



## **Measurement that Matters: Cleaning up the Charles River**

**Shelley Metzenbaum**

**May 2001**

**RPP-2001-05**

### **Regulatory Policy Program**

**Center for Business and Government**  
John F. Kennedy School of Government  
79 John F. Kennedy Street, Weil Hall  
Cambridge, MA 02138

## **Citation**

This paper may be cited as: Metzenbaum, Shelley. "Measurement that Matters: Cleaning Up the Charles River." Regulatory Policy Program Working Paper RPP-2001-05. Cambridge, MA: Center for Business and Government, John F. Kennedy School of Government, Harvard University. Comments may be directed to the author by email at [smetzenbaum@aics.net](mailto:smetzenbaum@aics.net).

## **Regulatory Policy Program**

The Regulatory Policy Program at the Center for Business and Government provides an environment in which to develop and test leading ideas on regulation and regulatory institutions. RPP's research aims to improve the global society and economy by understanding the impacts of regulation and creating better decisions about the design and implementation of regulatory strategies around the world. RPP's efforts are organized around the following three core areas: regulation, markets, and deregulation; regulatory instruments; and regulatory institutions and policymaking.

The views expressed in this paper are those of the author and do not imply endorsement by the Regulatory Policy Program, the Center for Business and Government, the John F. Kennedy School of Government, or Harvard University.

## **For Further Information**

Further information on the Regulatory Policy Program can be obtained from the program's director, Jennifer Nash, Center for Business and Government, John F. Kennedy School of Government, 79 JFK Street, Cambridge, MA 02138, telephone (617) 384-7325, telefax (617) 496-0063, Email [jennifer\\_nash@ksg.harvard.edu](mailto:jennifer_nash@ksg.harvard.edu).

# **Measurement that Matters: Cleaning up the Charles River**

*Shelley Metzenbaum\**

*May 2001*

**RPP-2001-05**

## *Abstract*

On October 22, 1995, the Regional Administrator of EPA's New England office, John DeVillars, proclaimed to the press and all who would listen that the long-contaminated Lower Charles River - running between Cambridge and Boston out to the Boston Harbor - would be clean enough for swimming by 2005. Hooray, river advocates cheered, daring to dream for what had so long seemed impossible. Outrageous, skeptics cried. The sources of contamination to the river were not even known. How could the river be clean enough to swim in within ten years? Five years after the initial announcement, as this paper is being written, DeVillars' promise is becoming reality. By April 2000, the Lower Charles River was clean enough for boating 90 percent of the time, up from 39 percent in 1995. It was safe for swimming 65 percent of the time, compared to 19 percent five years earlier.

\* Visiting Professor, University of Maryland School of Public Affairs, and Director, Performance Management Project, John F. Kennedy School of Government

This paper is forthcoming in Donald F. Kettl, ed., *Environmental Governance: A Report on the Next Generation of Environmental Policy* (forthcoming, Brookings Institution Press, 2001).

## **Measurement that Matters: Cleaning up the Charles River**

Shelley H. Metzenbaum

*On October 22, 1995, the Regional Administrator of EPA's New England office, John DeVillars, proclaimed to the press and all who would listen that the long-contaminated Lower Charles River – running between Cambridge and Boston out to the Boston Harbor – would be clean enough for swimming by 2005. Hooray, river advocates cheered, daring to dream for what had so long seemed impossible. Outrageous, skeptics cried. The sources of contamination to the river were not even known. How could the river be clean enough to swim in within ten years?*

*Five years after the initial announcement, as this chapter is being written, DeVillars' promise is becoming reality. By April 2000, the Lower Charles River was clean enough for boating 90 percent of the time, up from 39 percent in 1995. It was safe for swimming 65 percent of the time, compared to 19 percent five years earlier.<sup>i</sup>*

\* \* \* \* \*

Where is the story here? An environmental agency leader announces an environmental goal. Progress toward the goal is measured. Progress toward the goal is made. Most citizens would assume that this is what environmental protection agencies and their leaders routinely do – identify environmental problems and opportunities, set goals for making progress, direct attention and resources to the problem, make and measure progress toward the goal, and revise the strategy if it is not working.

Unfortunately, as any employee of an environmental regulatory agency would tell you, this almost intuitive order of business is the exception rather than the rule. Despite major federal and state environmental laws that set environmental goals, the decisions and compromises that get made during passage and implementation of the laws often

weaken the link between agency activities and environmental outcomes. In implementing these laws, both regulators and regulated parties tend to focus on activities, and lose sight of the environmental outcomes sought. While these activity-focused compromises are often necessary and valuable in the short-term, they can lose their value over time if the focus on activities overwhelms attention to outcomes and the connection between the activity and the environmental goal gets lost in the implementation.

A few examples illustrate this problem. Perhaps the most striking example is the paltry state of water quality information in the U.S. To achieve rapid advances in water quality, the 1972 Amendments to the Clean Water Act concentrated on getting large waste water dischargers to install equipment meeting national technology standards.<sup>ii</sup> The law also included a back-up strategy calling for states and EPA to take additional actions to meet water quality standards if the technology standards failed to achieve them.<sup>iii</sup> Yet almost thirty years after passage of the federal Clean Water Act, water quality has been assessed for only 23 percent of the nation's river miles, 43 percent of its lakes, and 32 percent of its estuaries. Water quality data are available for only five percent of ocean shorelines.<sup>iv</sup> How can federal and state agencies possibly meet water quality standards if they do not even know how clean the waters are?

The system's concentration on activities seems to overwhelm its ability to clean up even those waters that have been assessed, only forty percent of which currently meet water quality standards.<sup>v</sup> The problem is that the program's early focus on controlling discharges from large sources through permits and routine inspection of permitted facilities has long consumed government attention. Maintaining this focus has left government agencies with limited additional resources to deal with other possible sources, despite the fact that the continued poor quality of assessed waters suggests that controlling only the permitted sources will be insufficient for meeting the standards. Government finally began to turn its attention to other sources in the late 1990's and early millennial years, primarily because environmental groups won a series of court cases compelling them to focus more on the performance-focused provision of the law.<sup>vi</sup>

At the same time, EPA and states have honed their ability to measure activities. They can report how many permits have been issued, inspections conducted, enforcement actions initiated, and penalties assessed for wastewater treatment permit holders. Only

one state, however, has actually attempted to track facility-specific and aggregate trends in discharges to the water to see if and how they have changed over time.<sup>vii</sup> More attention is paid to assuring that permits are renewed and inspections conducted than to tracking the individual and aggregate impact of permitted facilities on the environment.

Intergovernmental negotiations can also be extraordinarily activity-focused, not because of venal intent on the part of any individual or organizational unit, but because different EPA offices want to assure accountability for the grants they send states. Before changes were made in 1995 to make the system more performance-focused,<sup>viii</sup> each state was expected to enter into more than sixteen separate grant agreements with EPA. Each EPA headquarters program office that had grant money to send out to the states wrote a guidance document, instructing EPA's regional offices about the national office's priorities and the commitments it expected the regions to secure from the states. A few regional offices then wrote their own guidance documents, articulating regional priorities, to complement those of the national office. The issuance of guidance documents for the multiple grants was neither synchronized nor predictable. As a result, states found it impossible to use their federal grant money in any sort of strategic or coordinated manner to focus on environmental problems or deal with regulated facilities. They were too busy trying to accommodate the vagaries of the grant schedule and satisfy the intricacies of the numerous guidance documents. Instead, grant agreements focused on specific inputs and outputs to satisfy each annual guidance document, addressing details such as the personnel expenditure and number of permits and inspection states promised to conduct in return for federal funds. Little, if any mention, was made of environmental issues.

Massachusetts' experience trying to conduct multi-media (air, water, and waste) inspections of regulated facilities exemplifies the frustrations that would arise when states tried to break away from the focus on activities. Multi-media approaches to environmental protection have long been advocated by national policy and program leaders, in part to avoid the problem of having a facility inspector from say, the water program, recommend a solution detrimental to the quality of the air. Despite national policy urging multi-media approaches that focus more on environmental impacts, Massachusetts had to obtain prior approval from each of EPA's separate grant-giving

offices in the region and in EPA headquarters. It took Massachusetts more than three years to get federal approval to use federal funds for multi-media inspections.<sup>ix</sup> The extensive time required for negotiating environmental outcome-focused changes exhausts all but the most ferocious performance advocate.

Counting activities, per se, is not a bad idea. It is, in fact, good operational practice. Studying how activity information links to outcome information can help program operators distinguish effective intervention strategies from those that are not. Moreover, in most cases, activities originally established as targets are selected because of logical assumptions about their connection to an environmental goal.

The problem is that, over time, the activities become the goal themselves; the connection to the environmental outcomes they were designed to advance disappears. Offices and staff develop expertise in the activities, and focus on what they know they can do and what others expect them to do, rather than assessing the efficacy of their own activities.<sup>x</sup>

Moreover, those managing activities assume great risk when they opt to analyze the legitimacy of their original presumptions about the activity-outcome connection. Who will commend an agency that takes the risk of assessing its activity-outcome assumptions if it discovers that its assumptions were wrong, and the agency's past work has had little impact? While political supporters might be willing to defend an agency for objectively evaluating its own work, political opponents are likely to get more mileage lambasting the program for its ineffectiveness. The opponent will get the headline, decrying government waste, perhaps calling for a program's elimination; the defender, at best, will get a perfunctory one-line story noting his or her support for the bureaucracy. Not surprisingly, program managers might be wary of questioning activity-outcome assumptions.

Even political opponents have little motivation to press for objective evaluations of program effectiveness. They are just as well served by horror stories that serve their political needs as by carefully constructed evaluative analyses. Thus, unlike the private sector where competition forces companies to revisit their assumptions about the links between their activities (e.g., product quality, marketing campaigns) and outcomes (e.g., profitability), few government agencies or legislators see much value re-visiting the

activity-outcome link. It is politically safer to stay with the existing set of activities and not question original assumptions. .

Nonetheless, too dominant a focus on activities, and insufficient attention to the activity-outcome link steals time and resources away from measuring and making progress toward the ultimate objective of environmental protection agencies -- improving public health and the environment. Progress most likely gets made, but no one knows that for sure. Nor do they have the ability to assess when, where, and why the progress is occurring. If no one asks whether activities that have always been done continue to be effective, few resources will be available to tackle more significant problems requiring different sorts of intervention.

This problem is not a secret deeply buried within the bowels of government. It is broadly recognized. Numerous high-level, multi-stakeholder, bi-partisan groups have issued reports over the past decade sounding a common theme: the need for greater focus on environmental results and increased use of environmental performance information. The Enterprise for the Environment (E4E),<sup>xi</sup> for example, recommended that the existing system be more “performance-based, information-driven, flexible in the means of meeting standards, open and transparent, and strictly accountable.”<sup>xii</sup> Two Congressionally-funded studies by the National Academy of Public Administration similarly recommend results-focused, priority-based, information-driven management of the environmental protection system.<sup>xiii</sup>

In recent years, many changes have been adopted to encourage a more performance-focused, information-driven environmental protection system. In May 1995 the U.S. Environmental Protection Agency and leaders of state environmental protection agencies jointly committed to adopting a performance-focused environmental protection system, the National Environmental Performance Partnership System (NEPPS).<sup>xiv</sup> NEPPS was adopted to get EPA and states to use information about environmental and public health conditions and problems as the basis for determining annual (or bi-annual) work plans. Since 1995, thirty states have entered into some form of Environmental Performance Partnership Agreement (PPA).<sup>xv</sup> Recent studies of NEPPS implementation praise NEPPS for allowing and encouraging both states and EPA to focus more on improving environmental outcomes than had previously been the case. The studies also

find, however, that long-standing activity-focused routines have greatly hampered transition efforts.<sup>xvi</sup>

In 1995 EPA also initiated Project XL to encourage performance-focused behavior by the regulated, as well as the regulators. Project XL offers companies and localities willing to deliver environmental performance superior to that which would be achieved by full compliance with current laws and regulations flexibility from compliance with specific aspects of existing regulatory requirements. In one completed XL agreement, for example, the Intel Corporation commits to achieve continually declining environmental emissions at one of its facilities at a rate in excess of what might otherwise be expected and to reporting publicly on its progress. In return, Intel was granted the ability to operate without seeking new permits for every production process change.<sup>xvii</sup>

By 2000 eighteen states and EPA were experimenting with “performance track” systems. Although the programs vary, most seem to have two objectives. First, government seeks to reward regulated facilities with strong compliance and environmental track records and to encourage continuing and even stronger compliance and environmental performance in the future. Second, many performance-track experiments hope to motivate additional facilities to become strong performers in the future. To date, none of these efforts has made much headway defining the performance that strong performers must exceed, or finding incentives that are sufficiently enticing to invite a stampede of interest.<sup>xviii</sup> One significant impediment to performance-track efforts is the lack of generally accepted, facility-based environmental performance reporting standards.<sup>xix</sup>

Interest in performance-focused environmental protection is not limited to the governments of the United States. Both The Netherlands and Denmark require environmental reporting from selected industrial sectors. Indonesia rates the environmental performance of companies. Over 300 companies worldwide produce corporate environmental reports; most include quantitative environmental performance information.<sup>xx</sup>

Nor is interest in performance-focused governance limited to the environmental field. All but three of the fifty state governments require some sort of performance-based

budgeting.<sup>xxi</sup> 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.<sup>xxii</sup> Building on this effort, the International City/County Management Association and the Urban Institute began putting together a comparative performance measurement project for over 200 local governments in 1995.<sup>xxiii</sup>

At the federal level, the U.S. Congress passed the Government Performance and Results Act of 1993 (GPRA), mandating that all federal agencies set performance goals, measure progress toward those goals, and report annually to Congress on that progress.<sup>xxiv</sup> GPRA builds on a series of earlier efforts to shift the focus of federal agencies from inputs to outputs and finally to program results – real-world outcomes.<sup>xxv</sup> Several other countries have also mandated government-wide performance management, including New Zealand, the United Kingdom, and Australia.<sup>xxvi</sup>

Heightened attention to and the mandate for performance measurement at all levels of government in the U.S. and abroad reflect an unprecedented demand for improving the effectiveness of government programs. To some extent, the demand is driven by dramatic declines in citizen confidence in government over the past several decades.<sup>xxvii</sup> It is supplemented by the natural desires of those in government agencies who want to do their jobs well.

Performance management systems, and more specifically, the increased use of performance measurement to run government programs and achieve improved social outcomes, hold particular promise for improving government performance. At the most basic level, outcome-focused, information-rich government holds great promise because it lets government agencies know whether or not they are accomplishing what they want to accomplish. It gives them information that enables them to do their jobs better. It allows and encourages those who work for government agencies to be more innovative and effective. It gives them the motivation and flexibility to apply their intelligence, experience, and ingenuity to pursue social gains. It allows them to be public sector entrepreneurs who look for serious problems and develop creative approaches for fixing them if existing approaches are insufficient.

Performance measures are valuable management tools because they provide a useful language for assessing progress, communicating priorities, coordinating across

organizational units, and learning from experience. Further, they provide a useful language for aligning expectations with those outside government whose decisions affect an agency, and for influencing those whose actions affect social outcomes. Finally, performance measures can engage citizens in fixing problems, and can help citizens make smarter decisions when they need to make choices or purchases.

While numerous examples exist of organizations and individuals using performance measurement to drive or guide improved performance, most government agency managers and workers still seem to be using performance measures primarily to fill out mandated annual reports. Interest groups are not paying attention to the content of the reports because they find so little in them useful. Legislators and other agency watchdogs are primarily monitoring whether reports are getting done, rather than debating whether an agency is doing the right things or brainstorming with the agency how to accomplish its objectives more effectively. While there are a few noteworthy exceptions, most agencies that are using measures still seem to be focused on activity measures, rather than measures of “real world” outcomes.<sup>xxviii</sup> That is certainly the case for much of EPA’s GPRA reports.<sup>xxix</sup>

As suggested earlier, one reason why agencies may be collecting and reporting performance measures but not using them is fear. Some Congressional advocates of GPRA have very clearly stated their hope that agency performance reports will provide ammunition to eliminate agencies or individual programs. Only the most daring or fool-hardy government worker would deliver information that might contribute to the demise of his or her program, so many may intentionally, and very sensibly, try to deliver measurements that impart little useful information.

Another overwhelming problem is that few understand how performance measures can be used to improve government effectiveness. The politically appointed manager doesn’t understand how measures can help them manage, especially in a political context. Performance measurement reports don’t deliver re-election votes to incumbent presidents, governors, or mayors. They don’t keep back the press of cantankerous legislators. They don’t feed the media’s need for a hot story. The time-scarce political appointee is likely to think, “Why bother, except to satisfy the mandate?” Career managers and the workforce are even less enthusiastic. “We’ve seen this before,”

they say. “It takes a lot of time and doesn’t deliver much in return. All it does is provide ammunition for our opponents. The less time spent on it, the better. This too will pass.” The federal or state legislator interested in getting the agency’s attention doesn’t need performance measures. And few interest groups, with hopes of finding information to advance their cause, can afford the time to wade through the voluminous performance reports governments deliver.

With so few enthusiasts, performance measurement and management may be on the road to failure. Unless the people in or affected by government programs begin to appreciate the enormous potential of performance information, mandated performance measurement could easily become just another activity requirement, a part of the problem it is intended to fix. Measurement fatigue will set in before performance gains are realized, indeed before people understand what public sector performance management means.

To avoid that danger, performance measurement needs to be useful to those who generate the measurements, those who are measured, and those who manage the system being measured. At its most powerful, it should also be useful to those outside an organization who are concerned that an agency makes progress toward its mission.

That is what makes the pledge to make the Charles River swimmable within ten years – dubbed the Clean Charles 2005 initiative – so intriguing. It works. It transforms performance measurement into a powerful performance management tool that is useful to a politically appointed manager, the career program manager, the program workforce, the press, the public, and even regulated parties.

### **The Clean Charles 2005 Initiative as a Model for Performance-Focused, Information-Driven Environmental Protection**

The Clean Charles 2005 initiative exemplifies how outcome-focused performance measurement can be used to drive progress toward social objectives. Performance measurement enabled EPA New England’s Regional Administrator John DeVillars to drive gains in water quality in the Lower Charles River. Setting a challenging but achievable performance goal effectively communicated DeVillars’ priorities to those

inside the agency and beyond. It energized staff, enlisted external allies, and placed gentle but effective pressure on those whose behavior needed to change. It allowed DeVillars and his staff to monitor progress toward the goal on a regular basis, making mid-course corrections as necessary. It established a motivating, but not punitive, accountability mechanism. After nearly a half-century of water quality too poor for safe swimming, dramatic gains in the quality of the water in the Lower Charles are now being realized. The Clean Charles 2005 initiative provides a vivid example of how a government agency can use performance measures to get its job done.

The Charles River initiative was born out of two enforcement actions affecting the river. Ken Moraff, an EPA lawyer working on EPA's decade-long enforcement case against the Massachusetts Water Resource Authority (MWRA), was negotiating with the MWRA to control combined sewer overflows (CSO) into the river. MWRA was reluctant to make all the CSO investments EPA wanted, because it felt that its actions would not improve water quality enough to justify the investment, given all the other sources of river contamination. At the same time, Moraff was also about to initiate an enforcement action against the town of Brookline for illicit sewer connections to stormwater drains emptying into the Charles. Moraff took the Brookline case<sup>xxx</sup> to DeVillars for discussion and sign-off, and DeVillars asked him to put the case in its environmental context. He pressed Moraff to think about how resolution of the Brookline case would affect the quality of the river and whether the problems found in Brookline were likely to be evident in other communities. Without conceding to MWRA's argument that fixing its CSO problems was not going to make a difference, EPA decided to look more comprehensively for sources of contamination to the Lower Charles.

Many different aspects of the Charles initiative are instructive for those interested in a better environmental protection system, as well as for those trying to use performance measures to manage the public-sector more effectively. These include:

***Key Characteristics of Goals***

- simple, resonant, and understandable;
- outcome-focused;

- time and location specific;
- ambitious but feasible; and
- public.

#### **Key Characteristics of Progress Measurements**

- fresh (current);
- geographically and temporally frequent;
- outcome-focused;
- credible;
- audience-appropriate (multiple measures for multiple users); and
- readily available to meet needs.

#### **Key Characteristics of Way Goals and Measures are Used**

- regularly and interactively;
- inspire and inform;
- engage media;
- enlist allies;
- align expectations;
- build collaboration and shared learning; and
- strategy accountability that is motivating. not punitive.

#### **The Goals: Simple, Resonant, Outcome-Focused, and Public.**

Key to the success of the Clean Charles 2005 initiative is establishment of a simple goal that resonates with the public and an equally simple method for communicating progress toward that goal. In his initial announcement in October 1995, DeVillars articulated a clear goal: the Charles River would be clean enough to swim in by 2005. Six months after announcing the initial goal, EPA began reporting progress toward the goal using a simple grading system. On Earth Day 1996, EPA awarded the Charles River its first grade, a D. By Earth Day 2000, the Charles River had brought its grade up to a B, like a good student showing steady improvement. Because the grades are so easily understood and the Charles River so familiar to the local community, the story is

obvious for the media to report. What the Clean Charles 2005 initiative recognizes is that simple performance goals and progress measurements are more than just bureaucratic indicators to include in mandated reports. Rather, they are invaluable tools for communicating priorities and progress to staff, the media, and the public that, in turn, help managers drive continual progress toward the goal.

***Goals Motivate.*** Simple, resonant goals can be motivating for the staff. Bill Walsh-Rogalski, current head of the Clean Charles 2005 initiative, senses much greater staff energy and excitement associated with the Clean Charles 2005 initiative and another results-focused project he manages than with other agency activities. “People are charged up about getting to results. They are willing to take risks and feel empowered to get things done. It is more challenging and more productive. It gets into psychology rather than management.”<sup>xxxix</sup>

The Clean Charles 2005 goal motivates for several reasons. First, goals, per se, motivate. Secondly, the Clean Charles goal taps into the motivational force of personal values. And finally, the Clean Charles goal excites the public, which, in turn, can motivate agency staff.

Goals motivate because people have a natural tendency to try to meet goals set for them. Social psychology research on the motivation of individual workers finds that those given specific and challenging goals outperform those given a “ ‘do-your-best’ goal or no goal at all.”<sup>xxxix</sup> There are several reasons for this. “Goals provide us with a clear direction; inform us that we need to try hard; remind us that an end is in sight; and encourage us to think about the process of reaching that end.”<sup>xxxix</sup> Thus, the simple act of establishing a goal, even without linking it to rewards, tends to motivate improved progress toward that goal.

By honing organizational focus, goals can enhance organizational effectiveness. It seems reasonable to presume the motivational effect of goals on individuals will translate to the organizations for which they work. The exception would be if individuals within an organization are working toward conflicting goals. In that situation, one worker’s heightened motivation might offset that of another, wiping out the performance gain. If, however, organizational goals are clearly communicated, it increases the likelihood that workers and work units within an organization will focus on the

organization's goals rather than their own.<sup>xxxiv</sup> Essentially, goals play a communication and attention-focusing function that is especially valuable for larger organizations.

***Outcome Goals Motivate Even More.*** Goals can be even more motivating when they are outcome goals, what Walsh-Rogalski calls “results,” if they align with workers’ personal values or if they attract external attention that contributes to the motivational impetus.

Government agencies have the benefit of attracting many workers who want to serve the public and who believe in the general mission of their agencies. Setting an environmental performance goal allows environmental protection staff to do what they came to their agencies to do – improve the quality of the environment. When workers want to coordinate with others who share their values, a clear outcome goal not only helps individuals focus their own efforts. Also, as suggested above, it helps them reap synergistic returns from more focused collaboration with others.

Outcome goals also tend to motivate when they attract external attention, because external attention is motivating. Even many self-driven individuals find it useful to enlist external observers when they set targets. Indeed, Weight Watchers, Jenny Craig, and other diet-support companies are an entrepreneurial testimony to people’s recognition that public exposure is a motivator for meeting performance goals. In the same way, media attention can raise the level of excitement for and pressure on government staff working on a project. It is affirming to get a good story in the paper about one’s work, or to have a colleague from another organization offer commendation for progress being made. It can be even more affirming when that commendation is expressed as appreciation by friends and family for work that benefits the community. At the same time, it can be motivating to avoid the embarrassment of a story about the lack of progress toward a goal.

The sustained media coverage of the Charles River clean-up demonstrates that when government sets goals, it can be newsworthy. Boston’s newspapers covered the initial goal-setting announcement.<sup>xxxv</sup> They have given prominent play to the release of each annual progress report, covered major enforcement actions related to the goal,<sup>xxxvi</sup> and reported major non-enforcement actions, such as new grant awards, affecting the river’s water quality.<sup>xxxvii</sup> *The Boston Globe* dedicated a major Sunday magazine story to

the “Renaissance on the Charles,”<sup>xxxviii</sup> and ran an op-ed by one of their columnists on the subject.<sup>xxxix</sup> It has also reported stories of occasional incidents, as when unusually high bacteria levels appeared.<sup>xl</sup> More than small blips in the paper, these stories have consistently received good coverage.

The Clean Charles 2005 experience shows how managers can employ external attention as a way to encourage subordinates to pursue a goal seriously, and subordinates can use it to remind managers to deliver the resources needed to fulfill public commitments. The visibility of the goals, together with annual progress reports to the press, places a gentle but constant pressure on project staff to make progress. Should staff attention wane, another issue divert their attention, or an obstacle arise that proves enormously frustrating, the prospect of having to report the next year’s grade and show improvement keeps staff focused. Press attention also helps staff secure resources to move the project ahead. In numerous ways, setting a public goal and public reporting at predictable intervals assures that the agency remembers its environmental objective – improving the water quality of the river.

Media attention already drives behavior in government agencies, but not always in ways that promise greater program effectiveness. When government agencies establish outcome goals that are of interest to the media and commit to delivering on them by a certain time, and when they report progress toward those commitments, it increases the likelihood that media coverage will align with the agency’s objectives. It increases the chances that agencies will be able focus their time and attention on addressing problems and pursuing the opportunities they want to address, rather than losing time responding to a hot news story about incidental items with little relative impact on social outcomes. By setting resonant outcome goals that catch the media’s interest and reporting progress toward those goals, government managers essentially enlist the media’s assistance to make progress toward the goals.

***Key Characteristics of Effective Outcome Goals.*** What is it about the Charles River goal that grabs the attention of the public and the press, strengthening its value as a motivational tool? The goal of a “Clean Charles by 2005” is powerful because it is stated in simple terms the public understands; people feel a personal connection to it. Part of that familiarity derives from the fact that cleaning the Charles is an outcome goal with

real-world effects, and part deals with people's ability to imagine the benefits. In addition, the geographic and temporal specificity of the goal adds to its power, because it helps the public recognize their connection to the outcome and allows the agency to tackle the goal in "bite-sized" pieces.

The Clean Charles goal is easy for the public to understand because it is defined in language used everyday, rather than in words describing administrative processes. It is easier to appreciate the import of contaminated water flowing into the Charles during a heavy rain than to understand the relevance of a riverside community completing a storm water management plan. Similarly, contrast the resonance of a report that the Charles River water quality has risen from a D to a B to the flatness of the activity-focused information EPA published in its 1999 Annual Performance Report. "...[E]ven states," EPA reported, "submitted upgraded non-point source programs for a cumulative total of thirteen, meeting EPA's goal."<sup>xli</sup> While both outcome and activity goals may be useful, people naturally grab on to the former; the latter lands with a bureaucratic thud.

To cut through the cacophony of information bombarding the public, agencies need to articulate goals in ways that encourage personal connection. Too often, goals are defined in ways that make them seem irrelevant. Translating unfamiliar goals to more familiar terms greatly enhances their motivating value for both the public and agency staff. This, in turn, contributes to the advancement of the goal. The public is more likely, for example, to understand and relate to the threat of "increased numbers of severe weather events, including droughts, floods, heat waves, and heavy snowstorms," than to the unfamiliar notion of "climate change" and "global warming"

The Charles River goal especially grabs people's attention and inspires their hopes because it deals with an experience they know. They can imagine swimming or sailing in the river on a hot summer day. . Even those who don't swim, sail, or row can envision an occasional stroll or bike ride alongside a glistening Charles, so much more enticing than the dirty water the Standells "loved" in their 1966 song.

Another way the Clean Charles goal is brought alive is its localization. A specific and limited geographic boundary for a goal enhances its familiarity. DeVillars did not promise that all rivers and lakes in New England would be swimmable by 2005. Had he defined the geographic scope of the goal in such a vague and broad manner, chances are

no one would have believed him, or more importantly, paid attention.<sup>xlii</sup> By circumscribing the geographic scope of the goal to the Lower Charles River, it both made the goal feel more achievable and invited a strong personal connection from the river's abutters.

To illustrate the power of localization, compare how much more informative the Clean Charles 2005 goal is than EPA's national drinking water goal: "protecting human health so that ninety-five percent of the population served by community water systems will receive water that meets drinking water standards...."<sup>xliii</sup> EPA's Annual Performance Report informs the American people that ninety-four percent of the population served by community water systems in 1999 received uncontaminated water, compared to a baseline of 83 percent in 1994.<sup>xliv</sup> It is laudable that EPA's set an outcome-focused drinking water goal and is annually reporting its progress toward that goal. The same goal would be much more useful, however, if it included greater geographic clarity. Where do the people live who are served by contaminated systems? Of those, which systems – specifically – will be cleaned up before 2005 and which will remain in the still-contaminated five percent? Where are people who are not served by community water systems? Are any of them drinking from contaminated or untested water? If so, where do they live?

If, in its Annual Performance Report, EPA identified communities not meeting national standards, those targeted for improvement, and those not yet scheduled for attention, it would make its report much more useful for people living in those communities and their elected representatives.<sup>xlv</sup> Goals become more meaningful when broken down (disaggregated) in the component parts, such as geographic and demographic specificity, that make them more relevant to people.<sup>xlvi</sup> EPA, states, and localities could and should provide localized breakdowns in annual performance reports to their communities, presenting not only the aggregated goals and progress reports, but also how each of the totals break down to local goals. Geographic specificity greatly strengthens the value of performance reports for motivating change.

Limiting the geographic scope of the project not only makes the Clean Charles 2005 goal more "imaginable" for the public, it also makes it more manageable for the agency. As Ken Moraff, the original Clean Charles 2005 manager, put it, "The issue of

scale is important. We focused on improving water quality on a ten-mile stretch of the river. It is manageable. We can walk the Charles and look for pipes. The goal lets us deal with the problem in bite-size pieces.”<sup>xlvi</sup> Occasionally, the agency would extend its reach beyond the ten-mile stretch, but that occurred only when EPA made a discrete decision to extend its reach, keeping the overall project scope contained. The goal of cleaning the Lower Charles so that it was safe for swimming was unquestionably challenging, but it was not so enormous that it overwhelmed those working on it. Goals that are too broadly defined can be de-motivating because those working on the effort know they cannot make the goal even before they get started. Cleaning the Charles by 2005 was unquestionably a stretch goal for the agency, but it was a manageable one.

In addition to providing geographic detail, a specific and ambitious but realistic timetable makes a goal more resonant. The ten-year timeline for the Clean Charles goal is near-term enough that people can imagine enjoying the benefits within their own lifetimes. At the same time, the time frame is long enough that it indicates to the community that this is a serious effort, not just a political splash. Ten years provides a sense that there is enough time for genuine progress.

***Outcome Goals Allow Appropriate Action.*** Focusing on outcomes not only motivates; it also allows managers to manage. Instead of prescriptively specifying actions managers must do and resources they must use, it allows managers and their staffs to use their wits and experience to assess a problem and devise the appropriate solutions.<sup>xlvi</sup> Prior to the Clean Charles initiative, “EPA’s approach had been to address each water-quality problem separately. One program addressed combined sewer overflows, another, storm water rules—and so on. There was no coordinated look at the entire river and the problems contributing to poor water quality.”<sup>xlvi</sup> An outcome goal changes the way environmental agencies approach problems, compelling them to think – and constantly rethink – the nature and causes of the problem they are trying to fix. It invites them tap the full continuum of tools at their disposal.

Since the inception of the effort, the agency has used a creative mix of enforcement, inducement, education, and information tools to improve the quality of the Charles. Triggered by the initial Brookline enforcement case, EPA expanded its attention to include the other communities along the Lower Charles. EPA sent letters instructing

the communities to inspect their storm water pipes for illegal sewer connections. Numerous illegal hook-ups were found, including a 90-unit apartment building directly discharging into the water. Rather than focus on penalizing the communities, the region instead negotiated agreements with the communities to eliminate the illicit connections by 1997. While this approach did not add to the agency's traditional tally of enforcement penalties assessed, it consumed fewer resources per case, allowing EPA to pursue more cases and resolve the environmental problem more quickly. (Penalties were assessed against two communities which EPA believed had not adequately responded to the problem, but these penalties were in effect suspended on condition that the communities move quickly and aggressively to remove the remaining illicit connections, and in one case to implement storm water controls beyond those required by law.)

Perhaps more interesting, the agency did not stop its effort at this point as it would have done historically. It realized that it needed further effort by the communities to meet the 2005 goal, but that it lacked the regulatory authority to compel those efforts. So EPA offered an inducement to the communities to get them to adopt storm water management procedures. (Storm water management procedures are generally fairly “low-tech” but personnel-intensive practices, such as keeping debris out of sewers, adopting and enforcing “pooper scooper” laws, and removing junk from catch drains. They require significant changes in the way local governments handle their traditional public works functions.) To motivate the local governments to cooperate, EPA proposed to sign a memorandum of understanding with each community agreeing to waive the need to approve plans under forthcoming storm water discharge regulations, which some projected might cost the communities \$300-500,000 each. In exchange, EPA wanted the communities to commit to early and voluntary adoption of effective storm water management practices.<sup>1</sup>

Similar enforcement-led “stick-and-carrot” strategies were pursued with private sector organizations. In 1998, EPA sent letters to 200 probable polluters notifying them they had been identified as likely sources of problems (often leaking underground oil tanks and faulty storm drains) and giving them two months to fix the problems. During that two-month period, EPA and the state offered to help the polluters understand how to fix their problems, no questions asked. After that, however, if the problems were not

fixed, the sources could expect a visit from inspectors and lawyers.<sup>li</sup> The notification received headline coverage in the paper.<sup>lii</sup> Seeing the story, several consultants called EPA and requested the list. EPA was initially reluctant to provide it, but changed its mind. It realized that its small inspection effort had successfully leveraged an enormously effective deterrence and environmental benefit.<sup>liii</sup> In EPA's own words:

The compliance assurance strategy - developed as part of EPA's Clean Charles 2005 Task Force - is unique in a number of ways including:

- it is the first time EPA has combined both assistance and enforcement efforts in one coordinated approach, targeting those efforts to the protection of one particular natural resource;
- it is the first time EPA has notified a broad universe of facilities in advance that they will be subject to aggressive inspections as of a certain date.<sup>liv</sup>

When more traditional enforcement actions were needed, EPA did not hesitate to take them. The agency took a major enforcement action against Boston University (BU) in 1997 for oil spills to the river in 1992 and 1996. As part of the settlement, BU agreed to pay \$2 million to cover the cost of fines, clean-up, and environmental projects not related to the spill, as well as the costs of an independent audit of the university's environmental management practices. EPA also initiated enforcement actions against the town of Milford for illegal sewer connections.<sup>lv</sup> The enforcement actions not only imposed a financial burden on the violators. It also created a public relations problem. Milford, for example earned the headline, "EPA warns Milford of Fines, Suits Over Pollution of Charles River."<sup>lvi</sup>

These "stick-and-carrot" actions were just one part of a much broader effort that included more aggressive education, information, and technical assistance activities. EPA was one of several sources providing financial support to the Charles River Watershed Association (CRWA) to collect and disseminate data on the river's water quality.<sup>lvii</sup> The agency also established a hotline for citizens to report spills to the river, contributed \$1 million to scientific studies to help understand the sources of pollution to the river, and purchased the services of a consultant to provide technical assistance to localities on storm water management.

By 2000, EPA was digging deeper and more creatively into its toolbox. It decided to re-issue permits to six wastewater treatment plants on the Upper Charles, requiring reduced levels of phosphorous to control nutrient levels. It also ventured into

the development and testing of new technologies, funding a consultant to test structural controls for storm water and to experiment with a curtain-like barrier to try to filter suspended solids and bacteria at a former public beach on the Charles.<sup>lviii</sup>

Environmental and other government agency staff have long struggled with the best ways to connect their daily work with the outcomes they seek to accomplish. They have struggled with ways to measure the effectiveness of their activities. They have worried that compliance assistance and education will undermine enforcement efforts or the perception of a strong enforcement presence. Agency reformers have lamented that personal allegiance to organizational “stovepipes” seem to stymie agency reform efforts. The Clean Charles 2005 initiative demonstrates how starting with an outcome goal and organizing work around it – combining functional activities such as permitting, plan review, science, inspections, the threat of enforcement followed up by enforcement when needed – can push aside these concerns and barriers. Moreover, outcome-focused management does not require institutional reorganizations, which tend to consume enormous organizational energy. Much of it can be accomplished with greater use of teams with, as discussed further below, clear and strong authority granted to team leaders to manage those with functional specialization who can advance the goal, regardless of their office affiliation.

The reason the Clean Charles 2005 approach works so well is that the goal drives the selection of activities, not visa versa. This is in stark contrast to the way EPA and state agencies normally work, starting with activities – such as permit reviews or violation-seeking inspections – and deciding the most appropriate place to carry them out.

It is also worth noting that EPA’s focus on making the Lower Charles swimmable by 2005 not only helped the Charles. EPA was able to apply what it learned about sources of problems in the Lower Charles watershed to its clean-up of other rivers, as well. Ken Moraff observes that the Charles initiative:

helped the agency identify problems which were not being addressed by our existing programs. We had no idea that illicit connections were such a big problem. By focusing on the Charles we learned about generic problems, illicit connections and sewer deterioration that were much bigger than we had previously thought. This not only helped us clean up the Charles, but other rivers as well.<sup>lix</sup>

**Progress Measurement: Fresh, Frequent, Outcome-focused, Credible, Public, and Readily Available.**

The Clean Charles 2005 initiative not only sets a goal for cleaning up the Lower Charles. The Charles initiative regularly measures progress toward that goal, as well.

*Feedback Motivates and Illuminates.* The feedback provided by the progress measurement serves as a continuous motivational force for the Clean Charles 2005 team. The measurement is perhaps more valuable, however, for its ability to illuminate where progress is being made and where it is not, because the information helps the team figure out more effective ways to meet its objective.

As suggested above, the media's attention to progress reports on the Charles is undoubtedly a powerful impetus for improvement. EPA reports annually to an interested public on progress toward its long-term goal. The prospect of having to issue a report card each year for ten years, only one year apart, focuses EPA and the Charles team on finding sources of river contamination that can be eliminated both in the near-term and the longer term. That they are released at least once a year instead of just at the end of the ten-year time frame keeps the goal from being treated as some far-off date by those charged with managing the goal. That the high visibility progress reports are only once a year, instead of every month or every quarter, affords staff time to act strategically.

Social psychology researchers have found that, even without the motivational value of external attention, providing individuals with feedback on their performance motivates them. Indeed, private feedback motivates even without setting an explicit goal or linking goals to rewards.<sup>lx</sup> It motivates because people naturally like to do well. Researchers have found that it can be even more motivating when feedback is combined with goals, as is the case with the Charles initiative.<sup>lxi</sup>

Feedback not only motivates workers to work harder. It enables them to work more intelligently. "Key to our success has been comprehensive monthly sampling that lets us see how we are doing on a regular basis," says Ken Moraff. "The Charles River Watershed Association picked up monthly monitoring samples [almost] each mile. The whole effort was driven by the data."

***Key Characteristics of Effective Feedback Measures.*** What Moraff and the rest of the Charles River team discovered is the enormous power of fresh, frequent, outcome-focused, and credible feedback. Monthly monitoring reports at 37 points along the river's eighty-mile stretch make the measurement information "actionable." It makes it easier to identify when and where problems are arising, triggering follow-up questions. It also makes it possible to assess more quickly what works and what does not, inviting replication or discontinuation of specific intervention actions and programs.

A key characteristic of the data is their freshness and frequency. The monitoring reports contain fresh data; that is, EPA and the public receive the measurement information soon after the measurements are taken. The data are also collected at a relatively high temporal and spatial frequency; measurements are taken at frequent time and geographic intervals.

The frequency of the monthly monitoring reports allow EPA to pinpoint sections of the river (between monitoring points) likely to have illegal sewer hook-ups into storm drains or other problems. The data enable EPA staff to detect a problem near enough to when and where it happened that it limits the likely causes of the problem and makes it easier to find and fix. While the data don't explain why a problem occurs, it prompts staff to ask "why" soon enough after the occurrence that it increases the chances of finding the answer. For example, one time a monitoring report showed a particularly high bacteria count at a City of Boston sewer outflow site. EPA called the city to look at its sewer maps. After studying the map with the city, EPA and city personnel went into the field where they found a blocked sewer line. The city fixed the problem. Fresh and frequent performance measurement supports more accurate identification of the causes of river contamination.

The freshness and frequency of the monthly reports also make it easier for the agency to assess the effectiveness of different strategies to fix problems, because the monthly measures provide relatively quick feedback about whether or not an intervention worked. Following the correction of the blocked sewer in Boston, the monthly readings showed the bacterial surge had been eliminated. Similarly, the agency was able to monitor whether its efforts to eliminate illicit hook-ups to sewer systems had the intended environmental effect.

The Boston action is noteworthy not only because it illustrates how helpful frequent data reports can be, but also illustrates how outcome-focused feedback changed the way EPA reacted to the problem.<sup>lxii</sup> Governed by an activity-focused mentality, EPA would traditionally have contemplated an enforcement response to this problem. Because of the relatively trivial nature of the legal violation and the costs associated with enforcement cases, it might never have initiated the action, leaving the environmental problem in place. Instead, EPA worked with the community to eliminate the problem. (Had the city shown a past pattern of serious violations, EPA might have decided the situation warranted initiating an enforcement action.)

Monthly monitoring reports are often not the only type of feedback information needed to inform an outcome-focused effort, especially since the cost of measuring every potentially important parameter of water quality on a monthly basis can be prohibitive. In the case of the Charles River, the monthly information was complemented by data from other sources. The MWRA monitors the Lower Charles twice a year for a month-long period, and the state of Massachusetts tries to gather information on the river every five years as part of its watershed management program.<sup>lxiii</sup> Those working on the Charles clean-up recognized that still other data were needed to consider several unanswered questions about the contribution of upstream and storm water flows to the lower basin. As explained below, the way the Charles clean-up was being managed prompted the United States Geologic Survey (USGS) to agree to collect and analyze some of the key missing information.<sup>lxiv</sup> Outcome-focused performance measurement, at multiple levels and for multiple purposes, has been key to the success of the Clean Charles 2005 initiative.

To date, no one has questioned the credibility of the data. Several characteristics of the way the measures are collected and presented contribute to its credibility. Should anyone doubt the EPA's claims about progress toward its own goal, collection of most of the data by independent third-parties, CRWA and USGS, boosts data credibility. Also, the multiplicity of parties conducting water quality sampling helps those working on the project cross-check the accuracy of their data. Although none directly overlap, wildly inaccurate samples would be readily apparent.

Easy access to the data also strengthens their credibility. Those who want to know more about the river's water quality can access web sites on the Charles maintained by EPA, USGS, and the Charles River Watershed Association. At the EPA website, they can see the underlying analysis that informs the annual grades, to see how the grades EPA gives track the trends in water quality.<sup>lxv</sup> At the CRWA website they can read the monthly monitoring reports,<sup>lxvi</sup> while the USGS website provides real-time and trend data where tributaries feed into the river.<sup>lxvii</sup>

***Key Characteristics of Effective Performance Measurement for Public Use.***

Although the monthly monitoring reports and supplementary studies are extremely useful for stimulating and answering questions by federal and state environmental management staff about the causes of water quality problems and how to fix them, they are less meaningful for the general public. The average Jane and Joe have no idea how to interpret fecal coliform counts and phosphorous levels and they don't want to know. They simply want to know if the river is clean enough for swimming and boating, and whether or not their tax dollars are being well spent.

The public wants performance information that helps it make decisions and choices on a daily basis. The Charles River Watershed Association recognizes that, and collects and packages some of its information accordingly. During the summer, it supplements its monthly monitoring data with daily monitoring of sections of the river heavily used by boaters. It then translates that information for easy public consumption. It posts a colored flag at every boat house along the Lower Charles, where the boaters need the information, as well as on the CRWA website. A blue flag signals that the waters are clean enough for safe boating. A red flag warns that they are not. This simple "point-of-use" information delivery mechanism not only guides individual decision-making, it reminds water enthusiasts that the health of the river is not a sure thing, inviting continued community vigilance.

EPA also translates the detailed water quality monitoring information environmental agency staff use to a format more digestible by the public through its annual report card. To do that, it rolls up the monthly monitoring data into an annual grade. The simplicity of the annual grade makes it a powerful tool for communicating progress to the public, which in turn makes it a valuable but gentle motivation tool for the

agency. For those familiar enough with river water quality issues to be concerned about the extra levels of contamination stirred up by heavy rains, it breaks the annual information down into a few sub-categories. It reports the percentage of time the Lower Charles meets state standards for wet weather flows and dry weather flows, and under each of those headings, for boating and swimming standards.

In 1998, EPA began testing a new way to aggregate the detailed performance information it had, with hopes of accelerating river clean-up through the motivational value of public disclosure. It began aggregating the performance information it collected by jurisdiction so it could issue grades for each town. As reported in the local paper, EPA gave “a passing grade” to communities on the river east of Dover, “except for Weston, which got an F for failing to file an EPA-mandated plan for improving storm water runoff by sweeping streets, cleaning catch basins, and removing illegal sewer hook-ups to storm drains.”<sup>lxviii</sup>

***Costs of Measurement.*** Readers may protest that while the Clean Charles 2005 initiative offers a great example of how measurement can be useful, measurement is expensive. The Charles initiative suggests that cost may not be as prohibitive as feared. The CRWA’s monthly sampling of the full eighty miles of the Charles River relies heavily on trained volunteers who follow quality-controlled protocols. The monitoring costs \$3500 a month, with the laboratory work provided at no cost by the MWRA.<sup>lxix</sup> Also, as the Charles initiative demonstrates, it is not necessary to measure everything at once. Monitoring that is fresh (current) and frequent both in time and spacing can immediately help regulators spot specific problems, if they exist. Monitoring all communities at the same time may indeed require more funds than the public is prepared to provide. Decisions can be made about which areas get concentrated attention first, and which will follow.

Moreover, performance measures do not have to be fancy or costly to be useful. Former Maryland State Senator Bernie Fowler demonstrated how simple the first step toward performance measurement can be. Every year since the 1950’s, Fowler has walked into the Patuxent River to measure how deep into the water he can go and still see his sneakers. The “Bernie Fowler Sneaker Index” gets reported annually in the paper and is tracked by the Chesapeake Bay Program.<sup>lxx</sup>

Increased reliance on outcomes and performance measurement to drive environmental decisions can contribute to increased generation of useful performance measures. Raising public expectations for information about the quality of neighboring water bodies, especially in the age of the Internet, may raise public support for funding water quality measurement. Many citizens are likely to be surprised, for example, to learn the quality of their local waters are not regularly tested, if tested at all. When they discover how little is known about the safety of their local river, it may increase popular support to pay for water quality monitoring, especially if the demand for recreational use of local waterbodies increases. At the same time, once the EPA regional office set its sights on cleaning up the Charles, the generation of reliable measurements of river water quality became essential. In several enforcement cases involving actual or potential harm to the river, EPA expected the violators to pay some of the costs associated with more accurately monitoring the environmental effects of their actions."<sup>lxxi</sup>

In sum, the Charles River performance measures are enormously useful because they are fresh, frequent, outcome-focused, credible, and readily accessible. They are useful because they are available in bite-sized pieces and can be rolled up into bigger chunks to meet the need, whether to inform a boating decision or motivate a jurisdiction. The performance measures are not perfect, but they are affordable, and despite their imperfections, they are very successfully guiding progress toward cleaning up the river.

### **Engaging the Public, Other Government Agencies, Regulated Parties, and Oversight Bodies.**

As noted above, grabbing the public's attention motivates those inside the agency. Awaken the public's interest by setting a resonant goal does more than motivate staff, however. It helps enlist and engage the ideas, assistance, and cooperation of those outside the agency in a way that advances progress toward the goal itself. It can also focus the efforts of the interested public on a shared goal, allowing the agency to capture synergistic gains across organizations. To tap the energies and expertise of those who can or need to help, the agency must manage its outreach effort skillfully, including both the way it works with its partners and the way it reaches out to the media. This section

looks at how the Charles River goal and performance measurement helped engage ready and reluctant partners.

Prior to the Clean Charles 2005 initiative, no one at EPA felt responsibility for improving the river's water quality although everyone presumably cared about it. Outside organizations interested in working with the agency found few opportunities for genuine cooperation. The Charles River Watershed Association had long been looking for better ways to work with EPA to clean the Charles, but in a Kafka-esque way could not find the right EPA person or organizational unit with whom to collaborate.

By the simple act of articulating the Clean Charles 2005 goal and assembling a team to manage the goal, EPA opened a door for collaboration with the community that had not previously existed. The Charles River Watershed Association and seven other non-profits long committed to improving the river's water quality came running through the door as soon as it was opened.<sup>lxxii</sup> The CRWA provided one of the most essential elements of the initiative – monthly water quality data.<sup>lxxiii</sup> A second interest group helped build political support in one community, allowing local political leaders to adopt more aggressive storm water management practices.

Publicly establishing a simple, resonant goal also simplified collaboration with other government agencies. The Massachusetts Executive Office of Environmental Affairs (EOEA) and Department of Environmental Protection (DEP) already had a watershed plan for the Charles River basin.<sup>lxxiv</sup> Cleaning the Charles had long been a goal for the state. Unlike the Clean Charles 2005 initiative, however, the state had never set a specific goal and timetable for the Charles. As part of the initiative, EPA and the state agreed to split up responsibilities on the river, with EPA focusing on the Lower Charles and the state focusing on the Upper Charles.<sup>lxxv</sup> Among other contributions, the state provided additional monitoring information, participated in the review of combined sewer overflow plans, and provided loans for local water pollution abatement projects.

By setting a goal and measuring progress toward it, observes Kevin Brander, a state agency official, "EPA made people more aware of the efforts to clean the Charles, and they seemed to embrace it more. Gathering stakeholders helped bring more money to the Charles, because they made their presence felt through public forums. They also seemed to become more active in providing comments in the regulatory processes. We

saw a higher level of participation.” Moreover, notes Brander, “while work on the Charles speeded up, it did not seem to rob any resources from the other basins.” Also, he says, increased attention to the Charles brought “praise to communities that did expensive work.”<sup>lxxvi</sup>

The Massachusetts river basin coordinator invited the USGS to join the effort. Peter Weiskell, the USGS official heading the Charles study, reports that the Clean Charles 2005 initiative “made a big difference in terms of our coming in because of the high level of commitment to this effort that EPA showed.” Further, Weiskell believes, setting a goal and issuing an annual grade “absolutely helps the effort to clean the river because getting our water bodies to meet standards won’t happen if you just focus on a few high level actions. That is not the nature of the problem. It is much more widespread and diffuse, so the educational process and raising of consciousness in the community has to go on. This is a very good way to go to get our rivers to meet standards.”<sup>lxxvii</sup>

Interest in meeting the Charles River goal is so high that others have also expressed a readiness to help. According to CRWA staff, the Army Corps of Engineers has volunteered support if it can help in some way.<sup>lxxviii</sup>

Not every government agency has joined the Clean Charles initiative voluntarily. As noted earlier, the Massachusetts Water Resources Authority (MWRA) was involved from the beginning because they were under an enforcement agreement with EPA to fix the combined-sewer overflows spilling into the river. Despite the initial reason for its participation, the MWRA has been a full partner in the effort to clean the river. It provided initial financial support for CRWA’s monitoring efforts, and continues to analyze the monthly samples CRWA draws from the river on a *pro bono* basis. In EPA’s press releases, it credits MWRA for numerous actions it has taken to clean the river, including sewer separation projects and upgrades to treatment plants.<sup>lxxix</sup>

It is instructive to consider the way focusing on an outcome goal and measuring progress toward it may have led to an expanded and enriched scope of enforcement negotiations between EPA and the MWRA. As noted earlier, MWRA wants to implement a less costly and somewhat less protective CSO improvement than EPA has sought, arguing that the marginal improvement realized from the more costly option EPA

wants does not justify the additional cost, especially given the other sources contaminating the water. Focusing first on the outcome led EPA, MWRA, and the state to contribute funds to get USGS to conduct a study that could provide more relevant information. When the new data are analyzed, they will lead EPA and MWRA – under close scrutiny by multiple agencies and several very active interest groups – to settle on the best strategies for achieving the desired goal. If the data suggest that CSO changes the EPA wants will make a significant difference in overall water quality, MWRA will be under significant public pressure to make the changes. If the data suggest otherwise, EPA and MWRA, together with others at the table, are likely to roll up their sleeves to try to figure out what strategies would work better.

The cooperation of other local governments along the river also necessitated a bit of stick-and-carrot persuasion. Over time, however, EPA is finding that the popularity of the goal helps convert what could be an ongoing antagonistic relationship into genuine collaboration. In some cases, it even appears to help local elected officials find the political support they need to authorize new expenditures. In the view of the current Charles River coordinator, Bill Walsh-Rogalski, “Communities are there because they are under some legal obligations,...but they have bought into the goal.” Moraff concurs. “It was much easier to work with local officials because of the high visibility and popularity” of pursuing the Charles River goal.

EPA has also used the visibility of the goal to compel the participation of private sector parties whose actions affect river quality. A key target has been the numerous universities along the river. Just the week before the annual Head of the Charles Regatta, EPA announced punitive action against Boston University, “the largest ever federal environmental penalty against an education institution.”<sup>lxxx</sup> Harvard received far more complimentary coverage when it voluntarily launched a program to collect and treat storm water from campus runoff.<sup>lxxxi</sup> By 2000, a group of 16 landowners along the river, including five universities, had formed the Clean Charles Coalition, “a voluntary association of industries, academic and research institutions...that have joined in support of a fishable and swimmable Charles River by 2005....”<sup>lxxxii</sup> The Coalition plans to provide mentoring assistance to help smaller sources of river pollution reduce their loads to the river.

In addition, local teachers have begun to get involved, working with a local non-profit to create and test a watershed science and biology curriculum to test at eight area high schools.<sup>lxxxiii</sup>

Environmental progress often depends on the cooperative efforts of numerous parties working together. The Clean Charles 2005 initiative demonstrates how the establishment of a clear and resonant goal and timetable, complemented by credible outcome-focused performance measurement, can be a powerful tool for enlisting and engaging the cooperation of those parties in the achievement of the goal.

Finally, EPA implicitly used its performance goal to clarify expectations with agency oversight bodies. By articulating his goal so publicly, DeVillars implicitly invited public and legislative support or opposition. If legislators did not like his goals, they could exercise their powers to stop him. If they did, they could join him at public events concerning the river, or even create their own.<sup>lxxxiv</sup>

In sum, EPA New England uses performance measurement to communicate to the public what it wants and needs to know. Performance information disseminated via the media, on-line, and at the point-of-use informs everyday decisions. It also invites the community to react if it feels the wrong goals have been chosen, progress is too slow, or the resources to address the problem are insufficient. Measurement is used to gauge success, communicate priorities and progress, inform decisions, stimulate inquiry, invite collaboration, build trust, motivate, influence allocation decisions, and stay focused on achieving the goal: a swimmable Charles River in 2005.

### **Management Matters.**

If the media had not given so much coverage to the Clean Charles 2005 initiative, the agency's efforts to enlist and engage others in the effort would undoubtedly have been far less successful. Media attention to the water quality of the Charles was no accident; it resulted from skillful and intentional management by the region. EPA New England's approach to the Clean Charles 2005 goal provides an excellent model of successful performance management, using performance measures to drive performance gains both by "managing the measurement message" and "managing the measures."

***Managing the Measurement Message.*** Public managers seldom welcome press attention to performance measurement. Most are aware of the media's increasingly negative coverage of government,<sup>lxxxv</sup> sometimes through all-too-painful personal experience. As noted earlier, a reporter's search for the sensational story can easily turn performance reporting into a distraction-generator, diverting senior management attention away from improving agency performance to correcting erroneous stories. As a result of those fears and a failure to appreciate the value of performance measurement information, many government leaders make no effort to interest the media in the story, and, the media, in turn, pay little attention to goal-setting announcements and performance reports.

A few more sophisticated agencies are beginning to realize that, at a time when people have so little trust in government, the release of performance measurement information can be a story in itself. Leaders of these agencies, not unlike corporate leaders talking with investment analysts and the trade press prior to releasing their quarterly and annual reports to the public, are taking the time to brief the media prior to the release of their performance information. In return for their efforts to educate the media about the meaning and import of the information in their performance reports, several have been rewarded with favorable stories.<sup>lxxxvi</sup>

The EPA New England's Clean Charles 2005 initiative suggests further steps government agencies can take to work with the media on government performance information. The initiative was carefully and intentionally structured to encourage a high level of media attention to tap both the motivational and the invitational benefits of publicity about the goal and the progress reports.<sup>lxxxvii</sup> It suggests a model for how agencies can use performance goals and performance measurement to attract media attention to the government's and, more importantly, environmental performance.

The region's skilled management of media outreach included: a goal that tapped into citizen dreams, discussed above; predictable announcements of news events timed to correspond to probable news windows; and, whenever possible, an appropriate visual setting for the occasion.

EPA New England announced the Clean Charles 2005 goal coincident with the annual Head of the Charles Regatta, an international rowing event that draws nearly 5000

rowers and 300,000 spectators to the river.<sup>lxxxviii</sup> The goal-setting event was set at Magazine Beach, a convenient location for Boston media outlets to reach the day before the Regatta, when out-of-town-visitors interested in the river swarm the area. Announcing the goal just before the event provided a natural news story that would interest locals as well as visiting rowers and friends. The setting of the press event provided a wonderful human angle to the story; local residents, some attending the event, had swum at the beach as recently as the 1950's. Local elected officials participated in the press conference, as did the Charles River Watershed Association, making it easy for the press to get quotations from a diverse group of sources.<sup>lxxxix</sup>

To get coverage of its annual progress reports and other stories, EPA is following a similar formula. It uses the news value of a report card, a problem, or a noteworthy contribution to create a story. It times the story well, releasing the annual report card on Earth Day. Additional stories are released just prior to the Regatta every year, which conveniently falls six months after Earth Day. In 1998, for example, "on the eve of the weekend Regatta" as the press account begins, EPA announced a series of grants to improve river monitoring and real-time posting of river water quality information on the Internet and to help local communities better contain contaminated storm water running into the river.<sup>xc</sup> A simple, resonant measure linked with some "news-worthy" event, sensitive timing, and good "visuals" have successfully attracted media attention to this government performance story.

EPA New England is not the only government agency to discover the potential for intentionally enlisting the press as part of its performance accountability system. When the Florida Department of Environmental Protection (DEP) issued the DEP's first-ever Secretary's Quarterly Performance Report, the Secretary notified her division chiefs that they should "prepare a one page course of action . . . [for] each of the focus areas noted" to be shared with the Governor and the press.<sup>xcii</sup>

Mayor Anthony Williams of Washington, D.C., elected as a management reformer in 1998, is also experimenting with enlisting the press as part of his feedback, motivation, and accountability system. Williams inherited a government with weak management controls and information systems. To address this problem, he took a bold step soon after he became mayor, announcing specific goals and timetables for the

District government. For example, he established a pothole hotline and committed to fixing all reported potholes within 72 hours. Not surprisingly, local citizens called and wrote to the paper when potholes were not filled within the target time frame. This citizen feedback enables the Mayor to learn very quickly when his government is not working as well as he wants it to so he can tackle problems before they become too large.<sup>xcii</sup> Based on the success of his first round of public performance goals, Williams has followed up with a second. In April 2000, he released public scorecards, posted online,<sup>xciii</sup> committing himself and each of his deputy mayors to meet specific goals by specific dates.<sup>xciv</sup>

What the Charles River and these other examples show is that savvy government managers can enlist the assistance of the media in advancing public outcomes by selecting performance measures that resonate with the public; reporting on them regularly and understandably; timing progress reports and goal-related news to coincide with favorable news windows; and engaging the public as the government's watchdog should it stray from its goal. Moreover, it demonstrates how attracting media coverage can help a government agency enlist and engage ready and reluctant partners who can contribute to better environmental quality.

***Managing with the Measures.*** Picking simple, resonant, outcome-focused goals and progress measurements and getting publicity about them will not, by itself, lead to goal attainment. For measures to drive performance gains, managers must aggressively “manage the measures.” They must become performance managers. Successful performance management requires senior managers to identify those goals that are their top priorities, repeatedly signal the continuing priority placed on those goals, regularly monitor progress toward the goal, and work interactively with goal managers to explore the most effective strategies for making progress. In addition, the top manager needs to designate a “goal manager” and project team responsible for driving progress toward the goal, and support that manager and team by providing personal time and assuring the internal and external resources needed to implement the strategies. Moreover, agency managers must skillfully manage the enlistment and engagement process to influence actions that can affect the outcomes over which agencies lack direct control.

The region's top leader, the Regional Administrator, frequently talked about the Charles goal inside and outside the agency, regularly monitored progress, and interactively explored with the staff and the community best strategies for improving the river's water quality. By setting a measurable goal with a specific timetable, DeVillars not only signaled the priority he placed on the goal, he assumed public accountability for delivering on the promise. He re-affirmed his commitment and accountability each time he personally announced the annual grade of the river's progress. Assuming personal risk for attaining a goal indicated to those inside and outside the agency that the initiative was more than a press event; it was a top management commitment.

DeVillars managed the project in a highly interactive manner. He would frequently send staff notes with news clips and suggestions about the project, and would meet with them as needed to brainstorm strategies.<sup>xcv</sup> When DeVillars asked staff about the project's progress, he wanted more than progress reports. DeVillars and the Charles River team would debate intervention options likely to be most fruitful, given the information available. Walsh-Rogalski recalls one such discussion where DeVillars wanted to pursue one strategy and the staff strongly preferred another option. After considerable discussion to examine the reasoning, DeVillars deferred to the staffs' judgment, comfortable with their analysis and reasoning.

DeVillars' interactive approach was a small-scale version of a highly successful interactive performance management system used by former New York City Police Commissioner, William Bratton, to achieve dramatic reductions in crime rates. Armed with fresh, frequent, detailed crime statistics and activity information broken down geographically and showing week-to-week, month-to-month, and yearly trends, Bratton and his management team instituted regular meetings with precinct commanders to discuss their proposed intervention strategies. Each precinct commander was expected to be thoroughly familiar with statistics for his or her own precinct, and to have developed a cogent action plan based on the information. The meetings were also used to tap the expertise of other precincts commanders who might have tried similar tactics in their precinct, and to secure assistance from central office units, as needed.<sup>xcvi</sup>

As indicated earlier, DeVillars initially turned to Ken Moraff, an enforcement lawyer in the agency already working on the Charles River case, to manage the Clean

Charles 2005 project. Moraff was already a staff assistant to DeVillars and assumed the additional role of team leader for the project. The Charles River project team was actually quite small. It included Moraff, a compliance engineer with whom Moraff had been working on the MWRA case<sup>xcvii</sup>, and an agency expert on storm water.<sup>xcviii</sup> Additional staff has been added as needed. When Moraff was promoted to head the agency's enforcement office, DeVillars turned to William Walsh-Rogalski, associate director of the region's site remediation program responsible for policy issues, to head the team.

There are several especially noteworthy aspects of DeVillars' designation of Moraff and Walsh-Rogalski as the Charles' team leaders. The first is simply the decision to designate someone to lead the Clean Charles effort, essentially serving as the "goal manager." The second is the selection of someone with significant experience within the agency to take on the job.

Designating or identifying a "goal manager" may seem an obvious and trivial step, but it is a management task too often overlooked. As with so many large (government and private) organizations, EPA depends on an extensive field staff to deliver on its mission. Moreover, under many of its laws, EPA delegates most program implementation responsibilities to states, maintaining responsibility for federal oversight and direct intervention when circumstances warrant. When EPA sets its national goals, it is assumed that each national program manager serves as a goal leader. Unfortunately, little effort is made to show how the national goals "cascade down" to regional and state goals and how they "roll back up" to the national level. Thus, headquarters, field staff, and states have a limited sense of connection to or responsibility for meeting national goals. Everybody is responsible, so nobody is responsible. As Ken Moraff puts it, "It is a lot more comfortable when you have broader goals that a lot more people are responsible for, because if you don't make it, it's nobody's fault. With the Charles River project, we really put ourselves on the line." Because DeVillars assigned them the job, Moraff and Walsh-Rogalski knew they and the Charles River team were responsible for achieving the goal. Knowing so clearly where the buck stops pushes them to make progress continually, staying focused on the score and constantly re-thinking their game strategy.

In selecting his goal manager, DeVillars chose wisely by tapping individuals deeply familiar with EPA's culture. Moraff and Walsh-Rogalski both have many years of experience working in the EPA regional office. This helped them figure out how to tackle the cultural shift from activity-focused management to outcome-focused management. They brought to the pursuit of their goal an understanding of the jurisdictional problems they would inevitably encounter working outside the traditional patterns of the system, allowing them to anticipate and address problems before they arose or at least recognize a problem when confronted by it.

DeVillars and the Charles River team have also taken great care managing the process of collaboration. EPA convenes its partners on a quarterly basis. The meetings are used to encourage learning across organizations and brainstorm strategies for action. Partners review the data being gathered and discuss what the data suggest and the questions they raise. The meetings provide a forum for local governments to share what they are learning about eliminating illegal connections and implementing storm water management activities. The meetings also provide an opportunity for coordination. While he was Regional Administrator, DeVillars attended many of these meetings. Sometimes, he served as cheerleader, motivating everyone with reports of the progress being made. Sometimes, offering his ideas and resources, he challenged others to contribute theirs. On a few occasions, he used the "bully pulpit value of quarterly meetings...for the areas where EPA lacks legal control."<sup>xcix</sup>

There has never been a separate budget dedicated to advancing the Charles River goal. The region and its partners draw funds from whatever sources they can find to get the work done. When additional resources have been needed, the staff has turned to the Regional Administrator to find the needed support, whether from internal funds or outside assistance. The staff has made no attempt to secure a dedicated budget, sparing it the time needed to engage in the formal budget process. Instead, the team has opted to focus on developing and implementing strategies to reach their goal. Performance measurement, in this case, directly informs resource allocation decisions being made by the Regional Administrator, but there is no formal connection between the measurements and the budget.<sup>c</sup>

That there is no discrete budget for the project is noteworthy for several reasons. It requires that the larger organization have discretionary or flexible funds available for projects such as this. Also, many discussions of performance measurement and management assume a direct link between performance results and the budgeting process, yet no formal link was ever made or implied with the Charles project. Funds have been found to meet specific needs, as they have arisen.

DeVillars' leadership has been key to the success of the Clean Charles 2005 experience. This is not surprising. Nearly every book, article, or report on effective performance measurement and management asserts that senior level management attention is an essential ingredient. Unfortunately, senior management attention to performance measures is often the exception, rather than the rule. Agency leaders don't seem to understand how outcome-focused performance management can help them.

What the Clean Charles initiative shows is why agency leaders ought to pay more attention to performance management. The establishment of a resonant goal with a specific timetable helped DeVillars win press coverage and popular support for his priority. It helped him communicate his priority to the organization quickly and with minimal organizational trauma. Organizational leaders have few tools as effective as goals and performance measures for moving their priorities. In theory, they can use the annual budget for this purpose. In practice, however, budgets are ill-equipped for the job. Budget decisions occur only once a year, and there is an enormous lag time between an agency leader's decisions about funding priorities and fund availability. The lag makes it hard to maintain the momentum for change. Moreover, agency leaders don't always get their priorities funded. They first need to fight for their budget priorities within the executive branch. Assuming they survive those battles, they then need to win support from the legislature. Even after budgets are appropriated, they often still have difficulty tracking that actual spending aligned with intended spending. Agency leaders can communicate priorities and drive change more immediately and effectively by setting outcome goals, designating goal managers, regularly tracking progress toward those goals, and engaging managers interactively to explore strategies to advance toward the goal.<sup>ci</sup> For managers who do not have discrete budgets appropriated or allocated and are

expected to manage a complicated matrix organization, as is the case with EPA's Regional Administrators, performance management can be even more helpful.

The Clean Charles 2005 initiative also shows that successful performance management does not have to start at the very top of an organization. Leaders of individual units, such as a regional office or a project team, can also use performance management very fruitfully to drive priorities and achieve performance gains.

In sum, performance measures can be enormously useful to managers, but for measures to drive performance gains, managers must "manage the measures." They must identify their top priorities, repeatedly reaffirm the priority placed on those goals, designate goal managers, regularly monitor progress, and work interactively to explore the most effective strategies for advancing toward the goal. When managers manage the measures, performance management can help organizational leaders move their environmental priorities through a bureaucracy relatively quickly and with minimal organizational trauma, earning not only positive media coverage for themselves, their political leaders, and agency employees. More importantly, they will speed progress toward the public outcomes it is their job to advance.

### **Accountability.**

Performance measurement, we have seen, can be a powerful tool helping agency managers and staff improve performance. The discussion so far has said little about the value of performance measurement for enhancing accountability. Yet accountability is generally considered a primary reason for performance measurement.

The Government Performance and Results Act of 1993 states very clearly its "accountability expectation" for federal agencies. Its first listed purpose is to:

- (1) improve the confidence of the American people in the capability of the Federal Government, by systematically holding federal agencies accountable for achieving program results...."

The Joint Agreement signed by EPA and the states creating the National Environmental Performance Partnership System states, "We must ... enhance our accountability to the public and taxpayers."<sup>cii</sup> Similar language can be found in state and local performance policy documents.

Accountability can mean many different things. For some, it means assuring the absence of corruption. Highly specific laws, regulations, and policies that characterize 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.”<sup>ciii</sup> For others, accountability is about assuring that government delivers to its citizens what they want and are prepared to fund.

For a large number of performance measurement advocates, accountability is about rewarding good performance and penalizing poor performance, applied both to organizations and individuals.<sup>civ</sup> Many apply the concept of performance rewards and penalties to organizations or programs, calling for increasing funds for those with strong performance and jettisoning or cutting funds for those that perform poorly.<sup>cv</sup> Others apply it to individuals. Numerous state education reform efforts promise bonuses for high-performing teachers.<sup>cvi</sup> Some threaten job loss for consistently poor performers.<sup>cvii</sup>

The challenge posed by these accountability mechanisms is that poorly structured systems can seriously undermine the performance-improving effects of using goals and measurement.<sup>cviii</sup> Accountability mechanisms designed to boost accountability expectations might interfere with performance improvement in several different ways.<sup>cix</sup> Several examples are presented here for purposes of illustration, although others are certainly possible. First, accountability mechanisms designed to ward off corruption can prevent agencies from operating in an outcome-focused manner, inhibiting creativity and productivity-enhancing innovation leading to performance gains. Accountability mechanisms designed to reward or penalize performance can also create problems, as when: the reward/penalty ratio is perceived as unfair; incentives are directly linked to outcomes although accurate outcome measurement is difficult; the allocation of rewards encourages competition when cooperation is warranted; and program budgets are used to deliver the penalty or rewards.<sup>cx</sup> These examples are discussed below, to illuminate how poorly structured accountability mechanisms can interfere with the performance-improving benefit of performance measurement. It is then argued that the way the Clean Charles 2005 initiative uses performance measurement demonstrates how performance measures can accomplish accountability objectives without serious dysfunctional effects.

***Process-Focused Accountability.*** Government systems to assure accountability against fraud or abuse tend to demand accountability for the process, rather than for results. These traditional accountability mechanisms, which track inputs, activities, outputs, expenditures, or strict adherence to written rules rather than trying to assure responsible efforts to deliver promised outcomes, have not been updated to support performance-focused programs.

Consider one example of the way abuse-avoiding accountability mechanisms can create unwanted effects. Government watchdogs often treat accountability as the ability to count, literally, the dollars the government has granted to another organization to make sure the money has been spent precisely as promised, not whether or not the purpose for which the money was provided was accomplished. Thus, years after termination of the federal construction grants program that provided federal funds to local governments to build waste water treatment plants, EPA visited localities to make sure every dollar charged to their federal grants was allowable under the grant conditions.<sup>cxii</sup> The audits often took place several elected officials after the funds were spent. As a result, the grant-winning elected official on whose watch the mis-spending occurred would reap political reward for bringing in federal funds while subsequent officials would bear the political cost of finding local dollars to repay often unexpected unallowed costs.

As another example, current federal environmental grant regulations strongly signal a continued emphasis on process accountability. One of the barriers slowing a rapid and robust transition to the National Environmental Performance Partnership System – designed to make EPA-state partnerships more focused on the environment and less on process requirements – are EPA’s current grant regulations, including the grant guidance written for the NEPPS-linked Performance Partnership Grants. The guidance for Performance Partnership Grants requires states to report work-years purchased with federal dollars:

An approvable work plan must specify: (i) The work plan components to be funded under the grant; (ii) The estimated work years and funding amounts for each work plan component; (iii) The work plan commitments for each work plan component and a time frame for their accomplishment...<sup>cxii</sup>

This provision would make it hard for a state to undertake a project such as the Clean Charles 2005 initiative that uses fresh and frequent performance measurement to guide, and regularly revise, its selection of appropriate strategies. If newly available monthly measurements on water quality, for example, clearly indicate that a state should change its resource deployment strategy mid-year to achieve its objectives, the state would have to obtain EPA approval for significant changes to its work plan even if it maintained the same outcome commitments. A similar problem would arise if a state lost a larger than expected number of key personnel at one time and decided to hire consultants to get the work done. Not surprisingly, many states decide that the battle to become performance-focused, at least with federal funds, is not worth the effort and concede to negotiating inputs and activities in their PPAs and other annual agreements with EPA.

While tracking expenditures and preventing corruption are very important, many of the mechanisms adopted to protect against ethical trespasses have evolved into overly rigid, prescriptive, and wasteful constraints. Updated control systems need to be established that are equally effective, but do not interfere with performance-improving efforts.<sup>cxiii</sup>

***Formal Link between Outcomes and Personal Consequences.*** Even if traditional accountability systems could be updated to be more performance-focused, many incentive systems designed to promote performance accountability can also threaten the performance-improving benefits of performance measurement. Part of the tension arises when explicit links are established between outcome results and personal rewards or penalties. Creating these links, long common in the private sector, represents a significant departure from past practice in the public sector. A leader of the U.S. Coast Guard's pilot GPRA project captures the anxieties that can arise in shifting to an outcome-focused organization:

One of the central – and most difficult – issues presented by the Government Performance and Results Act is the shift in focus from inputs, activities, and outputs ... to *outcomes*. In retrospect, it seems only natural that this would provoke stress in the organization. Consider what outcomes are: they are not what you do as an organization, they are the real-world effects of what you do. They are, by definition, things you don't control. In our experience and from our observations of other agencies, managers are often reluctant to risk accountability for things outside their control. Outcomes also commonly cut across organizational lines. A variety of programs will influence outcomes in areas like

safety and environmental protection (and probably any of the more important outcomes of interest to the public), and this fact tends to blur traditional organizational boundaries. Maybe more significantly, the search for outcome-oriented goals is a process of examining the very basis for your existence. Measurement in this environment can be very threatening.<sup>cxiv</sup>

When managers or workers feel unfairly threatened by an incentive system, they very sensibly “push back” to protect themselves. This is exactly what happened with New Zealand’s effort to build accountability into its management reforms. Under New Zealand’s reform program, managers enter into a “purchase agreement” between each department and the relevant minister. If a department fails to meet its performance targets, the manager can lose his or her job. Since managers are given hiring and firing discretion, the jobs of mid-level managers and other employees may be at risk as well.<sup>cxv</sup>

Fearful of losing their jobs, New Zealand’s managers have resisted being held accountable for results they cannot control. They have been willing to accept accountability in their management agreements only for that which they can control, outputs.

New Zealand focuses on outputs because they provide a reliable basis for enforcing managerial accountability, not because they are the most important indicator of government performance. Accountability is facilitated because the supply of outputs can be directly attributed to the performance of chief executives and their departments; outcomes, by contrast, tend to be influenced by many factors, some of which are likely to be beyond the control of the relevant department.<sup>cxvi</sup>

Regrettably, the New Zealand solution puts the government right back where it started before it tried to adopt a performance-focused system, counting activities. The reversion to “bean-counting” compelled by a highly structured, high-stakes performance agreement threatens to send New Zealand down the same activity-focused path that prompted performance-focused government reform worldwide. New Zealand could end up very effectively and efficiently delivering to its citizens products they do not want, failing on a key dimension of public accountability: that government delivers to its citizens what they want and are willing to fund, not what government officials want or know how to deliver.

**Reward/Penalty Ratio.** “Doesn’t the private sector also have trouble controlling all the variables affecting outcomes?” you might ask. “Don’t private firms have to

deliver strong performance in a competitive marketplace even when they do not control all the variables? Indeed, isn't survival in a climate of uncertainty essential and inevitable?" This is undoubtedly the case. In the private sector (most evident in financial markets), however, high risks tend to be balanced by tremendous upside potential. The companies and employees that are most at risk often stand to reap the greatest rewards. Most public sector organizations, however, lack the ability to earn huge profits and share performance gains with their employees. New Zealand managers can lose their jobs if their performance is poor, but they have little promise of earning private-sector-like bonuses or profit-sharing if their performance is good. Indeed, New Zealand has even found it difficult to deliver increased budgets to strong -performing organizations as the reform effort originally envisioned.<sup>cxvii</sup> The bottom line is that most public sector incentive systems seem biased toward the negative. As public management expert Robert D. Behn observes, "I bet I know what the managers who are to be held accountable think. I bet they believe, from their own empirical experience, that holding people accountable means that when they fail they are punished and that when they succeed nothing significant happens."<sup>cxviii</sup>

**Measurement Problems.** Problems also arise when accurate outcome indicators are difficult to collect. How do you count changes in chest pains or headaches associated with environmental improvements? And what happens when outcomes can only be measured long after the relevant government intervention, such as reductions in reproductive problems associated with promulgation of a new environmental regulation or the effect of early childhood daycare programs on employability? When those seeking accountability want to use some form of measurement as the basis for awarding incentives even when measurement difficulties arise, they often retreat to using effort or activity indicators as a surrogate. The problem with using effort or activities to decide rewards or penalties is that unless all relevant dimensions of effort and activity can be measured and their relative importance accurately assessed, the reward system will motivate the wrong allocation of effort for getting the best job done. It will inevitably drive workers to do more of those reward-earning activities that can be measured at the expense of those that cannot. Activities that cannot easily be measured but that may be crucial to success, such as thinking or answering questions, will be under-performed.

***Competitive Rewards Impede Cooperation.*** Incentive systems that are designed to boost the motivation and accountability of individual workers can also impede performance improvements when cooperation among workers is needed and incentives are based on comparative performance. Consider, for example, an incentive policy that allows only a small subset of workers within each organizational unit to earn bonuses. The argument often given for such a structure is that not everyone can be a top performer. Indeed, some observers take it as a given that incentive systems that reward a large percentage of the workforce must be handing out bonuses indiscriminately, losing the desired incentive effect. It is not hard to imagine a competitive tension arising among workers when rewards are limited to a small percentage of people in the organization. When employees should be cooperating and sharing information with each other to improve performance, they may instead be trying to devise ways to make their own performance look good relative to that of their colleagues.<sup>cxix</sup>

***Penalty Undermines Program Objectives.*** One version of performance accountability calls for linking budgets to program performance, rewarding strong programs with increased funding and penalizing weak ones with funding cuts. This is seen as the public sector equivalent to the financial rewards strong performing companies enjoy. Yet, cutting funds for weak government programs is likely to hurt program beneficiaries more than it hurts those who run the program. Unlike the private sector, most government agencies hold a monopoly on the delivery of public services in their area. An alternate supplier is usually not available to pick up the slack of a poorly performing government organization. At the same time, strong performing programs may not always warrant increased funding. Sometimes budgets should be cut for programs that have accomplished their objectives, and re-directed to unaddressed needs. Budgets are ill-equipped to serve as a performance incentive mechanism.

As these examples demonstrate, poorly structured accountability mechanisms can be a barrier to improved performance. If the accountability system seems unfair, workers are likely to try to protect themselves. They can leave the government altogether, pursuing opportunities that seem more just. They can try to hide within the organization, refusing management jobs and just biding their time, having lost their motivation because of an unfair evaluation system. They may try to change the nature of the measures used

as indicators of performance, or try to manipulate the measures in deceitful ways. In such circumstances, performance measurements no longer improve government performance. They become the objective itself, with workers very sensibly trying to protect themselves or extricate themselves from the system altogether.

***Accountability Mechanisms Needed.*** Despite the potential dangers of many of the mechanisms used to assure accountability, effective accountability controls are needed. Citizens need comfort that government is doing what its citizens want it to do and are willing to fund, not what government officials want or know how to deliver. They need to sense that the goals of government agencies closely match citizen expectations. They need comfort that government agencies and their employees are working diligently and, hopefully, intelligently to achieve performance improvements. They need and deserve reasonable assurance that government is avoiding self-dealing, and fighting waste. And when government regulates other parties, citizens need assurances that those being regulated are being held accountable to perform in accordance with laws and the public interest.

Indeed, especially in the regulatory area, there is great concern that the move to performance-focused systems will dismantle the already weak accountability systems that exist, without replacing it with something equally or more effective.<sup>cxx</sup> Advocates of performance-based management frequently tout its ability to provide “flexibility with accountability.”<sup>cxxi</sup> Opponents fear that performance-focused efforts will successfully deliver states, locals, employers, and even the federal government greater flexibility, but fail to deliver improved social outcomes.

Fears about the loss of accountability are well-founded. They grow from years of experience with, and debates about, performance-focused systems. Opponents fear that many advocates of performance-focused changes are not interested in improved performance, but have jumped on the performance bandwagon hoping to win support for state-specific or even site-specific performance standards that have historically been weaker than national standards in most states.<sup>cxxii</sup> This struggle was at the core of the debates about the use of technology or performance standards in the 1972 Amendments to the Clean Water Act, and continues today.<sup>cxxiii</sup> Opponents know that many environmental laws already allow companies the flexibility to adopt practices that will

deliver performance superior to technology standards, but that few companies will pursue that option because it raises performance expectations for all facilities, not just the one for which the company seeks to make changes. They know that performance-focused systems generally require increased outcome measurement and reporting yet even as states and regulated entities call for decisions to be based on stronger science and embrace the notion of performance-focused systems, they have also resisted efforts to increase measurement and reporting requirements.<sup>cxxiv</sup> And opponents know that both EPA and states hate to take on the political heat associated with setting performance standards and conducting performance assessments, as evidenced by state and EPA delays in setting and implementing water quality standards until forced to do so by court decisions.

*A Performance-Focused Model for Accountability.* The Clean Charles 2005 initiative suggests a model showing how performance measurement can deliver the accountability the public seeks, without impairing the performance-improving aspect of measurements. The initiative shows how performance measurement can be used to improve alignment with citizen and managerial expectations and motivate staff, even when an agency does not directly control all the variables affecting outcomes. It also illustrates how the agency can work with the regulated community in a performance-focused way, affording flexibility while strengthening accountability. The model will not fit all circumstances, but it begins to point the way toward effective performance-improving accountability mechanisms.

Consider first the issue of the government's ability to deliver to its citizens what they want and are prepared to fund. The traditional mechanism presumed to align public expectations with government work in democracies is the electoral process. If citizens don't like the basket of policies and products the government is producing, it can remove governmental leaders at the next election. The practical problem with this approach, of course, is that it forces citizens to make choices about a big bundle of goods, and doesn't give individual agencies much feedback about whether or not they are getting it right.

By announcing the goal of a Clean Charles in 2005, EPA New England unbundled the goods, implicitly inviting citizens to comment on a specific goal. They don't have to wonder what the agency is trying to do or how it is trying to do it, because

EPA gives them that information explicitly. If citizens don't like it, they can write letters to the agency, the newspaper, or their elected representatives. If they like the goal but feel the agency is handling the project poorly, they can similarly make their views known. If they think another goal should have higher priority, they can readily express that view, as well. Citizens don't have to wait until the next election to make their views known in order to influence the government's choice of priorities and actions to advance those priorities.

Goals, per se, don't automatically enhance public accountability. If goals are framed in a way the public doesn't understand or in too vague a manner, the public is unlikely to pay much attention. While this is one way for an agency to satisfy external mandates for performance measurement, it does not build public accountability. Because the Charles goal is so clearly articulated, outcome-focused, and has geographic and time-specificity, the public paid attention. Catching the public's attention strengthens public accountability.

The Clean Charles 2005 initiative also suggests a way to motivate improved performance without dysfunctional consequences. The high stakes penalties and low-return rewards used in New Zealand logically compel self-protective behavior, driving those being measured to press for accountability that they know they can control rather than what that they should be trying to influence. Rewards linked to inexact measurement are also likely to compel self-protective behavior, distorting decisions about effort and resource allocation toward that which can be measured easily rather than that which needs to be done. Rewards limited to only a few individuals for accomplishments that require cooperation are likely to stifle needed cooperation.

The Charles initiative succeeds in motivating without these dysfunctional effects. by making it easier for staff to understand how their work aligns with the reasons they came to EPA in the first place. It motivates simply by providing feedback, tapping intrinsic motivational forces.

At the same time, the Charles initiative uses the motivating value of rewards and penalties, but does so judiciously. For staff, it primarily employs the gentle but effective incentive of the delight of managerial and public approval combined with the fear of internal and public embarrassment. The Charles experience suggests that the media can

be enlisted to be part of an incentive system that reports fairly and regularly, without the gratuitous and unfair journalistic swipes feared by so many government officials. If government officials give the media something to watch, make the story easy to report, predictable in its timing and, if possible, linked to community events, the press is likely to report it. This, in turn, creates a gentle and effective pressure on the agency to get the job done.

What will happen if EPA fails to make its ultimate goal or meet the timetable? It is possible that the agency would be terribly embarrassed, and that the leadership might get thrown out, if elected, or asked to resign, if appointed. I suspect this will not be the case if a program is structured as the Clean Charles initiative has been. The initiative has made its goals, strategies, and progress transparent to the public, and revised its strategies as it learned more. The public has been supportive of the project to date. My guess is that the public will remain supportive even if the goals are not met, so long as the transparency of the program remains solid, the strategies cogent, and the goals continue to address the concerns of the community.

When we think of performance-focused accountability, we tend to assume that agencies should be held accountable for attaining their goals, or rewarded or penalized based on the level of performance attained. It is time to change that assumption. It makes more sense to hold performance-focused agencies accountable for selecting goals that resonate with the public, collecting and accurately analyzing information about progress toward the goal, developing and following cogent strategies, and sharing relevant information with the public in a way they can and will want to understand.

Outcome-focused accountability does not necessitate a strict and explicit link between the attainment of outcomes and rewards or penalties. Although the Compstat system kept precinct commanders focused on outcomes and constantly thinking about the best strategies to improve their unit's performance, it never explicitly linked rewards or penalties to changes in the precinct crime rate. Similarly, DeVillars never explicitly promised personnel rewards to improvements in the water quality of the Charles. In both New York City and at EPA, effective performance managers have since enjoyed career advances, but explicit links between specific outcome gains and career advances or other rewards were never formally established.

The Clean Charles initiative necessarily employed a more aggressive incentive system to motivate local governments and the private sector. Unable to tap the intrinsic and non-monetary rewards that can motivate employees and because local governments and private firms are expected to take actions that have significant costs, the Clean Charles initiative readily employs the threat of financial consequence for failure to act. Performance-management, and performance-focused information-driven environmental protection strategies, depend on facility-specific performance obligations linked with penalties for those that fail to meet their obligations. At the same time, use of resonant public environmental goals introduces public opinion into the accountability equation. By so doing, the Charles initiative has been able to sway actions more quickly and at greater levels of protection than current laws require.

In sum, the Clean Charles 2005 initiative suggests that performance measurement and management can enhance government accountability to the public without impairing the performance-improving aspect of measurement. A clearly articulated and resonant goal with a specific timetable grabs the public's attention and invites it, in between elections, to comment on what government is doing. Regularly scheduled, event-linked progress reports let the press, public, managers, stakeholders, and the staff know how well it is doing it, and keeps the pressure on to meet a goal. Outcome-focused goals and fresh, frequent outcome measurements that allow staff to see how their actions affect outcomes enlighten and heighten motivation. Regular, interactive meetings with managers and informed stakeholders encourage constant thinking and re-thinking of strategy, based on updated information. Independent measurement and measurement by multiple parties assure credibility of the progress reports. At the same time, focusing on outcomes can encourage performance gains beyond those likely to be realized by simply relying on traditional compliance assurance methods.

### **Is the Charles River an exception?**

The Charles River is the jewel in the crown, I have been told. It lends itself easily to this sort of high visibility enterprise. Doubt has been expressed that this approach can be applied to environmental areas or concerns that are less well-known.

The Lower Charles is indeed a special river. It is edged on one side by the city of Boston and a park designed by Frederick Law Olmstead, the nation's most famous architect. On the other are two of the nation's leading universities, Harvard and MIT. Unlike the mighty Mississippi, though, the Charles River holds no unique standing as a river of national significance. It is primarily valued by those who live near it. All over America, in places like Cleveland and Washington, D.C., rivers once valued primarily for their commercial contributions are increasingly appreciated as recreational assets. Americans today are migrating toward coastlines because of their love of water.

In communities across this country, there are thousands of Clean Charles 2005 projects waiting to happen. Indeed, there are communities where they already have. In 1987, the Chesapeake Bay Program set a goal of reducing nutrients by 40 percent by 2000. Like the Charles initiative, it has regularly measured and reported progress toward the goal since that time, and aggressively reached out to engage governments, non-profits, and the private sector in finding solutions to achieve the goal. By 1997, the Bay Program reported that its goal was in sight.<sup>cxxv</sup>

Many states already pursue a watershed approach. Too many of these efforts, however, miss the potential for using resonant time and place-specific goals and progress reports to manage the project on a daily basis and engage those who can affect the outcomes.

The potential for "managing the measures" to improve environmental quality is not limited to water. The Clean Air Act requires states to manage their air sheds to meet specific goals and timetables, and sanctions states with heavy penalties if they fail to meet them. Indeed, the effectiveness of goal-setting, progress reporting, and effective incentives is affirmed by improving air quality trend lines.<sup>cxxvi</sup> One could imagine even greater effect, and less contention, improving air quality if the discussions about strategy moved out from government-to-government negotiations to a more open process. This is exactly what the Mayor of Tulsa, Oklahoma did in the 1990's. Fearing that Tulsa would exceed the ozone standard for a third time, forcing the city into a "non-attainment status" under the Clean Air Act that would have severely curtailed new economic development projects, the Mayor decided to "manage the measures" more aggressively. She moved the discussion about strategy out from the halls of government to the community that

could help fix the problem. She reached out to local experts, non-profits, regulatory partners, and the regulated community, and together, they reviewed relevant data, monitored progress, and brainstormed strategies to avoid federal penalties. And just as DeVillars and Bratton held their staffs accountable for the cogency of their strategies rather than holding them strictly accountable for achieving the outcomes, EPA agreed to a similar accountability arrangement with Tulsa. It designated Tulsa its first Flexible Attainment Region, recognizing that the city's plan for reducing ozone levels was solid, even if it did not satisfy every detail of its outcome goal.<sup>cxxvii</sup>

The Clean Charles 2005 initiative should not be the exception. It is not hard to imagine government using goals and regular performance measurement to enlist community support to keep a local beach open all summer, improve water quality in a near-by lake or guarantee drinking water that exceeds national standards, or increase visibility from a mountain. The Charles initiative offers a vivid example of how performance-focused, information-driven environmental protection can be applied across the country.

### **How the Clean Charles 2005 Initiative Fits into an Agency-wide Performance Management System.**

Of course, the Clean Charles 2005 model is just one piece of what a larger performance-focused, information-driven environmental protection system could be. Ideally, the Clean Charles 2005 initiative would fit neatly into an EPA-wide performance management system, where information about environmental goals and environmental progress are broadly known, regularly reviewed, and serve as the basis for strategy development, tactics formulation, and resource allocation. This target-focused performance management system would complement increased use of environmental performance measurements in other ways, such as informing consumer choices and citizen decisions and tapping the motivational and learning potential of comparisons.<sup>cxxviii</sup>

Significantly increased reliance on performance measurement will not happen overnight, but progress can be made immediately. The Clean Charles 2005 initiative should and could fit neatly into EPA's agency-wide Performance Plan and Performance Report alongside similar performance-focused efforts to clean other water bodies across

the nation. It could also fit neatly into the Massachusetts/EPA Performance Partnership Agreement, as one of the key goals, timetables, and strategies alongside goals for other targeted watersheds and air sheds.

Unfortunately, despite the passage of GPRA and the adoption of the Performance Partnership System (NEPPS), the Charles initiative is treated as an exception rather than a model to be replicated. While the Charles River project is highlighted in its own box in the EPA FY1999 Performance Report,<sup>cxix</sup> it is not placed in context. EPA makes no effort to “roll up” the performance gains of the Charles with that of other water-quality improving efforts across the country. In fact, EPA appears to have considered, and abandoned, this possibility. In its Annual Performance Report to Congress, EPA described Annual Performance Goal and Measure Number 16 as follows: “More than 220 communities will have local watersheds improved by controls on combined sewer overflows and storm water.”<sup>cxx</sup> The Performance Report goes on to inform the reader that “EPA is not yet able to measure actual improvements in watersheds; therefore this goal has been dropped after FY1999.”<sup>cxxi</sup> Rather than encourage the regions and states to measure their water quality by maintaining a relentless focus on outcome goals and measures, the agency opted instead to retreat to the familiarity of activity counts. Its proposed new measure settles for a simple tally of the number of communities that “implemented requirements in Storm Water Phase I permits and/or CSO Long-Term Control Plans....”<sup>cxxii</sup> This activity-focused indicator imparts little useful information to the general public.

Federal, state, and local environmental regulators can and should immediately push for a relentless focus on environmental and public health outcomes to drive activity selection, not the other way around. Environmental outcome targets should replace activity targets for regions and states. These could be established in an iterative top-down, bottoms-up process, or in the reverse order. EPA’s national program offices might propose a few key national goals for environmental and public health improvements with specific timetables. They could then work with the EPA regional offices, who in turn would work with each of the states (and territories, tribes, and localities, as appropriate), to sort out how these aggregate goals cascade down to each region and state. States would negotiate with regions, and regions with headquarters, a few key ambitious but

feasible environmental targets and timetables, just as major corporations do when they set corporate goals and negotiate expectations with their organizational sub-units.<sup>cxxxiii</sup> The EPA Performance Report should then be enhanced to provide location-specific information, perhaps through on-line links, so that communities can more easily find information about local environmental conditions and the nature and status of efforts to improve them.

Where environmental targets are not possible because the existing state of the measurement is inadequate, EPA's and state performance plans could set specific targets for improving information quality. The performance report would report progress on improving the quality of environmental information. Where funding levels are insufficient to allow the necessary information-gathering, performance plans could make that clear so that those living in communities where water and air quality are not tested can know it.

Because unexpected events inevitably arise, EPA, its regions, and the states should not be held strictly accountable (i.e., specific rewards linked to specific outcomes) for achieving all the outcome goals they set. As with the Charles River team and New York City's precinct commanders, regions and states should be held accountable for developing and pursuing cogent strategies. They should also be responsible for effectively disseminating information about their efforts and progress to the public.

EPA headquarters' offices should also be responsible for organizing and presenting performance information in a way that supports regional, state, and local performance-focused decision-making. In addition, EPA headquarters offices should interactively work with the regions' in examining the performance information to assess and revise intervention strategies, and to facilitate cross-area learning. EPA regions should similarly support the states.

EPA and states could also take an important step toward more useful performance measurement by enhancing the availability of "point-of-use" performance information. Although it may be too costly to fly daily flags at every beach and boat launch site in a state, it would not be too costly to post available information on a website and indicate with a permanent sign at every location where current water quality information can be

found. Local weather stations and newspapers already carry air quality reports. They might be willing to report other forms of environmental information as well.

The timing for increased use of environmental performance measurement to drive environmental gain has never been better. Federal and state legal mandates now require EPA and most state environmental protection agencies to set outcome -focused goals and generate annual performance reports or submit some sort of performance budgeting information. At the same time, dramatic improvements in information collection, processing, and dissemination technology make widespread use of performance information remarkably affordable and technically feasible. Yet unless the people in or affected by government programs, and especially government leaders, begin to recognize the value of outcome-focused performance measurement as a management tool they use regularly in their strategic and daily decisions, measurement fatigue will set in before the power of performance measurement is realized. This opportune moment may pass and not return again for decades.

The Clean Charles 2005 initiative demonstrates how valuable performance measurement can be. The initiative works because it focuses attention on a specific outcome goal and, by so doing, engages the interest of a large number of people. It works because the public performance goal and measurements of progress toward the goal are more than just numbers. They serve as focal points and a rallying cry and a constant reminder to check back and verify the effectiveness of the strategy and revise it if necessary. It works because it defines a common agenda across organizational boundaries. It works because fresh and frequent measurements are used on a regular basis to shape decisions about what activities to do. It works because point-of-use performance information informs consumer decisions. It works because individual and organizational leaders are aggressively managing to the measures, both within the agency and beyond its borders. Finally, it works because annual report cards, publicity about individual components of the effort, and regular meetings with concerned parties enhance the agency's accountability, without being unduly or unfairly punitive. The Clean Charles 2005 initiative successfully uses environmental performance measurement to motivate changes leading to measurable gains in environmental quality, which is, after

all, its *raison d'être*. Hopefully, others will learn from its lesson and rapidly follow with more performance-focused, information-driven environmental protection strategies.

---

*The author wishes to thank the members of the Executive Session on Public Sector Performance Management, Kennedy School of Government, Harvard, and the members of the Environmental Compliance Consortium, University of Maryland School of Public Affairs. The ideas of the participants in each of these projects have helped me understand and articulate the ideas presented here so much more vividly than would have otherwise been possible.*

<sup>i</sup> U.S. Environmental Protection Agency Region 1, "EPA Gives Charles River a 'B' and Announces Innovative 'Curtain' at Magazine Beach," (Boston: EPA New England Press Release # 00-04-14, April 14, 2000.)

<sup>ii</sup> Technology standards specify the type of equipment or process regulated parties are required to use. In contrast, a performance standard would specify the minimum water quality that discharged wastewater would need to exceed.

<sup>iii</sup> Oliver A. Houck, *The Clean Water Act TMDL Program: Law, Policy, and Implementation* (DC: Environmental Law Institute, December 1999), p. 3-6.

<sup>iv</sup> U.S. Environmental Protection Agency, "Water Quality Conditions in the United States: A Profile from the 1998 National Water Quality Inventory Report" (EPA-841-F-00-006, June 2000, p.1.) Houck notes that the quality of this assessment has been questioned by the Public Employees for Environmental Responsibility, "Murky Waters, Official Water Quality Reports are All Wet: An Inside Look at EPA's Implementation of the Clean Water Act," 1999. (Houck, *TMDL Program*, p.8).

<sup>v</sup> Only forty percent meet water quality standards for fishing and swimming. U.S EPA, "National Water Quality Inventory," 2000.

<sup>vi</sup> Houck, *Clean Water Act TMDL Program*. The lawsuits compel states and EPA to establish Total Maximum Daily Load (TMDL) limits for contaminants to the receiving waters.

<sup>vii</sup> Maine Department of Environmental Protection, "Use of PCS Date." (undated presentation). This is a one-time report Maine prepared to assess the value of this sort of analysis, using data from 1993 to 1996. If other states are doing this sort of analysis, it is not widely known.

<sup>viii</sup> In 1995, EPA and states created the National Environmental Performance Partnership System to address these problems. Carol M. Browner, et al, "Joint Commitment to Reform Oversight and Create a National Environmental Performance Partnership System," May 17, 1995.

<http://www.epa.gov/ocir/nepps/ovrsight.htm>. [December 9, 2000].

In addition, in EPA's appropriations language which includes grant funding for the states, Congress allowed EPA to combine multiple grants into a single combined grant, if requested by the appropriate state (and occasionally local) authority.

<sup>ix</sup> The effort to adopt multi-media inspections was known as the Blackstone Project. Conversations with Pat Deese Stanton, Massachusetts Department of Environmental Protection; Pat Meany and Stephen Perkins, U.S. Environmental Protection Agency, Region 1.

<sup>x</sup> Robert K. Merton, *Social Theory and Social Structure* (Free Press:1968), pp.251-254.

<sup>xi</sup> E4E was convened by two-time EPA Administrator William Ruckelshaus and involved a broad-based, bi-partisan membership, including four former EPA administrators, several members of the U.S. Congress, two governors, a mayor, leaders of national and regional environmental organizations, senior executives of large companies, and several state environmental agency directors. Several members, a few from environmental groups and a few from business, decided not to sign the final report.

---

<sup>xii</sup> Center for Strategic and International Studies, “Bi-Partisan Group Announces Recommendations to Improve the Environment,” Press Release announcing the release of *The Environmental Protection System in Transition: Toward a More Desirable Future*, Final Report of the Enterprise for the Environment (Washington, DC: 1998), January 15, 1998.

<sup>xiii</sup> National Academy of Public Administration, *Resolving the Paradox of Environmental Protection* (DC: September 1997) and National Academy of Public Administration, *Setting Priorities, Getting Results*, (DC: 1995).

<sup>xiv</sup> Carol M. Browner, et al, “Joint Commitment to Reform Oversight and Create a National Environmental Performance Partnership System,” policy memorandum signed at the EPA “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. <http://www.epa.gov/ocir/nepps/ovrsight.htm>. [December 9, 2000].

<sup>xv</sup> U.S. Environmental Protection Agency, Office of Reinvention, *The Changing Nature of Environmental and Public Health Protection: An Annual Report on Reinvention* (EPA100-R-98-003, March 1998), p. 8.

<sup>xvi</sup> The National Academy of Public Administration recently sponsored several evaluations of the National Environmental Performance Partnership System. The studies basically concluded that NEPPS has resulted in progress toward environmental performance-focused approaches. More discussions between EPA and states have to do with problems in the environment and how to fix them, than whether or not a state is willing to do what EPA wants it to do. At the same time, the studies found that the activity-focused culture of both states and EPA seriously slowed progress. See <http://38.217.229.5/NAPA/NewNAPAHome.nsf/64d8f1d54bd9b146852564ff00048cc7/b7e8d59f7127e93c85256617004a001f?OpenDocument> [December 9, 2000].

<sup>xvii</sup> U.S. Environmental Protection Agency, “Project XL Progress Report: Intel Corporation,” (EPA, Office of the Administrator, EPA 100-R-00-005, December 1999). <http://www.epa.gov/ProjectXL/intel/1299.pdf> [December 9, 2000].

<sup>xviii</sup> Michael Crow, “Beyond Experiments,” *Environmental Forum*, May./June 2000, Vol. 17, No. 3, pp. 19-29.

<sup>xix</sup> Shelley H. Metzenbaum, “Information Driven,” *Environmental Forum*, March/April 2000, Vol. 17, No. 2, pp. 28-41.

<sup>xx</sup> 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.

<sup>xxi</sup> Julia Melkers and Katherine Willoughby, “The State of the States: Performance-Based Budgeting Requirements in 47 out of 50,” *Public Administration Review*, January/February 1998, Vol. 58, No. 1, pp. 66-73.

<sup>xxii</sup> 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.

<sup>xxiii</sup> The Urban Institute and the International City/County Management Association, *Comparative Performance Measurement* (ICMA: 1997).

<sup>xxiv</sup> *Government Performance and Results Act*, P. L. 103-62.

<sup>xxv</sup> Harry P. Hatry, *Performance Measurement: Getting Results* (The Urban Institute Press, 1999). 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).

<sup>xxvi</sup> 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.

<sup>xxvii</sup> Joseph S. Nye, Jr., Philip D. Zelickow, and David C. King, eds., *Why People Don’t Trust Government* (Harvard University Press, 1997).

---

<sup>xxviii</sup> One noteworthy exception is the Coast Guard. See Richard Kowaleski, "Using Outcome Information to Redirect Programs: A Case Study of the Coast Guard's Pilot Project Under the Government Performance and Results Act," United States Coast Guard Office of Marine Safety, Security and Environmental Protection, April 1996. (<http://www.npr.gov/library/studies/uscgcase.pdf>) [October 22, 2000.] In general, the GPRA material of the U.S. Department of Transportation is more outcome-focused than that of most other federal agencies. (<http://ostpxweb.dot.gov/budget/Over,Goals,Corp,Data.pdf>) [December 22, 2000.]

<sup>xxix</sup> The sections of EPA's GPRA reports pertaining to air are a noteworthy exception.

<sup>xxx</sup> DeVillars was recused from the MWRA case, because he had previously chaired the MWRA board. Moraff did not discuss that case with him.

<sup>xxxi</sup> Conversation with William Walsh-Rogalski, U.S. Environmental Protection Agency, Region 1.

<sup>xxxii</sup> Nancy R. Katz, "Incentives and Performance Management," a paper prepared for the Executive Session on Public Sector Performance Management, Harvard University, Kennedy School of Government, June 19-21, 2000. The discussion that follows on the effect of goals and information on motivation and performance is informed by Katz's paper. Referenced cited by Katz are footnoted in the text that follows. Assertions about the relationship between performance, information, motivation, and outcome changes that are not footnoted are just that – this author's assertions, based on observation and, I hope, logic and common sense.

<sup>xxxiii</sup> Katz, p. 1. Katz cites the research of G. Latham and T. Lee, "Goal Setting," in E. Locke, ed., *Generalizing from Laboratory to Field Settings*, pp. 01-118 (Lexington: 1986) and E. Locke and G. Latham, *A Theory of Goal Setting and Task Performance* (Prentice-Hall: 1990).

<sup>xxxiv</sup> Robert S. Kaplan and David P. Norton. *The Balanced Scorecard: Translating Strategy to Action*. (Harvard Business School Press: 1996). See also Robert S. Kaplan and David P. Norton, *The Strategy-Focused Organization* (Harvard Business School Press: 2001).

<sup>xxxv</sup> Scott Allen, "Chalres Cleanup Gets New EPA Push: Focus This Time Around on Pollution Prevention," *Boston Globe*, October 22, 1995, p. 33. U.S. Environmental Protection Agency, "EPA Sets Clean Up Goal for Charles River by Earth Day 2005" ("EPA New England Press Release. October 22, 1995).

<sup>xxxvi</sup> Evie Gelastapolous, "BU Agrees to Pay, p.16; Peter J. Howe, "EPA Warns Milford of Fines, Suits Over Pollution of Charles River: *Boston Globe*, September 27, 1996, p. B5.

<sup>xxxvii</sup> Pete J. Howe, "US Eases Pressure on River Cleanup; Progress is Seen Along the Charles," *Boston Globe*, May 17, 1998, p.B1.

<sup>xxxviii</sup> Peter J. Howe, "Renaissance on the Charles," *The Boston Globe Magazine*, pp.14++.

<sup>xxxix</sup> Derrick Z. Jackson, "A Clearer Picture on the State of the Charles," *The Boston Globe*, May 29, 1996, p.13.

<sup>xl</sup> Peter J. Howe, "Bacteria Levels Soar on the Upper Charles; Sewer Leaks in Milford Suspected," *The Boston Globe*, September 7, 1996, p.B.7.

<sup>xli</sup> U.S. Environmental Protection Agency "FY1999 Annual Performance Report," p.27.

<sup>xlii</sup> In fact, according to the State of the New England Environment Report, 96 percent of New England's assessed rivers, streams, lakes, and ponds are swimmable. The report does not, however, indicate the percentage of the lake and pond acres and river and stream miles that have been assessed. U.S. Environmental Protection Agency Region 1, *State of the New England Environment, 1970 – 2000* (EPA901-R-00-001, March 2000), p.15.

<sup>xliii</sup> U. S. Environmental Protection Agency, Office of the Chief Financial Officer, *EPA Strategic Plan* (EPA/190-R-97-002; September 1997), p. 29.

<sup>xliv</sup> U.S. Environmental Protection Agency, Office of the Chief Financial Officer, *FY1999 Annual Performance Report*, (EPA 190-R-00-001, March 2000) p.22.

<sup>xlv</sup> Section 114 of P.L. 104, 182, the Safe Drinking Water Amendments of 1996, requires community water systems to notify their customers annually about water quality. This is a significant development in building a performance-focused, information-driven environmental protection system.

<sup>xlvi</sup> Hatry, *Performance Measurement...*, Part III.

<sup>xlvii</sup> Conversation with Ken Moraff, U.S. Environmental Protection Agency Region 1.

- 
- <sup>xlviii</sup> See, for example, Allen Shick, *Spirit of Reform: Managing the New Zealand State Sector in a Time of Change, A Report Prepared for the State Services Commission and The Treasury, New Zealand*, August 1996. <http://www.ssc.govt.nz/Documents/reform1.htm> [December 9, 2000].
- <sup>xliv</sup> Jody Perras, "Reinventing EPA New England: An EPA Regional Office Tests Innovative New Approaches to Environmental Protection," National Academy of Public Administration, Learning from Innovations in Environmental Protection Research Paper Number 14, June 2000. <http://www.napawash.org/napa/epafile14.pdf> [December 9, 2000]. Perras has written an excellent case study of the Clean Charles 2005 program, and several other innovative programs tried in EPA Region 1.
- <sup>l</sup> E-mail from William Walsh-Rogalski, February 22, 2000. See also Allen.
- <sup>li</sup> Abraham McLaughlin, "EPA Floats New Program to Save America's Rivers," *Christian Science Monitor*, March 5, 1998.
- <sup>lii</sup> Peter J Howe, "Charles Cleanup Targets Polluters: Firms Given Deadline to Make Needed Repairs," *Boston Globe*, March 2, 1998, p. A1.
- <sup>liii</sup> Conversation with Ken Moraff.
- <sup>liv</sup> EPA New England Press Release #98-3-1, "EPA Details Aggressive Pollution Prevention and Enforcement Strategy for the Charles River," March 2, 1998. <http://www.epa.gov/region01/pr/files/030298.html>
- <sup>lv</sup> Peter J. Howe, "Bacteria Levels Soar on Upper Charles," *Boston Globe*, September 7, 1996, p. B7.
- <sup>lvi</sup> Peter J. Howe, "EPA Warns Milford of Fines, Suits Over Pollution of Charles River," *Boston Globe*, September 27, 1996, p. B5.
- <sup>lvii</sup> The Charles River Watershed Association posts a spreadsheet showing Charles River water quality readings starting in October 16, 1995. <http://www.crwa.org/data/monthly/2000/fecal99.xls> [December 9, 2000].
- <sup>lviii</sup> U.S. Environmental Protection Agency, Region 1, "EPA Gives Charles River a "B" and Announces Innovative "Curtain" at Magazine Beach" (EPA Press Release 00-04-14), April 14, 2000.
- <sup>lix</sup> Conversation with Ken Moraff.
- <sup>lx</sup> Katz cites the work of M. Enzle and J. Ross, "Increasing and Decreasing Intrinsic Interest with Contingent Rewards: A Test of Cognitive Evaluation Theory," *Journal of Experimental Social Psychology*, 14:588-597; and J. Harackiewicz, "The Effects of Reward Contingency and Performance Feedback on Intrinsic Motivation," *Journal of Personality and Social Psychology*, 737:132-1363.
- <sup>lxi</sup> Katz, "Incentives," 2000.
- <sup>lxii</sup> See also Kowaleski, and "Environmental Problem Solving; 'Pick Important Problems: Fix Them'," State of Florida, <http://www.dep.state.fl.us/ospp/eps/eps.htm> [December 9, 2000].
- <sup>lxiii</sup> The Massachusetts Executive Office of Environmental Affairs and the Department of Environmental Protection adopted a watershed approach to managing the state's water resources in 1993, two years before the Clean Charles 2005 initiative was launched. Under the state's watershed management plan, the state tries to review each watershed basin on a five-year cycle, gathering information in the first year, monitoring the second, assessing in year three, implementing control strategies in the fourth year, and finally, looking back and learning in anticipation of starting the cycle again. The state issued an assessment report on the receiving waters of the Charles in February 2000. (Conversation with Kevin Brander, Massachusetts Department of Environmental Protection.)
- <sup>lxiv</sup> The USGS has set up monitoring equipment at five different locations on the Charles to collect a steady stream of information about water level, temperature, and salinity. It also gathers information on bacteria, biological demand, metals, nutrients, and suspended solids. [http://ma.water.usgs.gov/charles\\_river/loads/](http://ma.water.usgs.gov/charles_river/loads/) [December 9, 2000]
- <sup>lxv</sup> <http://www.epa.gov/region01/charles/index.html> [December 9, 2000].
- <sup>lxvi</sup> <http://www.crwa.org/>
- <sup>lxvii</sup> [http://ma.water.usgs.gov/charles\\_river/loads/](http://ma.water.usgs.gov/charles_river/loads/)
- <sup>lxviii</sup> Howe, April 24, 2000.
- <sup>lxix</sup> Interview with Kathleen Baskin, Charles River Watershed Association.
- <sup>lxx</sup> <http://www.chesapeakebay.net/pubs/sob/conclusion.pdf>
- <sup>lxxi</sup> In negotiated settlements, both Conrail and Genzyme agreed to provide funds to the Charles River Watershed Association to support its monitoring work. A third settlement, with Boston University, enlists

---

the Charles River Watershed Association to help BU control its storm water discharges. See: <http://www.epa.gov/region01/pr/files/pr100897a.html> [December 9, 2000].

<sup>lxxii</sup> Boston Harbor Association, Charles River Watershed Association, Conservation Law Foundation, Friends of the Muddy River, Restore Olmstead's Waterway, Save the Harbor/Save the Bay, and Watertown Citizens for Environmental Safety.

<sup>lxxiii</sup> [www.crwa.org](http://www.crwa.org). [December 9, 2000].

<sup>lxxiv</sup> Massachusetts also designates a river basin coordinator for each watershed.

<sup>lxxv</sup> The state, however, did not set a specific goal or timetable for the Upper Charles. It continued to follow its five-year watershed action plan, assessing watershed quality once every five years. See <http://www.state.ma.us/dep/brp/wm/wqa/72wqar2.doc> and

<http://www.state.ma.us/dep/brp/wm/wqa/72wqar1.doc>. [February 17, 2001.]

<sup>lxxvi</sup> Conversation with Kevin Brander, Massachusetts Department of Environmental Protection, Northeast office, July 26, 2000.

<sup>lxxvii</sup> Peter Weiskell, USGA, August 2000. The USGS study is being supported financially by EPA, the Massachusetts DEP, the MWRA, and the USGS.

<sup>lxxviii</sup> Conversation with Kathy Baskin, Charles River Watershed Association.

<sup>lxxix</sup> U.S. Environmental Protection Agency, "EPA Gives Charles River a "B" and Announces Innovative "Curtain" at Magazine Beach" (EPA New England Press Release 00-04-14), April 14, 2000.

<sup>lxxx</sup> Evie Gelastopolous, "BU Agrees to Pay \$2 Million for Charles River Spills," *Boston Globe*, October 9, 1997, p. B5.

<sup>lxxxi</sup> Pete J. Howe, "US Eases Pressure on River Cleanup; Progress is Seen Along the Charles," *Boston Globe*, May 17, 1998, p.B1.

<sup>lxxxii</sup> [www.cleancharles.org](http://www.cleancharles.org)

<sup>lxxxiii</sup> EPA Press Release 00-04-14.

<sup>lxxxiv</sup> Public management scholar Mark Moore has proposed that police chiefs similarly use performance measurement to clarify expectations with their authorizing environment, the political oversight apparatus :Mark H. Moore, "Police Accountability and the Measurement of Police Performance," Harvard University, Kennedy School of Government, November 11, 1991.

<sup>lxxxv</sup> Thomas Patterson, *Out of Order* (New York: Vintage Books, 1993).

<sup>lxxxvi</sup> See, for example, Stephen Barr, "DOT's Full-Throttle Performance," *The Boston Globe*, Tuesday, April 4, 2000.

<sup>lxxxvii</sup> Conversation with John DeVillars.

<sup>lxxxviii</sup> Howe, *Boston Globe Magazine*, p. 14.

<sup>lxxxix</sup> See, for example, Peter J. Howe, "Swimming in the Charles is Goal: A River Gets Cleaner; Beaches Considered," *The Boston Globe*, April 24, 1998. P.B1.

<sup>xc</sup> Peter J. Howe, "As Charles Stars, New Cleanups Vowed," *The Boston Globe*, October 16, 1998, p. B4.

<sup>xci</sup> Florida Department of Environmental Protection, *Secretary's Quarterly Performance Report*, vol.1 (October 31, 1997). Memoranda from Secretary Virginia Wetherill included in "Briefing Materials for Presentation to Governor Lawton Chiles, Florida Department of Environmental Protection, *Secretary's Quarterly Performance Report*," December 2, 1997.

Florida began issuing Quarterly Performance Reports on October 31, 1997. These reports set a new standard for environmental agency performance measurement, because of their comprehensiveness, transparency, and useful detail. Wetherill's successor, David Struhs, has continued the reports, although printed copies are no longer available, only the on-line version. In May 2000, Struhs announced plans for major improvements to future reports. An interim report was posted on Florida's website on November 2, 2000. Some improvements have already been made, including more trend analysis than previous reports and the presentation of outcome information with its supporting activity information.

(<http://www.dep.state.fl.us/ospp/report/intro.htm>) [December 9, 2000].

<sup>xcii</sup> Lyndsey Layton, "Pothole Proof Rolling In; Growing Stack of Hubcaps Shows a 3-Foot Gap in Credibility," *The Washington Post*, April 7, 2000, p. B3.

<sup>xciii</sup> <http://neighborhoods.washingtondc.gov/strategicplan/entry.htm> [December 19, 2000].

---

<sup>xciv</sup> Carol D. Leonnig, “For District Voters, A Way to Keep Score,” *The Washington Post*, April 21, 2000, p. B2. See also, District of Columbia Office of Communications, “Mayor Unveils Finalized City-Wide Strategic Plan and Accountability ‘Scorecards’,” District of Columbia Press Release April 20, 2000.

<sup>xcv</sup> Conversations with Moraff and Walsh-Rogalski.

<sup>xcvi</sup> This system is known as Compstat and has been replicated by other police departments, as well as the New York City Corrections and Parks Department. See John Buntin, “Assertive Policing, Plummeting Crime: The NYPD Takes on Crime in New York City,” (Cambridge: Kennedy School of Government Case C16-99.1530.0). See also 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.

<sup>xcvii</sup> Brian Pitt.

<sup>xcviii</sup> Jay Brolin.

<sup>xcix</sup> Conversation with Bill Walsh-Rogalski.

<sup>c</sup> EPA’s regional offices do not have separate budgets. Regional Administrators have a small amount of discretionary funds available for geographic initiatives and administrative projects. Most regional funding is passed through the stovepipes of EPA’s national headquarters offices, and arrive at the regions with “activity-strings” attached, greatly complicating outcome-focused endeavors.

<sup>ci</sup> Shelley H. Metzenbaum, “Making Measurement Matter: The Challenge and Promise of Building a Performance-Focused Environmental Protection System,” (Brookings Center for Public Management CPM 98-2, October 1998), p.25.

<sup>cii</sup> Carol M. Browner, et al. “Joint Commitment . . .”, cover letter.

<sup>ciii</sup> Robert D. 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.

<sup>civ</sup> This form of accountability is often described as principal/agent accountability. Principal/agent theory has received extensive attention by economists. According to Schick, this theory greatly influenced the architects of New Zealand’s government reform efforts.

<sup>cv</sup> See, for example, testimony of Virginia L. Thomas before the Hearing of the Subcommittee on Rules and Organizations of the House Subcommittee hearing on “The Government Performance and Results Act and the Legislative Process of House Committees, March 22, 2000;

[http://www.house.gov/rules/rules\\_thom10.htm](http://www.house.gov/rules/rules_thom10.htm)

<sup>cvi</sup> See, for example, Plan for the Implementation of AB1114: The Certified Staff Performance Incentive Act (Approved by the State Board of Education at its December 1999 meeting), California Board of Education.

<sup>cvii</sup> The Texas system, for example, authorizes the Education Commissioner to remove the management and teachers of schools for consistently poor performance.

<sup>cviii</sup> Robert D. Austin, *Measuring and Managing Performance in Organizations*, (New York: Dorset House Publishing, 1996).

<sup>cix</sup> Herman B. Leonard, “Four Divergent Challenges for Performance Management,” paper prepared for the Kennedy School of Government Executive Session on Public Sector Performance Management, June 2000.

<sup>cx</sup> The difficulty of structuring effective reward systems has received great attention over the years. The father of Total Quality Management approaches, Edward Deming, warned against mis-use of measurements to create fear in the workforce. See W. Edwards Deming, *Out of the Crisis* (Massachusetts Institute of Technology, 1986), pp. 73-74, p. 76. See also Thomas B. Wilson, *Innovative Reward Systems for the Changing Workplace* (McGraw-Hill, 1995).

<sup>cxii</sup> See, for example, “EPA Office of Inspector General Semiannual Report to Congress, October 1, 1995 through March 31, 1996; Construction Grants). <http://www.epa.gov/oigearth/396sct1d.htm>. [December 18, 2000.]

<sup>cxiii</sup> Environmental Protection Agency, “Performance Partnership Grants for State and Tribal Environmental Program: Revised Interim Guidance; Notice” Federal Register: October 6, 1998 (Volume 63, Number 193)[Notices] [Page 53763-53774]. See: <http://www.epa.gov/fedrgstr/EPA-AIR/1998/October/Day-06/a26459.htm>

- 
- <sup>cxiii</sup> Robert Simons, "Control in an Age of Empowerment," *Harvard Business Review* (March 1995, Volume 73.)
- <sup>cxiv</sup> Rick Kowalski, "Using Outcome Information to Redirect Programs; A Case Study of the Coast Guard's Pilot Project Under the Government Performance and Results Act," (United States Coast Guard Office of Marine Safety, Security, and Environmental Protection, April 1996).
- <sup>cxv</sup> 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.
- <sup>cxvi</sup> Allen Schick, "Reform: New Zealand," <http://www.ssc.govt.nz/Documents/Reform11.htm>) Section VII, p.2 of 14.
- <sup>cxvii</sup> Schick, Reform: New Zealand.
- <sup>cxviii</sup> Robert D. Behn, "Linking Measurement and Motivation: A Challenge for Education," in Paul W. Thurston and James G. Ward, *Advances in Educational Administration*, (London: JAI Press, Vol. 5, 1997) p.17.
- <sup>cxix</sup> Thomas B. Wilson, *Innovative Reward Systems for the Changing Workplace* (McGraw-Hill, 1995).
- <sup>cxx</sup> Rena I. Steinzor and William F. Piermattei, "Dialogue: Reinventing Environmental Regulation Via the Government Performance and Results Act: Where's the Money?" *ELR News and Analysis* (28 ELR, October 1998), 10563-10576.
- <sup>cxxi</sup> *Reinventing Environmental Regulation*, p. 14.
- <sup>cxxii</sup> James M. McElfish, Jr, "Minimal Stringency: Abdication of State Innovation," *Environmental Law Reporter*, (Vol. 25, January 1995), pp. 10003-10007.
- <sup>cxxiii</sup> See Houck, Chapter 2.
- <sup>cxxiv</sup> 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 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.
- <sup>cxxv</sup> The Chesapeake Bay Program, "State of the Bay," conclusion. <http://www.chesapeakebay.net/pubs/sob/conclusion.pdf> [December 18, 2000].
- <sup>cxxvi</sup> <http://www.epa.gov/airtrends/>
- <sup>cxxvii</sup> Environmental Protection Agency, Office of Air and Radiation, "Flexible Attainment Region Case Study: Tulsa, Oklahoma," November 19, 1998. At <http://www.epa.gov/airprogm/oar/recipes/farcase.html>
- <sup>cxxviii</sup> Metzenbaum, "Making Measurement Matter," 1998.
- <sup>cxxix</sup> EPA FY 1999 Performance Report, p.26.
- <sup>cxx</sup> EPA FY1999 Performance Report, p. A-3.
- <sup>cxxi</sup> EPA FY1999 Performance Report, p. A-3.
- <sup>cxxii</sup> EPA FY1999 Performance Report, p. A-3.
- <sup>cxxiii</sup> Discussions during Kennedy School of Government's Executive Session on Public Sector Performance Management, Harvard University, 1998-2000.