criteria governments use to qualify businesses to operate in a performance-focused track. This would be similar to the way the SEC uses the Generally Accepted Accounting Principles developed by the Financial Accounting Standards Board.[117]

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[115] Kathy Prosser, Commissioner of the Indiana Department of Environmental Management, "Performance Leadership/Program Performance Measures," memorandum to All State Directors, August 24, 1995.

[116] If this approach is adopted, it would also be reasonable for the EPA to establish interim milestones to qualify states for the no-intervention/verification-only audit status.

[117] Financial Accounting Standards Board (www.fasb.org).

Uncertainty of Performance Targets

Tension. Performance measures cannot predict future performance. Nonetheless, just as meteorologists study the data of past weather patterns to predict future patterns and financial analysts study corporate performance measures to identify good investment prospects, environmental experts need to study past environmental patterns to predict future health and environmental impacts. Good historic data are essential when performance measures are used for predictive purposes, yet not always available. One of the main reasons that environmental laws and rules of yesteryear "settled" for design rather than results-focused (harm-based) standards was the technical and scientific difficulty of setting harm-based standards, a difficulty exacerbated by a lack of the sorts of data needed to set those standards.[118]

Possibility. More reliable data are needed. An effective performance-focused system must be information-driven. This inevitably imposes reporting burdens on everyone, but comparable, reliable information is critical to an effective performance-focused system. Without it, government can offer only a prescriptive, intuition and hypothesis-driven environmental protection system.

Resistance to Reporting

Tension. Regulated entities, states, and even sub-units of the EPA have resisted reporting even as they have advocated increased reliance on performance-focused systems.

Possibility. To make this system work, more data rather than less are needed. As suggested earlier, reported data not used within a certain period of time could be reviewed for "sunsetting" to ensure the data needs are manageable. Great caution needs to be exercised in managing such a policy, however, because some data, such as that used to evaluate health or ecological effects over time, need to be collected for longer periods prior to analysis than those used to evaluate different implementation strategies. Industry advocates of a performance-focused system should aggressively support efforts to increase and improve data collection efforts, even if their industry colleagues are arguing for reporting reductions. A strong and effective performance-focused system, with its promise of flexibility, needs a strong supply of information.

Challenge of Giving Performance Management Sufficient Leadership Attention

Tension. It is not enough to proclaim the adoption of a performance-focused system. Managers and external authorities must "manage to it." They must talk about unit-specific and shared goals and actual performance results with their managers. Managing to performance measures and

[118] U.S. Congress, Office of Technology Assessment, *Environmental Policy Tools.*

goals is far easier said than done, especially in public organizations where many people outside the organization, including the elected official who appointed the senior manager, the press, and legislators, can place more immediate demands on the top management of an agency. Nonetheless, if senior managers do not talk about their goals and performance results, and if they do not question their staff about their performance, performance management is likely to be no more than a wasteful paper exercise.

Possibility. EPA managers at all levels need to manage to an agency's strategic and performance plans and to EPA commitments in the NEPPS agreements, talk with staff about performance expectations, look at performance results relative to goals, praise achievements in improving performance results, and try to understand and correct problems causing declines. EPA managers also need to assign specific organizational responsibilities for specific performance results at all levels in the organization so that employees and organizational units understand expectations of them.

In the same way, state managers need to "manage to" the performance focus in their NEPPS agreements when working with their own staff. Otherwise, NEPPS will serve as merely another time-consuming state–EPA negotiation.

Strains of Managing an Incentive System: Resistance to Imposing Penalties

Tension. Penalties, or the potential of a penalty, are a core component of a target-focused, incentive-linked system. Imposing penalties is difficult, however, whether punishing a child, withholding payment from a contractor or a grantee, or taking an enforcement action. It can be especially difficult when one partner needs to penalize the other in a continuing relationship. Many federal environmental statutes charge the EPA with the responsibility of sanctioning states when their performance is weak. This responsibility can be difficult, although not impossible, to exercise at the same time that the EPA and the state are trying to collaborate on other aspects of environmental protection delivery.

Possibility. Automatically triggered sanctions or comparative performance systems that de-personalize the process can make the evaluation and the penalty process easier.

More graduated penalties can also alleviate some of the tensions in the system. For example, if the EPA can only threaten withdrawal of delegation authority for poor state performance, a state is likely to treat the threat with some skepticism because it knows that the agency does not want to assume responsibility for running the program itself. The EPA needs to apply more graduated penalties such as varying the percentage of permits, inspections and enforcements actions audited, or the percentage of direct interventions in state actions depending on the level of performance of the state.

Strains of Managing an Incentive System: Rewards

Tension. Ironically, rewarding good performance is sometimes as sensitive as penalizing bad. The value of a bonus is seldom judged in absolute terms. Performers tend to value their monetary rewards in relative terms compared to the rewards given their colleagues and peers, or relative to personal expectations. As a consequence, what a manager considers a reward may be interpreted as an insult by the performer.

Non-material rewards can also raise surprising issues. NEPPS called for rewarding stronger performing state programs with a "Leadership" label as well as dramatically reduced oversight. The proposed reward of being given "Leadership" status created more potential problems than it fixed. Many states hesitated to be labeled in any way. Some states feared that a leadership label would provide ammunition to anti-environmental critics in state legislatures seeking to cut environmental agency budgets. At the same time, they feared that failure to earn the label would turn into a bad news story. The "Leadership" concept, they said, put them "between a rock and a hard place."

Possibility. Psychic rewards such as praise or public affirmation avoid some of the problems that arise with material rewards because they are harder to compare to the reward received by a colleague or relative to expectations. Comparisons, without labels attached to different tiers, can also avoid some of the problems while retaining the incentive effect.[119]

Discussing and negotiating the structure of an incentive system in advance of performance can also alleviate tension arising from uncertainty and a perception of arbitrariness. EPA regions and states should lay out how the incentive system would operate for each state in the individual NEPPS agreement to avoid that problem and to encourage both parties to think about how the incentive aspect of the system could work most effectively to motivate the state (and possibly the EPA as well).

Strains of Managing an Incentive System: New Costs, New Tasks, New Responsibilities

Tension. Taking measurements, and collecting and disseminating them requires resources and staff skills that often don't already exist within an organization. The current analytic capacity of both the federal and state government may also be insufficient for the analytic challenge of implementing effective performance management systems. Only the largest states have ever been able to afford

[119] The challenge of structuring effective reward systems has received great attention over the years. Managers of performance-focused system could benefit from the lessons of the literature. See, for example, Thomas B. Wilson, *Innovative Reward Systems for the Changing Workplace* (McGraw-Hill, 1995).

analytic capacity and cutbacks in state budgets reduced that capacity. At the federal level, the number of program evaluation staff has steadily decreased. [120]

Possibility. Information collection, storage, and analytic capacity directed to performance measurement needs to be enhanced in states, the EPA, and business. That does not necessarily imply dedicated analytic shops. Other offices can assume these responsibilities. EPA's national program offices (Office of Air, Office of Water) can assume a new role: reviewing performance across all states and preparing analyses to inform both the regions and the states as they negotiate their PPAs. The analyses should look at comparative performance, but it also should look for lessons in the data. States can collaborate to conduct some of the analysis, sharing resources to collect, aggregate, and analyze comparative data that will help them manage better. Businesses, local governments, and environmental organizations could also prepare comparative performance analysis of states and EPA regions, focusing on the aspects of performance that matter to them the most.

Distortions by Observers: The Media

Tension. Media attention can greatly boost the success of an effective performance-focused system because press attention helps disseminate information to the public, peers and competitors, and other interested parties. At the same time, the business side of the news establishment needs to attract advertisers. This tends to introduce a bias toward stories that expose poor rather than strong government performance because problems are more newsworthy than successes. (Wouldn't it be nice if a nightly network news show carried a regular feature on the "flocking of America" rather than the "fleecing of America," sharing stories about how government helps the American people?). Media attention to poor performance can be a valuable incentive to motivate improved performance, but it only helps if the reports are accurate and comparisons valid.

Possibility. Educate the media to understand why performance measures are important, how to distinguish accurate from inaccurate stories about performance results (that is, the importance of data comparability and reliability), and the value of balancing good with bad stories. Since media attention is hard to attract without newsmakers, convince–enlist newsworthy individuals, such as the Vice-President, a governor, or a mayor to celebrate an organization's strong performance at a newsworthy event.[121]

Encourage the trade press (including *Inside EPA, Governing,* and state level counterparts) and environmental organizations that have publications to cover all aspects of the environmental performance results of business, the states, and the EPA regularly and more extensively.

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[120] U.S. General Accounting Office, *Program Evaluation: Agencies Challenged by New Demand for Information on Program Results,* GAO/GGD-98-53 (Washington, D.C., April 24, 1998).

[121] W. Lance Bennett, "Why Government Innovation is Not News: The View from the Newsroom," in Altshuler and Behn, eds., *Innovation in American Government,* pp. 171-201.

Distortions by Observers and External Authorities: Elected Officials

Tension. Current and aspiring elected officials may be tempted to use performance measures to advance their own electoral prospects. Elected officials can and should monitor and use performance reports in their oversight of agencies, acting on behalf of citizens to ensure accountability by public agencies. Sometimes, however, they use performance measures to serve more selfish purposes, to boost their election or re-election prospects since attacks on government for poor performance tend to be more newsworthy than praising government for strong results at the same time that it makes elected officials and candidates sound concerned and responsible.

Possibility. There is no obvious fix to this problem, not even campaign finance reform! Whether the current Congress handles the first few rounds of GPRA reporting will strongly affect the prospects of federal performance-focused management. If Congressional members use the results to attack rather than guide federal agencies, the agencies will be more likely to "game" the system. One can only hope that current and aspiring elected officials will act in the best public spirit, using but not abusing the performance information to help government work better.

The media can help by checking and reporting on the accuracy of the claims of public officials before reporting them (or, better yet, not report inaccurate claims at all).[122]

Challenge of Collective Action

Tension. The decision to adopt a performance-focused system becomes a much more complicated one when collective action is required, because so many different parties must agree to a large number of changes. The biggest hurdle slowing adoption of a performance-focused system can be finding the time and resources needed to make the collective decisions and take the collective actions needed to put in place and maintain all the pieces of the system.

The question is: who should and will do it and who should and will pay for it? The federal government could do it, or the states could agree to do it collectively. The reality is, neither is doing it now, in any serious manner. If performance management is going to be part of a learning system, the EPA, the states, local governments, businesses, and environmental organizations need to start addressing the challenge of collective action.

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[122] Verifying the accuracy of public officials' statements about performance results would also keep claims of strong performance results more honest. The *New York Times* recently questioned claims about the success of welfare reform by Mayor Giuliani. See Alan Finder, "Officials Reluctant to Answer Workfare Inquiries," *The New York Times*, April 12, 1998, p. A30.

Possibility. Numerous organizations could come forward to build the collective capacity of the system. It is hoped that *all* of them will. A leader or leadership organization willing to commit the time can surmount many of the hurdles needed to organize collective action. Consider the following possibilities:

-- Driven by a strong public spirit and commitment to the environment, many public and private leaders have already committed their time and resources to thinking about change. They will again step forward to bring about some of the needed changes.

-- A professional or trade association can organize collective action. Organizations such as the National Conference of State Legislatures and the Council of State Governments have long played an important role gathering, standardizing, and disseminating comparative information about states. The Environmental Council of the States (ECOS) and other organizations of state environmental professionals (such as associations of state air, water, and waste directors) could also take on some aspects of managing performance data. Another entity, perhaps modeled after the Manpower Demonstration Research Corporation, could be created to take on the learning and analytic task.

-- The International City/County Management Association, the National Association of Local Government Environmental Professionals, and other organizations representing local governments can play a similar role serving local governments.

-- Professional expectations may also motivate the adoption of performance measures. In the health care field, for example, the effectiveness of different medical treatments is routinely evaluated using performance measures. Peer-reviewed studies published in highly regarded and well-read journals such as *The New England Journal of Medicine*, combined with government and private-sector funding for evaluation seems to create conditions that encourage doctors and other medical researchers to search for not only the right outcome indicators of health, but the best causal links between inputs and outputs as well. Environmental science and engineering publications, especially peer-reviewed journals, could play a more active role encouraging the use of performance measures to build the learning capacity of the environmental protection system.

-- Entrepreneurs (for-profit or not-for-profit) may sense strong customer opportunities and step in to support a performance-based system as Dun and Bradstreet has done by measuring customer satisfaction with vendors who sell to the federal government and private consulting firms have done with business performance measures.

-- Academia and think tanks can also play an important role. Business school professors receive support from businesses to evaluate factors affecting strong business performance and report on it in the business journals. Government legislators and environmental agencies can

encourage more objective evaluations by academic and policy experts by supporting such studies financially.

-- The trade press can find profitable ways to support a performance-focused system. Publications such as *Corporate Environmental Strategy* and *State Environmental Monitor* could cover the news of performance measurement for corporations and states.

-- Entrepreneurial approaches need not be limited to the for-profit sector. *Consumer Reports*, initially supported by the non-profit Consumers' Union, illustrates how effectively non-profits can implement some of the critical steps essential to building a performance-focused system. National environmental organization with regular publications could generate annual environmental performance reports for the nation, producing comparative analysis about business and government.

-- One could even imagine industry, environmentalists, and government working together to create a new institution to learn from the experiments of the states, local governments, tribes, business, non-profit organizations, and the EPA, an institute of best environmental management practices. Just as FNMA supports and disseminates research about low and moderate-income housing programs, an institute could study and disseminate lessons of public and private environmental management experiments, creating a systemwide learning capacity.

The Possibilities

In sum, as this paper has hopefully demonstrated, a performance-focused, information-driven environmental protection system holds great promise for improving the way we protect the environment in this country. It holds the potential for improving environmental outcomes, strengthening accountability in the system, enhancing its transparency, encouraging innovation, promoting fairness, and allowing greater flexibility. That potential will not automatically be realized, however. For an effective system to evolve, both implementation and political challenges will need to be surmounted. Nonetheless, the tremendous potential of a performance-focused, information-driven environmental protection system makes it worth the effort that will be required, especially since the alternative, a process-focused intuition-driven system, is inherently limited by its inability to assess whether or not the quality of the environment is improving and whether intervention strategies are effective.

A performance-focused system, as used in this paper, refers to a system that uses performance measures to motivate improved performance and inform management and resource allocation decisions, and disseminates that information broadly. Performance measures can be used to improve performance in three distinct ways. They can be used to set targets which performers are expected to meet, linking rewards and penalties to different performance levels as an incentive–accountability mechanism. They can be used to compare or benchmark the performance of one performer to another, creating a dynamic that continually updates performance expectations and establishes an

automatic incentive mechanism. Performance measures can also be used to build a learning capacity that probes the links among inputs, outputs, and outcomes to identify the strategies likely to yield the best outcomes. The most effective performance-focused environmental protection system will use all three approaches, applying each as appropriate to performers, performance measure users, and specific uses.

Despite its potential, implementing an effective performance-focused system will not be a simple endeavor. Creating the capacity to deliver easy-to-find, easy-to-understand performance measures necessitates the effective execution of many discrete activities. These include the selection, measurement, reporting, standardization, collection and storage, analysis, presentation, and dissemination of performance measures. Building this capacity will require the understanding and efforts and commitment of a large number of people and organizations, working individually and collectively to establish and maintain the various activities that constitute an effective performance-focused system. It is hoped that this paper has begun to build that understanding and commitment, so that many more people and organizations can begin to recognize the roles they need to play to create an effective performance-focused environmental protection system and will start to fulfill those roles. This paper is only a beginning, however, designed to provoke and engage far more people in efforts to think about what a performance-focused system is designed to accomplish, how, and who needs to do what.

Implementing the system will also be difficult if the system provokes high levels of resistance or indifference from performers, whether managers or workers, or from parties that exercise some form of oversight. Resistance or indifference could easily incapacitate the system. Managers, workers, elected officials, candidates, shareholders, customers, the press, and the public need to appreciate and value the utility of performance measurements before they will want to use them.

A performance-focused approach may not work for every organization. Some companies and even some small government entities may be unwilling or unable to assume the risk of operating in a performance-focused system. Smaller organizations, and even many larger ones, may not be able or interested in assuming the costs of experimenting with different strategies to achieve environmental performance targets. Many would, and historically have, preferred for the government to prescribe the processes they need to follow to be in compliance with the law. Forcing these firms (or governmental organizations) to take on the risks associated with a performance-focused system will not add greatly to the public benefit.

For other organizations, a performance-focused system will be attractive because of the flexibility it offers. This may be especially true for companies required to seek frequent permits or permit revisions and government agencies seeking to innovate who find themselves caught in extensive debates with the EPA about process changes. For these organizations, and for those who recognize that performance measurement will help them manage more effectively and responsibly, a performance-track should be created. Not everyone should be eligible to pursue such a track when the track also means less oversight and case-specific review. In those cases, participation should be

limited to facilities with strong historic compliance records who prepare environmental reports that provide state-of-the-art environmental information using standardized metrics whenever possible and whose historic environmental emissions levels have been better than that which would have been required at minimum compliance levels. Specific qualifying criteria have yet to be developed for such a performance track, precluding the possibility of initiating a full-fledged performance-track approach in the near future. The initiation of such an approach could be greatly accelerated if those interested in pursuing the performance track would develop concrete proposals defining performance thresholds.

Perhaps the greatest challenge to the whole effort to implement a performance-focused environmental protection system is the political one. Efforts to create performance-focused environmental protection programs are being attempted in a highly charged political atmosphere. This raises the possibility that opponents of existing levels of environmental protection will try to use the reform effort to reopen questions about levels of performance standards. Any attempts to use performance-focused systems to justify relaxation of standards will threaten the viability of this approach and should be resisted broadly and vociferously by all proponents who appreciate the potential for gain a performance-focused, information-driven system promises. It also raises the possibility that as performance-focused experiments proliferate throughout large bureaucracies, the flexibility message will resonate more loudly than the message of improved results, resulting in gains in flexibility without counterbalancing gains in environmental outcomes, accountability, and transparency. This danger is real and warrants serious attention and discussion by management to ensure that staff members understand the need to link flexibility with effective accountability mechanisms and information verification and dissemination requirements.

Despite all these challenges, creation of a multi-faceted performance-focused environmental protection system holds great promise as a dynamic system that will generate continuous pressure for improved environmental quality by stimulating and rewarding innovation, strengthening accountability and transparency, and affording greater flexibility at the same time. It may be helpful, and certainly is fun, to envision what such a system might look like ten years from now:

-- Just as it now carries weather reports, the local press would carry daily reports about water and air quality, and monthly or quarterly reports showing environmental performance trends and inter-community comparisons.

-- When we go shopping, we would look at environmental performance labels that tell us both about the environmental costs generated during the production of a product, as well as the likely environmental operating costs associated with using it.

-- State and local governments would deliver an annual environmental report to every citizen reporting on current and historic environmental conditions in the jurisdiction using standardized, easy-to-understand environmental metrics. For states, this report would presumably be a subset of the data that make up the environmental component of the self-assessment prepared as part of NEPPS.

-- States would prepare daily water quality reports during swimming season for every beach and they would aggregate and analyze information on quality of drinking water for all water systems in the state in a format that can easily be understood by the public. Local newspapers would then publish the information.

-- The federal government would update its annual environmental report to include the performance measurements federal environmental agencies are producing under the Government Performance and Results Act of 1993, and would include state-by-state data, presumably using the NEPPS core performance measures for regulatory programs. In addition, companion sections would be prepared that presented focused analyses, some of which would be consistent from year to year and some of which would vary. (The Special Analyses appendix of the federal budget could serve as a model.)

-- The EPA would collect and analyze both state and EPA core performance measures and post the data and the analysis on the Internet. National program offices in the EPA would analyze the data to identify problems and bring them to the attention of the relevant regional office and state to be addressed in subsequent years' performance partnership agreements.

-- *Governing* magazine would carry an annual report on the comparative performance of state environmental agencies. *Government Executive* would carry an annual report on the comparative performance of the regional offices of federal environmental agencies.

-- Performance measures used by the EPA, the states, local governments, and companies would be expanded to include both equity and efficiency measures. The former would monitor environmental and health performance indicators of different populations. The latter would monitor factors such as cycle times and comparative costs of different strategies for achieving the same outcome.

-- Non-profit organizations would analyze the environmental performance of the EPA, states, local governments, and business and bring attention to progress and problems identified by the analyses.

-- Investment advisory services would include environmental analyses because the incentives for strong environmental performance would be strong enough (for example, by charging companies for waste generated per unit of product) that company-generated environmental costs would translate to the company's financial bottom line.

-- All publicly traded companies would generate and post on the Internet annual corporate environmental reports using standardized and normalized performance metrics developed by the Global Reporting Initiative or others. The metrics could be downloaded so that the federal government could undertake corporate comparisons, problem analyses, and progress reports.

-- Government and corporate managers would use monthly, quarterly, and annual environmental performance measurement reports as the basis for discussions with their managers and staff about priorities and activities. For states and EPA regions, these reports would align with measures incorporated into the Performance Partnership Agreements.

-- An "institute of best environmental management practices" would help government agencies and businesses assess the effectiveness of different environmental intervention strategies.

The list could go on and hopefully it will, in practice rather than just on paper. There is no right way to build a performance-based system. It will inevitably be a trial-and-error endeavor. What we have created is a system in its infancy with enormous potential and significant gaps. It is time to engage each other in a discussion about how to fill those gaps and build on the solid foundation that has been established.

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The Brookings Center for Public Management was founded in January 1994 as part of the Governmental Studies Program. Under the leadership of founding director John J. DiIulio, Jr., and current director Donald F. Kettl, both nonresident senior fellows in Governmental Studies, the Center seeks to understand and improve governance in the U.S. and abroad.

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ISBN 0-8157-5681-x