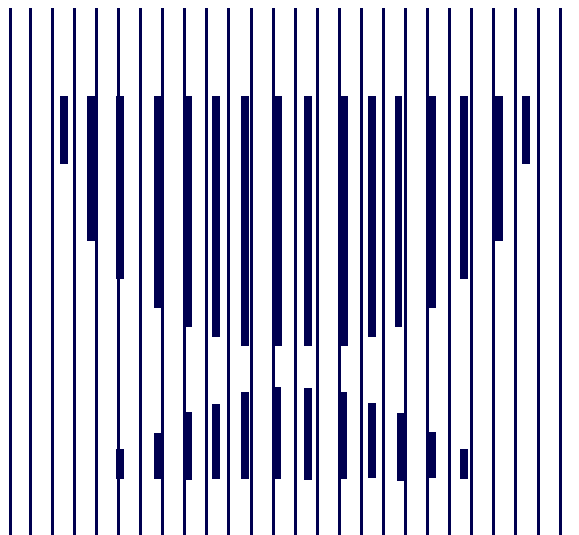




CBO MEMORANDUM

**A PRELIMINARY ANALYSIS OF
UNFUNDED FEDERAL MANDATES
AND THE COST OF THE
SAFE DRINKING WATER ACT**

September 1994



CONGRESSIONAL BUDGET OFFICE



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**CONGRESSIONAL BUDGET OFFICE
SECOND AND D STREETS, S.W.
WASHINGTON, D.C. 20515**

The Congressional Budget Office (CBO) is studying unfunded federal mandates--especially those involving environmental policy--at the request of the Chairman of the Senate Committee on Governmental Affairs. This memorandum presents preliminary findings from that ongoing study. Terry Dinan of CBO's Natural Resources and Commerce Division prepared the report under the direction of Roger Hitchner and Jan Paul Acton.

The memorandum describes trends in federal aid to state and local governments, discusses the pros and cons of federal mandates, and examines some of the potential consequences of providing federal funding for mandates. It also considers evidence about the costs that the Safe Drinking Water Act imposes on local governments and highlights some of the important methodological issues associated with measuring them. The forthcoming final report will provide more details about those matters and discuss several policy options for minimizing costs.

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SUMMARY AND INTRODUCTION

The past several years have witnessed a growing movement to draw attention to the costs that state and local governments bear in complying with federal requirements. (A coalition of state and local officials even went so far as to declare October 26, 1993, National Unfunded Mandates Day.) The increasing concern about the effects of such costs on state and local government has led the Congress to consider legislation that would limit its ability to pass additional unfunded mandates or that would increase the information it must consider when unfunded mandates are being enacted. The options it is examining range from preventing the passage of state and local requirements that are not accompanied by federal dollars to such lesser measures as forming a commission to study the cost of mandates or expanding the cost estimates of legislative proposals affecting states and localities prepared by the Congressional Budget Office (CBO). Environmental laws have been cited as particularly burdensome at the local level. As a result, concerns about unfunded mandates have played a central role in the debate on the reauthorization of the Clean Water Act and the Safe Drinking Water Act.

Yet despite the amount of discussion about unfunded mandates, little empirical work has been done.¹ Most previous attempts focused on the cost of a single regulation (rather than on the cumulative effects of multiple regulations) and were carried out at the time that the regulation was proposed. The studies are not, therefore, based on actual experience.

Several years ago, the Environmental Protection Agency (EPA) undertook a major examination of the cost of multiple environmental regulations. It estimated that the annualized cost of pollution control in 1995 would total \$5 billion for states and \$35.8 billion for local governments (measured in 1992 dollars).² These cost estimates are useful, but they have important limitations. First, they represent total expenditures for pollution control--including the expenditures that state and local governments would have made in the absence of federal regulations. Second, they are based primarily on engineering analyses conducted at the time that the regulations were being developed and not on actual cost data.

Several local governments have also begun to try to calculate the costs that they have incurred as a result of federal mandates. For example, the city of Columbus, Ohio, estimated that it spent \$68 million for pollution control

1. Advisory Commission on Intergovernmental Relations, *Federally Induced Costs Affecting State and Local Governments: Concepts, Experiences, and the Question of Relief*, draft report (May 1994), p. ii.; Center on Budget and Policy Priorities, *Unfunded Mandate Legislation: An Analysis of the Glenn-Kempthorne Bill* (Washington, D.C.: Center on Budget and Policy Priorities, May 1994).

2. Environmental Protection Agency, *Environmental Investments: The Cost of a Clean Environment* (November 1990).

in 1991 (measured in 1992 dollars). That estimate includes the cost of complying with federal and state mandates as well as the cost of pollution control measures that the city would have undertaken in the absence of those mandates.³

In an effort to better understand the magnitude of the costs imposed by federal mandates on local governments, the Congressional Budget Office is examining available evidence on the costs that local governments bear to comply with the Safe Drinking Water Act (SDWA). This act is only one component of the unfunded mandate issue, but critics point to its requirements as particularly burdensome. CBO's analysis considers three different sources of information: engineering analyses performed at the time that the regulations were developed, census data on actual expenditures, and self-reported cost data provided by cities and counties.

CBO is also studying broader trends in federal aid to state and local governments, the implications of funding mandates at the federal level, non-monetary concerns about federal mandates, methodological issues associated with measuring the costs that result from federal mandates, and appropriate methods for considering those costs in their proper context. Preliminary conclusions from the study include the following:

- o According to the Advisory Commission on Intergovernmental Relations, the number of federal mandates rose from fewer than 5 in 1960 to 66 in 1990. At the same time, census data show that federal aid to state and local governments for uses other than public welfare has generally been declining on a per capita basis since 1978.
- o The cost of federal mandates must be measured carefully. Failing to treat capital costs correctly and to account for federal funds in figuring local costs will result in misleading findings that can dramatically overstate or understate a mandate's costs. In addition, general subsidies, such as tax benefits, that the federal government provides to state and local governments should be taken into consideration. Attributing a particular share of them to any given mandate, however, is difficult.
- o The most troublesome methodological issue is determining the incremental cost of federal mandates. That calculation subtracts

3. Environmental Law Review Committee, *Environmental Legislation: The Increasing Costs of Regulatory Compliance to the City of Columbus* (Columbus, Ohio: Mayor's Office, May 1991).

the costs that communities would have incurred in the absence of a mandate from the total costs they incur for compliance.

- o Available evidence indicates that treating drinking water to standards specified under the SDWA would result in a total cost of less than \$20 per year for most households. Proposed rules that are now being considered could double or triple that cost. All such estimates, however, reflect the total rather than the incremental costs of compliance. Communities undoubtedly would have undertaken some of those measures in the absence of the SDWA.

BACKGROUND ON THE FEDERAL MANDATE DEBATE

No definition of either "federal mandate" or "unfunded federal mandate" is universally accepted. The Advisory Commission on Intergovernmental Relations (ACIR) has defined eight principal types of federal actions that can induce spending by state and local governments (see Box 1). Much disagreement exists, however, about which of these actions should be classified as federal mandates and which should be considered unfunded federal mandates.

Because definitions of federal mandates differ, so, correspondingly, do estimates of their number. The ACIR estimates that the number of federal mandates grew from fewer than 5 in 1960 to more than 60 in 1990. This tally of federal mandates includes direct orders, two types of grant-in-aid conditions on spending, and partial preemptions--programs that state or local governments may administer if they adopt standards that are equal to or more rigorous than a federal standard.⁴ The National Conference of State Legislatures uses a more inclusive definition of federal mandates and as of December 1993 had identified 185 of them.⁵ Neither of these estimates, however, provides information on the relative magnitude of the mandates.

One indication of the mandates that local governments perceive as the most objectionable comes from the choice of mandates included in surveys conducted for the U.S. Conference of Mayors and the National Association

4. Advisory Commission on Intergovernmental Relations, *Federally Induced Costs*, p. 2.

5. National Conference of State Legislatures, "Mandates Catalogue" (Washington, D.C., December 1993). The conference's definition of the term "federal mandate" includes all of the kinds of federal action listed in Box 1 except two: court decisions or administrative regulations that impose an implied constitutional or statutory obligation on state and local governments, and regulatory delays and nonenforcement.

BOX 1.
TYPES OF FEDERAL ACTION THAT CAN
INDUCE SPENDING AS DEFINED BY THE
ADVISORY COMMISSION ON
INTERGOVERNMENTAL RELATIONS

- o Grant-in-aid matching requirements and conditions on spending and administration.
- o Direct orders that mandate state and local governments to perform an activity for which there is little or no federal funding.
- o Federal regulations that allow state or local government enforcement if the state or local standards are equal to or higher than the federal standard.
- o Prohibitions of state or local actions that could save state and local costs.
- o Tax policies that make it more difficult or expensive for state and local governments to raise revenues, borrow funds, fund public-private partnerships, and privatize public functions.
- o Court decisions or administrative regulations that impose an implied constitutional or statutory obligation on state and local governments to do or not do something.
- o Regulatory delays and nonenforcement.
- o Laws that expose state and local governments to liability lawsuits.

SOURCE: Advisory Commission on Intergovernmental Relations, *Federally Induced Costs Affecting State and Local Governments* (September 1994).

of Counties. These local government associations collected information about specific mandates to draw attention to the entire mandate issue (see Figure 1 and Appendix A). Clearly, cities and counties are concerned about numerous environmental mandates.

Dismay about the growing number of federal requirements and the restrictions they place on how state and local governments may spend their budgets is not new. In 1980, for example, a study prepared for the Congress's Joint Economic Committee measured the local costs resulting from federal requirements.⁶ The motivation for that study was "a growing concern among local officials that the ability to allocate revenue in a timely and efficient manner is being slowly eroded by new Federal guidelines, regulations and other requirements." That concern persists to this day.

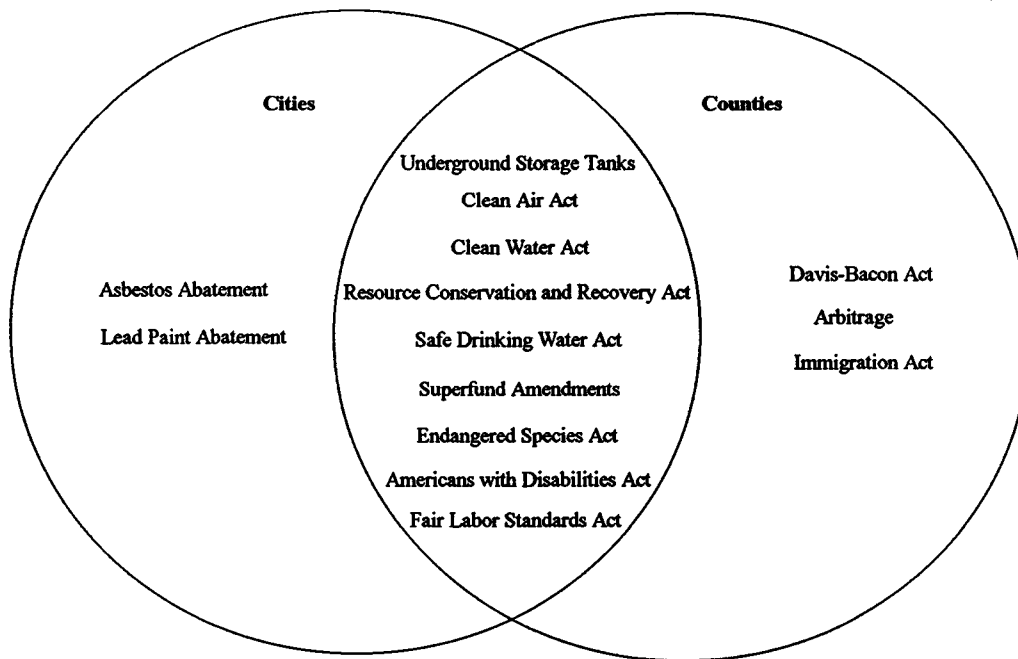
Trends in Federal Aid to State and Local Governments

A fundamental difference between the concerns expressed in 1980 and the concerns of today is the amount of federal funds accompanying additional federal mandates. In the early and mid-1970s, growth in the number of federal requirements was accompanied by increases in direct federal aid to state and local governments. Although such requirements have continued to grow throughout the 1980s and the early 1990s, federal aid to state and local governments--adjusted for inflation and measured on a per capita basis--fell significantly from 1979 through 1982 and has never again reached its 1978 peak (see Figure 2).

A large share of the revenue that the federal government provides to state and local governments goes for public welfare programs. This component of federal aid has been growing on a per capita basis since 1980 and as a result can obscure the extent of the aid provided for other uses. The amount of funds provided to state and local governments for uses other than public welfare has declined since 1978 on a per capita basis (see Figure 3). In addition, federal aid as a share of state and local expenditures for items other than public welfare has fallen from 16 percent in 1978 to 9 percent in 1991 (see Figure 4).

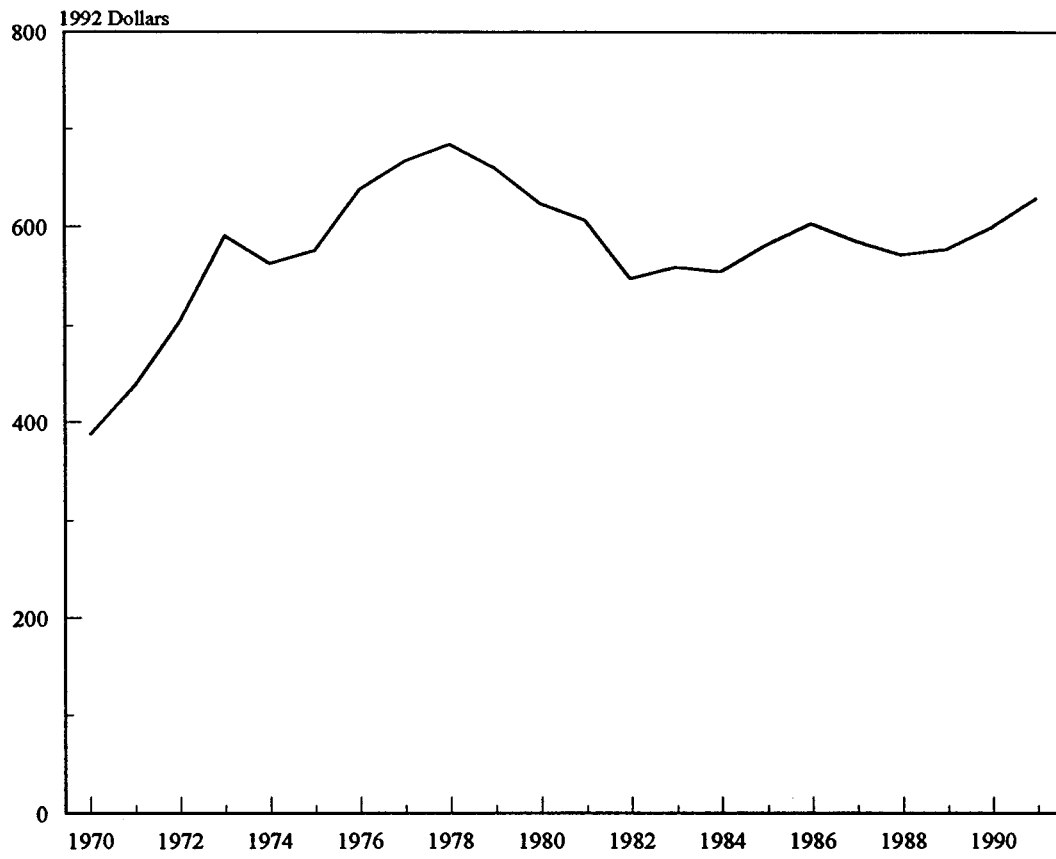
6. Thomas Muller and Michael Fix, "The Impact of Selected Federal Actions on Municipal Outlays," in Joint Economic Committee, *Special Study on Economic Change*, vol. 5, *Government Regulation: Achieving Social and Economic Balance*, Joint Committee Print (December 1980).

FIGURE 1. MANDATES INCLUDED IN SURVEYS OF U.S. CITIES AND COUNTIES



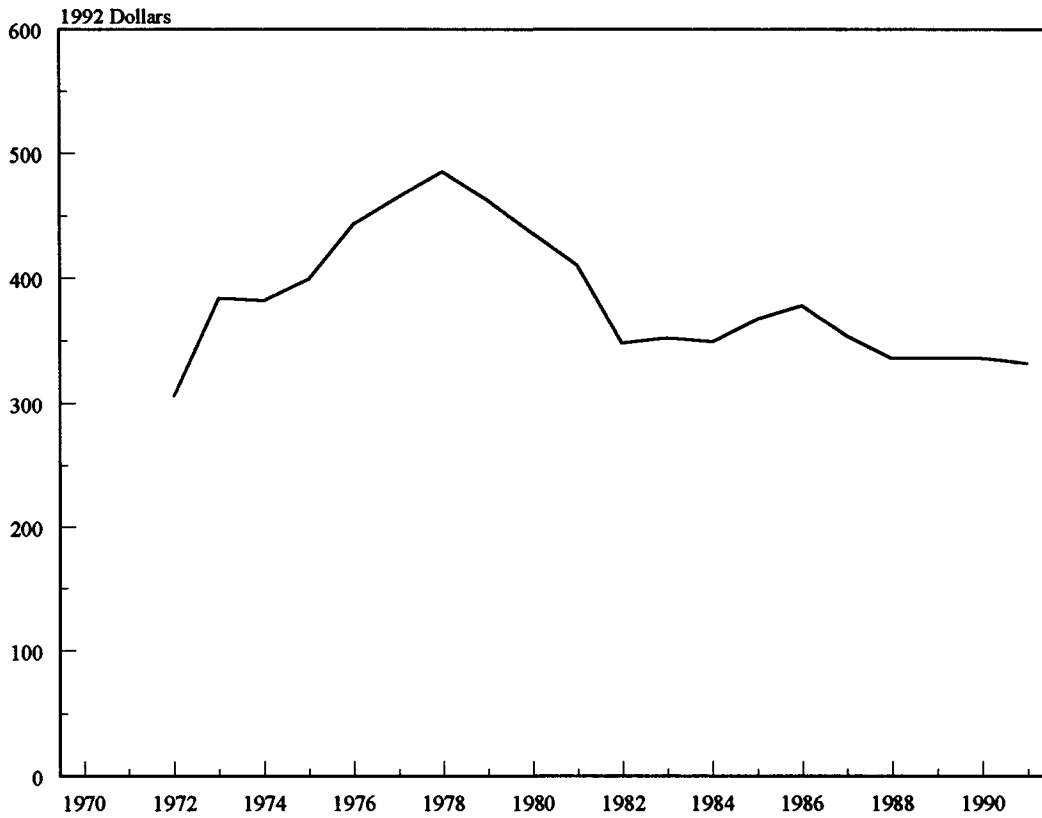
SOURCE: Congressional Budget Office based on U.S. Conference of Mayors, *Impact of Unfunded Federal Mandates on U.S. Cities* (Washington, D.C.: U.S. Conference of Mayors, October 1993); and National Association of Counties, *The Burden of Unfunded Mandates: A Survey of the Impact of Unfunded Mandates on American Counties* (Washington, D.C.: National Association of Counties, October 1993).

FIGURE 2. FEDERAL AID RECEIVED BY STATE AND LOCAL GOVERNMENTS
MEASURED ON A PER CAPITA BASIS, 1970-1991



SOURCE: Congressional Budget Office based on the Census Bureau's Government Finances Series.

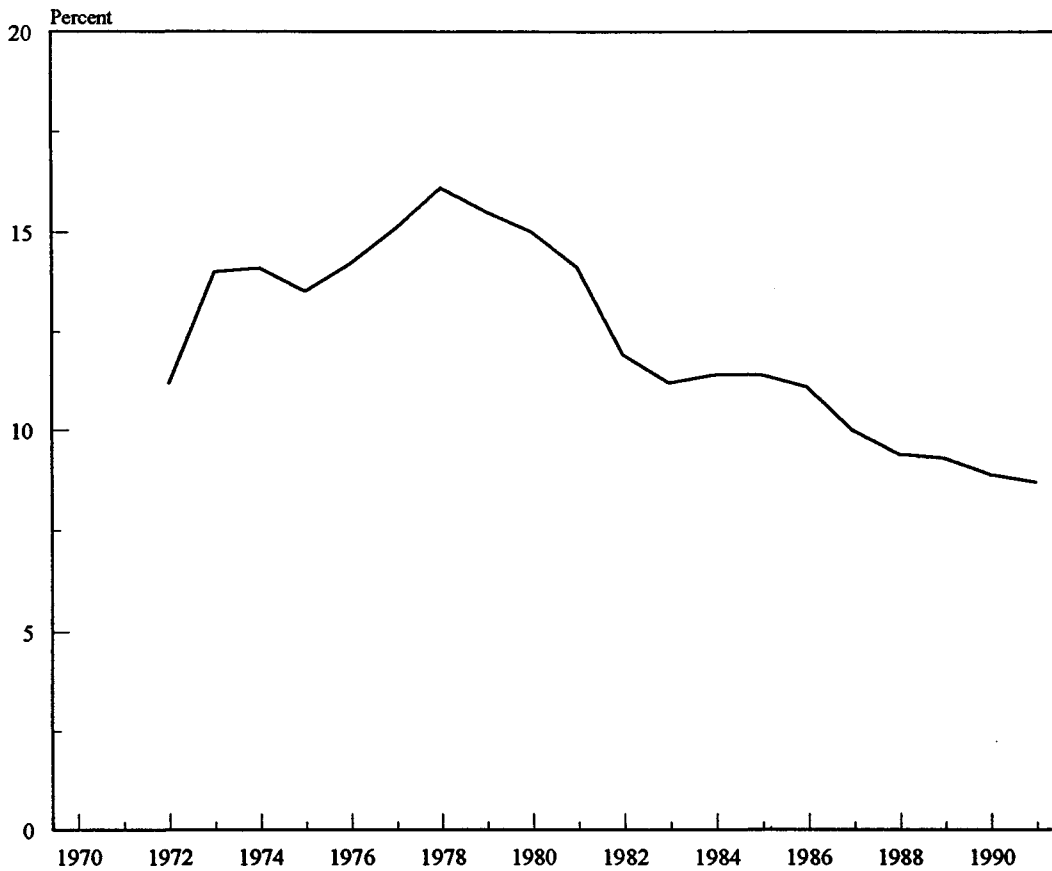
FIGURE 3. FEDERAL AID RECEIVED BY STATE AND LOCAL GOVERNMENTS MEASURED ON A PER CAPITA BASIS, NET OF FUNDS FOR PUBLIC WELFARE, 1972-1991



SOURCE: Congressional Budget Office based on the Census Bureau's Government Finances Series.

NOTE: Federal revenue received by state and local governments that is classified as public welfare includes Aid to Families with Dependent Children, Medicaid, low-income home energy assistance programs, welfare institution payments, money for the homeless, children's services and foster services, social services block grants, and unemployment trust fund administrative expenses (David Kellerman, Bureau of the Census, personal communication, September 11, 1994).

FIGURE 4. FEDERAL AID AS A PERCENTAGE OF STATE AND LOCAL EXPENDITURES FOR ITEMS OTHER THAN PUBLIC WELFARE, 1972-1991



SOURCE: Congressional Budget Office based on the Census Bureau's Government Finances Series.

NOTE: Federal revenue received by state and local governments that is classified as public welfare includes Aid to Families with Dependent Children, Medicaid, low-income home energy assistance programs, welfare institution payments, money for the homeless, children's services and foster services, social services block grants, and unemployment trust fund administrative expenses (David Kellerman, Bureau of the Census, personal communication, September 11, 1994).

Pros and Cons of Federal Mandates

Local officials object to federal mandates on the grounds that they force localities to allocate their funds in a manner that may be inconsistent with local priorities.⁷ For example, many local officials have indicated that they would spend additional funds on increased police protection and crime prevention if the cost of federal mandates was reduced.⁸

A related concern is that mandates that are set at the federal level may not reflect the unique situation of individual communities. Local governments may have better information on local circumstances and thus be able to assess the specific costs and benefits of a mandate--as it relates to them--more accurately. Drinking water regulations illustrate the problems involved. These regulations are based in part on their affordability for large water systems, which have lower unit costs as a result of economies of scale.⁹ For some smaller communities, the compliance costs associated with such regulations may impose a heavier fiscal burden and may exceed the benefits that they receive.

As another example, officials in arid western cities, such as Tucson and Phoenix, have complained that the requirements of the Clean Water Act are ill-suited to their climate.¹⁰ They believe that some of the investments that they are required to make are costly yet do little to reduce risks. Some local officials also argue that they are required to comply with mandates that are based on inadequate scientific evidence.¹¹

Another problem is that some federal mandates may discourage local innovation in achieving the goals that they are intended to promote. Environmental regulations that specify the use of a particular technology (such

7. For a more detailed discussion of the logic of assigning responsibility for environmental protection to different levels of government, see Congressional Budget Office, "Environmental Federalism: Allocating Responsibilities for Environmental Protection," CBO Staff Working Paper (September 1988).

8. U.S. Conference of Mayors, *If Unfunded Federal Mandates Were Relieved: Potential Impact on Policing and Crime Prevention* (Washington, D.C.: U.S. Conference of Mayors, March 1994).

9. Environmental Protection Agency, *Technical and Economic Capacity of States and Public Water Systems to Implement Drinking Water Regulations: Report to Congress* (September 1993), p. 20.

10. U.S. Conference of Mayors, *Impact of Unfunded Federal Mandates on U.S. Cities* (Washington, D.C.: U.S. Conference of Mayors, October 1993), pp. D-1 through D-3.

11. For example, see the statement of Steve Bartlet, Mayor of the City of Dallas, before the Investigations and Oversight Subcommittee, House Science, Space, and Technology Committee, March 22, 1994; and Advisory Commission on Intergovernmental Relations, *Federally Induced Costs*.

as the best available technology for wastewater and drinking water treatment) may discourage local governments from trying more cost-effective approaches.

Yet despite such drawbacks, federal mandates may offer several advantages. In some cases, the decisions of a municipality may result in "externalities"--effects on citizens or businesses outside its boundaries. A local government generally does not have a sufficient incentive to take such external effects into account in its decisionmaking. For example, the emissions from a municipal incinerator could have adverse health effects on people living far outside the municipality's boundaries. The local citizens would bear the cost of reducing the incinerator's emissions but would not receive all of the benefits that would result. Consequently, the local government would not have an incentive to choose a sufficiently high level of protection.

Another advantage to regulation at the federal level is the broader range of expertise and resources available. Some activities (such as setting health standards or developing technology-based standards) require a great deal of technical information. Many local governments lack the ability and the incentive to obtain it, whereas the federal government can supply it to communities at little additional cost.¹²

Uniform national standards can have an advantage from both an efficiency and an equity perspective. Companies that have plants in different locations may find it less costly to meet one uniform national standard than many different state or local ones. Furthermore, uniform national standards ensure that citizens can travel throughout the United States and be assured of a certain level of protection--for example, safe drinking water. Such standards also guarantee citizens a minimal level of certain benefits no matter where they live. A person in a wheelchair can thus be assured of access to public transportation regardless of the priority that his or her community might attach to accessibility in the absence of a federal mandate.

Finally, uniform national standards may prevent some local governments from setting lower local standards in order to attract businesses to their area. In other cases, however, local governments may prefer to have the option of adopting lower standards to compete for business investment.

12. Statement of Elliot Schwartz, Acting Assistant Director of the Natural Resources and Commerce Division, Congressional Budget Office, before the Senate Committee on Governmental Affairs, September 14, 1988.

Implications of Providing Federal Funds for Federal Mandates

Local officials complain that it is unfair that federal officials are able to establish mandates, whereas local officials are responsible for funding them. Regardless of whether mandates are funded by the federal government or by local governments, individuals (as taxpayers and consumers) and businesses will ultimately bear the cost of implementing them. The question of what level of government should pay for mandates can, however, have important equity and efficiency implications.

In some cases, identifying who benefits from a mandate may help determine the appropriate source of funds. For example, the nation as a whole can benefit from lower health care costs if local governments provide immunizations for children. Given that the costs are local but the benefits national, federal funding may be appropriate. In other cases, the fact that the benefits from a mandate extend beyond local boundaries may not necessarily mean that the federal government should provide funds. For instance, individuals living outside a local jurisdiction may benefit when that locality reduces the discharges from its wastewater treatment facility. In that case, however, the "polluter-pays" principle may apply--those that create the pollution should bear the cost of reducing it.

Mandates that are paid for by the federal government are generally funded primarily through federal business and personal income taxes. Mandates that are financed by local governments are generally funded mainly through local taxes or user fees. Because these alternative sources of revenues may have different incidences, the choice of financing may raise added concerns over the progressivity of the funding, interregional effects, and the like.

Federal funding can ease the burden of mandates on local governments. It can also be targeted to provide relief for communities that bear a particularly large fiscal burden in complying with a mandate (such as small communities that are unable to achieve economies of scale or communities with an exceptionally low tax base). If federal funding programs are not carefully designed, however, they can reduce the incentives that local governments have to make efficient choices.

When local governments pay for a federal mandate, they have an incentive to choose the most cost-effective strategy possible for complying with it. In an examination of federal infrastructure projects, the Congressional Budget Office found that federal infrastructure programs, as currently structured (that is, providing a share of the cost of the infrastructure), "fail to provide either infrastructure users or state and local managers with incentives

to make efficient choices."¹³ For example, mass transit systems built with federal funds tend to have excess capacity.¹⁴ Another CBO study found that wastewater treatment plants made less efficient investments when local governments covered a smaller portion of the costs of a project. Higher local cost shares resulted in the selection of simpler treatment technologies, limited construction of reserve capacity, rigorous local oversight of costs, and, ultimately, shorter construction periods.¹⁵

In addition, the availability of federal funds may cause states and local governments to delay taking action on their own in order to receive federal dollars. CBO found, for instance, that some local governments may have put off needed investments in wastewater treatment in hopes of qualifying for matching grants.¹⁶ That type of strategic behavior could delay the process of achieving the goals of the mandate. It is particularly likely to occur in situations in which the federal government attempts to fund only the incremental share of a mandate's cost--that is, the additional expenditures that a mandate requires municipalities to make, over and above what they would have spent in the absence of the mandate.

Further, the knowledge that federal funds are available to address a problem can lessen the incentives of municipalities to use other strategies to avoid that problem in the first place. Drinking water offers a good illustration. When drinking water treatment is funded at the local level, expanding municipalities have an incentive to promote water conservation in order to delay the need for additional treatment capacity. The city of Denver, in an effort to delay the need for additional water supplies and, correspondingly, additional treatment, has adopted water conservation measures that are expected to reduce projected water demand in 2010 by between 10 percent and 15 percent. It is estimated that additional measures could reduce demand by another 10 percent to 15 percent.¹⁷

Finally, each dollar of federal funds that is provided does not always result in an additional dollar of total expenditures to attain a social goal, such as clean air or clean water. In some cases, federal dollars may replace at least a share of the funds that state or local governments would have chosen

13. Congressional Budget Office, *New Directions for the Nation's Public Works* (September 1988), p. xvi.

14. *Ibid.*, p. 35.

15. Congressional Budget Office, *Efficient Investments in Wastewater Treatment Plants* (June 1985), p. xii.

16. Congressional Budget Office, *New Directions for the Nation's Public Works*, p. 105.

17. John R. Morris, "Water Conservation Progress in Denver," *Contemporary Policy Issues*, vol. 9 (July 1991), pp. 35-45.

to spend to meet that goal in the absence of federal aid (or even in the absence of a federal mandate). This phenomenon is known as fiscal substitution and can be seen most clearly in the historical level of expenditures made on infrastructure for wastewater treatment (see Figure 5). The amount of federal funds available (through the EPA) to subsidize local construction of wastewater treatment facilities rose from \$1.4 billion in 1972 to \$7.3 billion in 1977. The amount of local funds used to construct wastewater treatment plants fell, however, from \$5.4 billion in 1972 to \$0.9 billion in 1977.

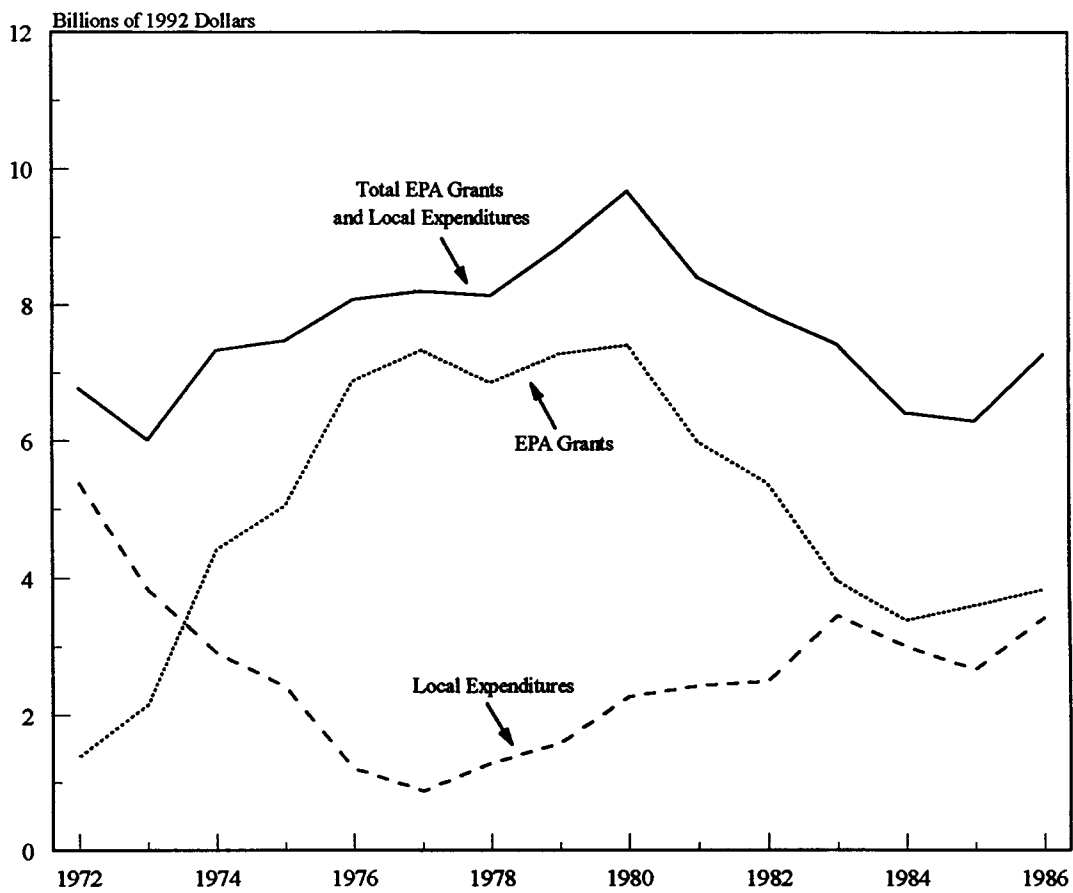
Federal funding programs need not result in inefficient choices at the local level. But they must be carefully designed to provide local officials with an incentive to meet the goal that the federal mandate aims to achieve in the most cost-effective way. In general, providing federal funds based on factors that are outside the immediate control of states and localities (such as their population) rather than on factors that states and localities can control in the short run (such as the size of the infrastructure project they plan to undertake) tends to minimize the distortionary effects that federal funds can have. Using factors that are not open to immediate control minimizes the incentives to choose a more extensive infrastructure project than necessary or to delay making needed investments simply to obtain additional federal funds. Further, the more flexibility that states and localities have in allocating federal funds, the greater their incentive to use them in the most cost-effective way.

Providing federal funds based on factors that are outside the control of states and localities has advantages, but it has limitations as well. Basing the allocation of the money on such factors may not achieve the legislative purpose of the mandate. Given the difficulty of choosing appropriate criteria for assistance, any formula is likely to be controversial on grounds of both efficiency and fairness.

THE SAFE DRINKING WATER ACT

Some observers consider the Safe Drinking Water Act one of the more burdensome federal mandates, which makes it a good starting point for examining how mandates affect local governments. Information about the costs that municipalities bear to comply with the SDWA is useful in that effort. Also important, however, is a consideration of the cumulative costs of multiple mandates.

FIGURE 5. TRENDS IN LOCAL EXPENDITURES AND EPA GRANTS TO LOCAL GOVERNMENTS FOR WASTEWATER TREATMENT INFRASTRUCTURE, 1972-1986



SOURCE: Congressional Budget Office based on Environmental Protection Agency, *Environmental Investments: The Cost of a Clean Environment* (November 1990).

Background on Drinking Water Regulations

Before the establishment of the Environmental Protection Agency and the enactment of the SDWA, local governments treated their drinking water to ensure acceptable taste and odor and to prevent the outbreak of acute waterborne disease. Voluntary standards established by the Public Health Service in 1962 were widely followed.¹⁸ In 1974, the Congress passed the SDWA and directed the EPA to promulgate national interim primary drinking water regulations while final regulations were being developed. The interim regulations codified existing health standards; they were promulgated in December 1976 and became effective in mid-1978. Another rule, the total trihalomethane regulation, was promulgated in 1979 (but became effective 18 months later). The interim regulations and the total trihalomethane rule were the only national regulations covering drinking water in effect before the passage of the 1986 amendments to the SDWA.

The 1986 amendments directed the EPA to promulgate regulations for 83 specific contaminants as well as regulations mandating filtration (for those water systems supplied by surface water sources) and disinfection (for all water from public water supplies).¹⁹ In addition, the law required the EPA to regulate 25 additional contaminants every three years. Since 1986, the EPA has promulgated seven major regulations that establish standards for groups of specific contaminants (see Appendix B). Three regulations are currently in the proposal stage.

Measuring the Cost of the SDWA

Many communities share the common goal of providing their residents with safe drinking water. Most would, therefore, undertake some testing and treatment of their drinking water even in the absence of federal requirements. The true cost of a federal mandate is the additional expenditures that it requires municipalities to make. Unfortunately, the data to estimate what municipalities would have done in the absence of federal mandates do not exist. Instead, three sources--each with different strengths and weaknesses--offer information about the cost of federal requirements related to drinking water:

18. Environmental Protection Agency, *Environmental Investments*.

19. Environmental Protection Agency, *Estimates of the Total Benefits and Total Costs Associated with Implementation of the 1986 Amendments to the Safe Drinking Water Act* (March 1990).

- o Engineering-based estimates that use models to predict the costs that different types of water systems will incur;
- o Census data that indicate actual expenditures for drinking water by local governments in the United States; and
- o Case studies that indicate the actual costs incurred by selected communities to treat their drinking water.

Although each source of information can provide some insight into the cost of federal requirements, no single one is completely satisfactory. Engineering-based approaches have been used to provide national estimates of such costs, but they are based on numerous assumptions that may not hold true in the real world. Census data offer information on the changes in community expenditures for drinking water over time, but they do not reveal what share of that change is due to the treatment of drinking water (rather than its pumping and distribution). Case studies may give an accurate picture of the costs that a particular community has incurred to treat its drinking water, but communities are unique, making it difficult to generalize from case studies to the national level. None of the sources provide any direct information on what level of treatment communities would have selected in the absence of federal mandates.

Yet despite their limitations, the three sources taken together offer indications of the costs that local communities have incurred in complying with federal drinking water regulations.

Engineering-Based Cost Estimates

Two organizations provide engineering-based estimates of the cost of meeting federal requirements for safe drinking water: the EPA and the American Water Works Association (AWWA), a group of major suppliers of drinking water. A strength of these estimates is that they are comprehensive; that is, they attempt to estimate the total national cost of meeting federal requirements. But this type of estimate also has two primary drawbacks.

First, it does not indicate what communities would have done in the absence of federal regulations. In figuring how much a mandate costs, a distinction should be drawn between the total cost of meeting federal requirements and the incremental cost. The total cost refers to the costs that drinking water systems incur when they treat water to the level specified by federal regulations. It comprises all treatment costs incurred after the standard is set, regardless of whether communities would have chosen to meet

the standard in the absence of a regulation. The incremental cost of a federal regulation is the additional cost that communities incur as a result of it. It equals the total cost of meeting the federal requirement minus the costs that drinking water systems would have incurred to treat their drinking water in the absence of federal regulations.

The incremental cost of a federal regulation is the cost of the mandate. It is the preferred measure for understanding the regulation's impact, but it is much more difficult to estimate than the total cost. The EPA and the AWWA estimate only the total cost of meeting federal requirements; they do not try to estimate the incremental cost. The EPA's estimates implicitly assume that no water system requiring treatment to meet a drinking water standard at the time the standard is promulgated would have chosen to undertake that treatment in the absence of the regulation. Likewise, they assume that no communities would have tested for regulated contaminants in the absence of federal requirements.

The second drawback to engineering-based models is that they are founded on numerous assumptions about how individual communities will comply with the requirements. The accuracy of the estimates depends on the realism of the modeling and the validity of those assumptions, which include the following:

- o The occurrence of contaminants and the type of water system in which they exist (surface water or groundwater, large or small).
- o The actual number of treatment units. Information is available on the number of water systems in the United States, but estimates of the number of treatment units differ.
- o The treatment technologies that water systems would choose.
- o The cost of purchasing and operating given technologies.
- o The cost of monitoring water quality.

Engineering-based cost estimates may ultimately prove to be quite different from the costs that specific water systems incur to treat their drinking water to the level of federal standards. Nevertheless, by making assumptions about how communities will respond to a regulation, engineering analyses can provide some understanding of the cost of a regulation as it is being developed. In addition, they offer a relatively inexpensive way to estimate the cost of existing regulations.

Both the EPA and the AWWA have recently published engineering-based estimates of the total annual cost of treating drinking water to federal standards specified by the Safe Drinking Water Act. The EPA estimates that water systems will spend \$1.5 billion per year, and the AWWA estimates that water systems will spend \$4.1 billion. (Both are measured in 1992 dollars.) The AWWA's estimate is higher than the EPA's for two main reasons. First, the AWWA uses different assumptions about the number of treatment units.²⁰ Second, its estimate includes the cost of complying with some standards that the EPA excludes--specifically some of the phase II standards.

The EPA promulgated the phase II rule after the Congress passed the 1986 amendments to the SDWA. Many of the standards set under this rule merely finalized (or sometimes strengthened) standards that existed earlier--first under the voluntary health guidelines established by the Public Health Service in 1962 and then under the interim rules promulgated by the EPA in 1976. Because those standards had been in effect for a long time, the EPA assumed that most water systems were already complying with them before the phase II rule was promulgated. Therefore, in estimating the cost of the rule, the agency included only the additional cost that the rule imposed--the cost resulting from standards that were strengthened. The AWWA, however, included the full cost of meeting all of the phase II standards. If the AWWA's estimate of the total cost of all final rules was adjusted to include only the additional cost of the phase II regulations, it would drop to \$2.3 billion--approximately 60 percent more than the EPA's total cost estimate.

These projected costs of \$1.5 billion and \$2.3 billion (or \$4.1 billion, if all of the costs for meeting the phase II standards are included) can be compared with total national expenditures of \$28.6 billion in 1991 (measured in 1992 dollars) for providing community drinking water.²¹ But understanding the costs of mandates at the national level, though important, provides little insight into how households in communities of different sizes

20. The analysis prepared for the AWWA compared its cost estimates with those in a 1990 report prepared for the EPA (see note 19). It attributed the differences in cost primarily to different assumptions about the cost of financing (the EPA report used a 3 percent interest rate and the AWWA report used a 7 percent interest rate) and different assumptions about the number of treatment units. The EPA assumed that each affected water system had only one treatment site, whereas the AWWA report assumed multiple treatment sites for some systems. The EPA numbers presented above are from a 1993 report to the Congress (Environmental Protection Agency, *Technical and Economic Capacity of States and Public Water Systems*) that was released after the AWWA report. In that report, a 7 percent interest rate is assumed. The primary remaining difference between the AWWA and EPA analyses, therefore, is the assumption about the number of treatment sites for each affected water system.

21. The figure of \$28.6 billion is based on census data for expenditures by publicly owned water systems. CBO increased the data by 19 percent to account for the expenditures of privately owned community water systems. That adjustment was based on information from EPA's Federal Reporting Data Systems and is consistent with the approach used in Environmental Protection Agency, *Environmental Investments*.

and with different types of water systems might be affected. Using data provided by the EPA, CBO grouped households according to categories of potential drinking water treatment costs (see Figure 6). Nearly 70 percent of households would be expected to have a cost of less than \$10 per year as a result of treating drinking water to the standards specified by the SDWA; 86 percent would be expected to incur a cost of less than \$20 per year. Less than 4 percent of the households would be expected to incur a cost of more than \$100 per year, and less than 1 percent could have costs greater than \$300 per year. Those costs can be compared with an average expenditure for drinking water of \$352 per household in 1991 (see the discussion in the next section).

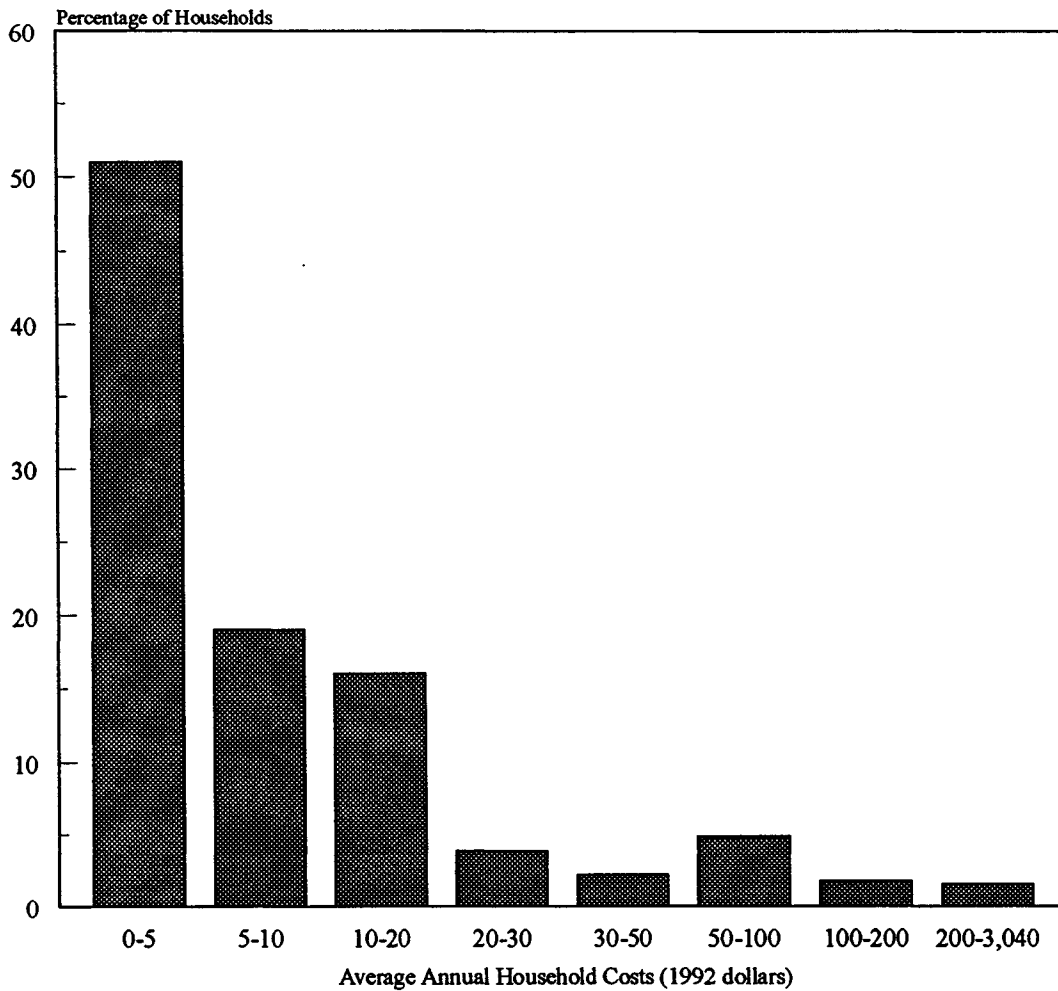
Although the EPA data suggest that the great majority of households would have costs of less than \$20 dollars per year, they also show that some water systems could incur substantial costs to meet the standards specified in the SDWA. Households with the highest compliance costs would tend to be those served by small water systems that needed one or more types of treatment.

The EPA has also published estimates of the cost of three proposed rules in addition to estimates of the cost of treating water to the level required by the existing final rules discussed above. The proposed rules are for radon, disinfection and disinfectant by-products, and enhanced surface water treatment. Adopting those rules in their current form could double or triple the estimated cost of treating drinking water to the SDWA-specified standards (see Figure 7). In turn, the household costs shown in Figure 6 could increase significantly if the regulations were to go into effect.

Census Data on Drinking Water Expenditures

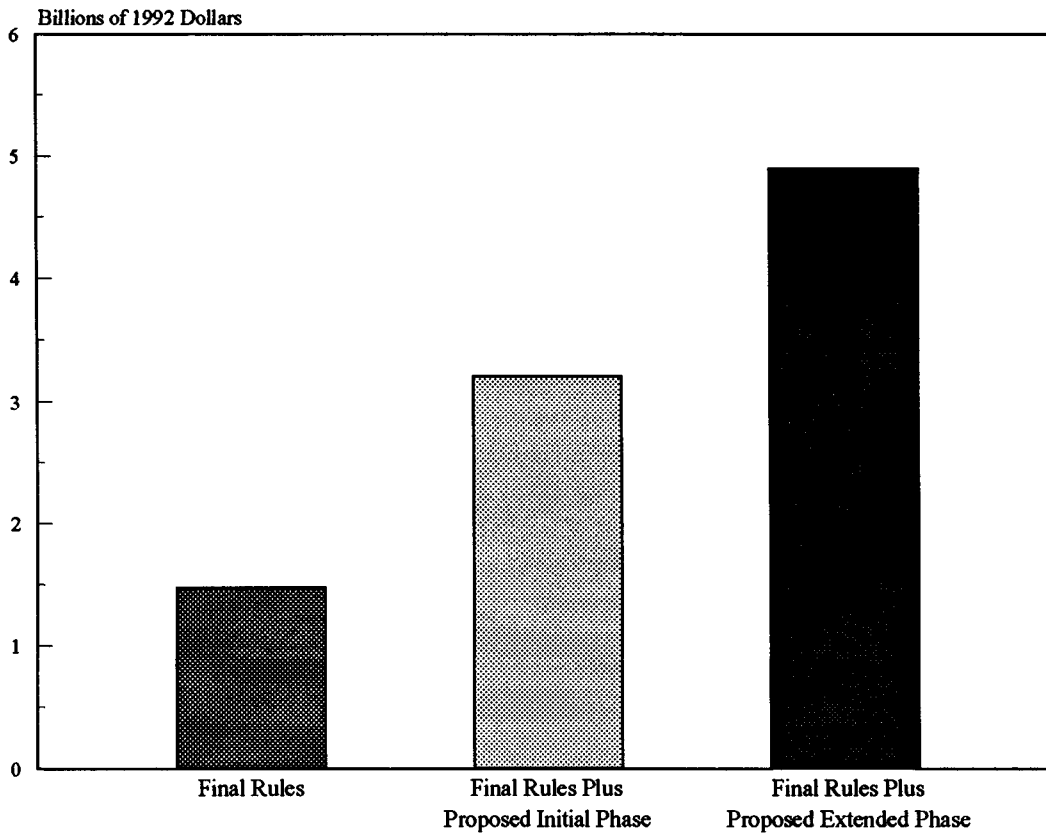
The Bureau of the Census collects information on the expenditures that local governments make to supply drinking water. Unlike engineering-based cost estimates, census data are based on actual (not predicted) expenditures. Unlike case studies, census data provide information at the national level. But two main limitations restrict the use of census data. First, the data do not indicate what share of the expenditures for drinking water is the result of treating it (rather than pumping and distributing it). Second, like the two other approaches, they do not reveal what communities would have spent in the absence of federal requirements for water treatment.

FIGURE 6. DISTRIBUTION OF HOUSEHOLDS BY ESTIMATED COST OF TREATING DRINKING WATER TO THE STANDARDS SPECIFIED BY THE SAFE DRINKING WATER ACT



SOURCE: Congressional Budget Office based on Environmental Protection Agency, *Technical and Economic Capacity of States and Public Water Systems to Implement Drinking Water Regulations: Report to Congress* (September 1993).

FIGURE 7. EPA'S ESTIMATE OF THE ANNUAL COSTS OF COMPLYING WITH FINAL AND PROPOSED RULES UNDER THE SAFE DRINKING WATER ACT



SOURCE: Congressional Budget Office based on the following Environmental Protection Agency documents: *Technical and Economic Capacity of States and Public Water Systems to Implement Drinking Water Regulations: Report to Congress* (September 1993); *Regulatory Impact Analysis of Proposed Interim Enhanced Surface Water Treatment Rule*, draft report (February 1994); *Report to Congress on Radon in Drinking Water: Multimedia Risk and Cost Assessment of Radon* (February 1994); and *Regulatory Impact Analysis of Proposed Disinfectant / Disinfection By-Product Regulations* (October 1993).

NOTE: The proposed initial phase comprises the cost of the proposed rules in their initial stage. It takes in the radon rule, stage I of the rule for disinfection and disinfectant by-products (D/DBP), and the rule for enhanced surface water treatment (ESWTR) for large systems only. The proposed extended phase comprises the cost of the proposed rules once they are extended. It takes in the radon rule, stage II of the D/DBP rule for all systems, and the ESWTR rule for all systems.

The average per capita cost of water supplied by publicly owned water systems in the United States (after adjusting for inflation) has increased significantly, rising from \$67 in 1957 to \$134 in 1991 (see Figure 8).²² Using the average household size in those years would bring these costs to \$223 per household in 1957 and \$352 in 1991. Increased treatment of drinking water is a factor that could explain at least part of the increase over the 1957-1991 period. Figure 8 shows the major events at the federal level that affected the treatment of drinking water during that time.

Identifying the share of expenditures for water supply that went for the treatment of drinking water (as opposed to the actual delivery of water) and subtracting the costs of treatment that local governments would have undertaken in the absence of federal requirements would leave the costs incurred as a result of federal mandates. But the data for those calculations are virtually nonexistent. An alternative method of providing an indication of whether federal requirements have had a significant impact on local expenditures is to examine whether the enactment of federal requirements correlates with significant changes in the trend of per capita local expenditures for water supply (see Figure 9).

CBO considered two trends based on different historical periods. The first is the trend in expenditures for drinking water established during the 20 years before the existence of federal requirements--that is, 1957 through 1977. The second was obtained by projecting per capita expenditures based on the trends established during the 1970-1977 period. CBO used this second trend to account for the fact that local expenditures for treating drinking water during the forecast period (1978-1991) may be more closely correlated with the trend established in recent years. That later trend is characterized by the availability of increased information on the potential contamination of drinking water.²³

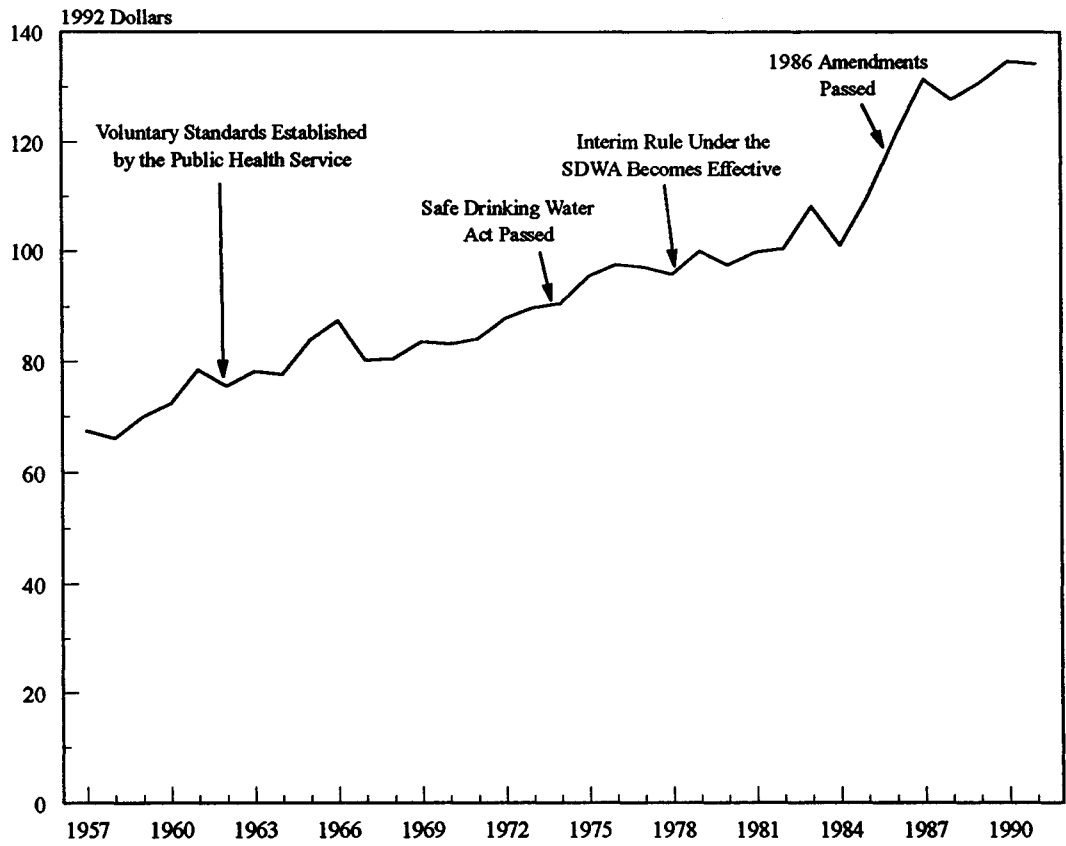
Actual expenditures for water supply averaged \$103 per person between 1978 and 1986, the period following the interim rules and before the 1986 amendments. That figure is \$1 more than the average per capita expenditure

22. Note that in some years, real (inflation-adjusted) per capita expenditures decreased because nominal per capita expenditures increased less than the inflation rate.

To figure per capita costs, CBO divided local expenditures for water supply in each year by an estimate of the population served by locally owned public water systems. That estimate was based on census data on the percentage of households served by public and private community water systems and on information about the percentage of community water systems that are publicly, rather than privately, owned. (The latter information was obtained from EPA's Federal Reporting Data Systems.)

23. Note that the trend lines in the figure have a kink in their initial year, which is the connection between the actual expenditures in 1977 and the trend line. This kink occurs because the point for actual expenditures in 1977 does not lie on either of the trend lines.

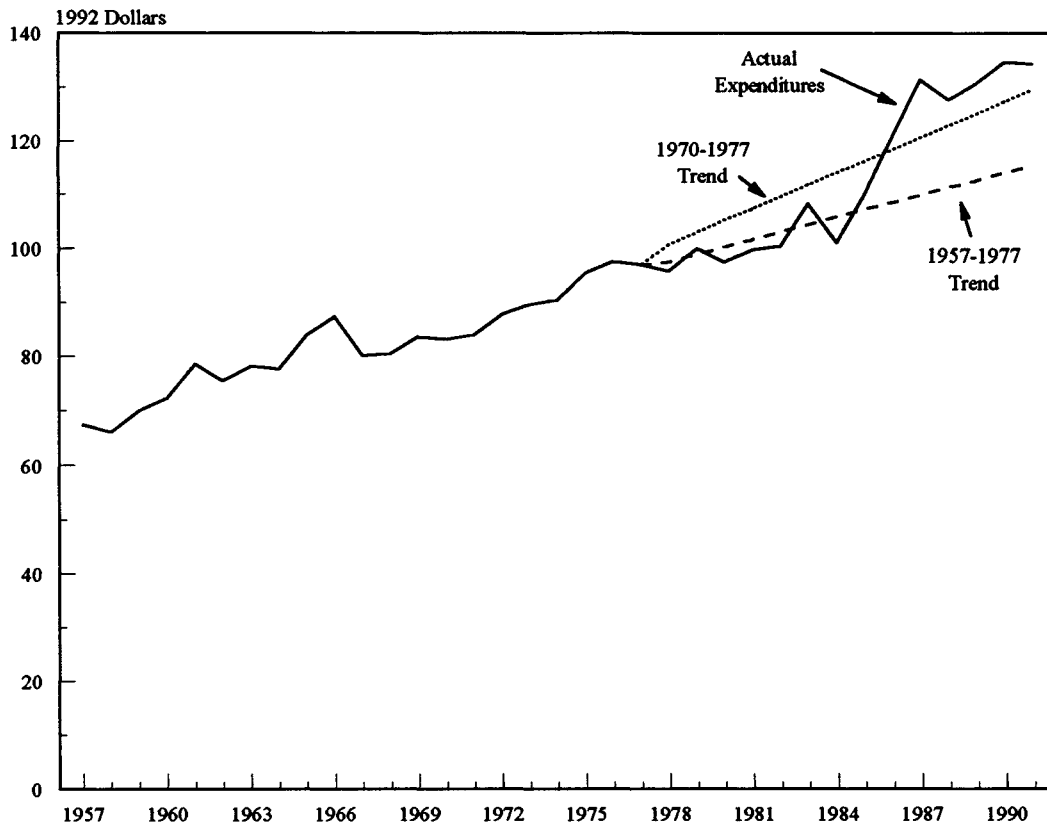
FIGURE 8. ANNUAL LOCAL EXPENDITURES FOR WATER SUPPLY MEASURED ON A PER CAPITA BASIS, 1957-1991



SOURCE: Congressional Budget Office based on the Environmental Protection Agency's Federal Reporting Data Systems and the Census Bureau's Government Finances Series and Census of the Population and Housing: Social, Economic, and Housing Characteristics.

NOTE: Local expenditures were divided by estimates of the population served by publicly owned community water systems.

FIGURE 9. ACTUAL LOCAL EXPENDITURES FOR WATER SUPPLY MEASURED ON A PER CAPITA BASIS, COMPARED WITH PREREGULATORY TRENDS, 1957-1991



SOURCE: Congressional Budget Office based on the Environmental Protection Agency's Federal Reporting Data Systems and the Census Bureau's Government Finances Series and Census of the Population and Housing: Social, Economic, and Housing Characteristics.

obtained for that period by using the 1957-1977 trend line. The average actual expenditure for the period is 5 percent less than what would have been predicted by using the 1970-1977 trend line. For the period after the 1986 amendments, actual expenditures were 6 percent higher than the 1970-1977 trend line and 17 percent higher than the 1957-1977 trend line.

A disadvantage of this type of analysis is that it does not reveal the cause of those increases. In addition to the need to comply with the SDWA, water systems face rising costs for replacing and upgrading their aging infrastructure for water delivery, for meeting growing demands for water as a result of population growth and economic development, and for replacing depleted low-cost sources of water with higher-cost supplies. In addition, increases in household income affect the demand for water.²⁴

Case Study Results: The Price Waterhouse Survey

Case studies of the actual costs that communities have incurred to comply with federal requirements avoid many of the problems associated with engineering estimates because they are based on actual data and can dispense with many of the assumptions discussed above. However, a major disadvantage of case studies is that they do not provide information about other communities' costs or the national costs of meeting drinking water requirements. It is difficult to extrapolate national costs from case studies because the degree of representativeness of the communities in the case studies is generally unknown. Even communities that are similar in size may experience different costs as a result of differences in the contaminants present, in existing equipment, in their choice of treatment technologies, and in access to capital. In addition, case studies generally provide little information about the treatment that communities would have undertaken in the absence of federal requirements--they do not reveal the incremental costs of federal mandates.

24. Models of residential demand for water have generally found income to have a small but statistically significant effect. The magnitude of that effect varies with the model, the region of the country, and the price rate structure; however, most estimates indicate that a 10 percent increase in income would result in an increase in water consumption of between 1 percent and 2 percent. For example, see Michael Nieswiadomy and David Molina, "Comparing Residential Water Demand Estimates Under Decreasing and Increasing Block Rates Using Household Data," *Land Economics*, vol. 65, no. 3 (August 1989), and "A Note on Price Perception in Water Demand Models," *Land Economics*, vol. 67, no. 3 (August 1991).

Real income per capita rose by 263 percent between 1977 and 1991. That rise implies that per capita water consumption could have increased by approximately 25 percent to 50 percent as a result of higher levels of income. An analysis of the variation in increases in drinking water expenditures among states did not, however, reveal that income had a significant effect. In other words, states with larger increases in per capita income did not necessarily have larger increases in per capita expenditures for drinking water.

In an attempt to draw attention to the cost of "unfunded federal mandates," the U.S. Conference of Mayors and the National Association of Counties each commissioned Price Waterhouse to survey their members about their total costs for complying with such requirements. Most of the mandates that Price Waterhouse requested information about were environmental ones (see Figure 1 and Appendix A). CBO obtained those survey results and is analyzing the expenditures that cities and counties reported for 1993 and 1997 as necessary to meet the standards specified by the SDWA. Some preliminary findings appear below.

The Price Waterhouse surveys asked cities and counties to report the expenditures they had made in fiscal year 1993 to comply with each of the final rules listed in Appendix B and an "other" mandate category. (Some cities and counties listed their costs for proposed rules or for testing or research in the "other" category.) In addition, the surveys asked both cities and counties to report the total expenditures that they expected to make to comply with each final rule for five additional years--1994 through 1998.

The Price Waterhouse data suffer from many limitations that could result in misleading conclusions if they were left uncorrected. CBO thus took several steps to improve the quality of the data on the SDWA costs: excluding large, unidentified "other" costs; separating costs associated with final rules from those associated with proposed rules; reporting expenditures on a per-household basis; annualizing capital expenditures; and deflating future costs so that all responses would be expressed in same-year dollars.

In some cases, CBO's quality control steps resulted in large differences in the cost of compliance for individual cities and counties compared with the Price Waterhouse data. Improper measurement of capital costs was a particular problem. Obtaining information on the size of the population served by each drinking water system was another important quality control step because in many instances drinking water systems do not correspond with municipal boundaries.²⁵

Based on CBO's preliminary analysis of the adjusted data, most cities and counties reported fairly modest expenditures for treating their drinking water in 1993. For example, over 70 percent of the municipalities with publicly operated water systems reported annual compliance costs of less than \$10 per household. Over 80 percent reported annual costs of less than \$20 per household.

25. CBO obtained information about the size of the population served by each drinking water system from the EPA's Federal Reporting Data System.

Although the costs derived from these surveys are similar to those from the EPA data (see Figure 6), they are not directly comparable. The EPA's estimates reflect the costs that are expected when all water systems are meeting the standards of the SDWA. Many water systems have not yet begun to make the capital investments that would enable them to meet those standards. Because the Price Waterhouse data reflect actual expenditures in 1993, they are measuring costs at a different point in the compliance process. In addition, the Price Waterhouse surveys were not designed to represent national costs. Not all cities and counties were included, and not all that were included responded. No attempt was made to compare the characteristics of the cities and counties that responded with the qualities of those that did not.

CBO is now analyzing the costs that cities and counties reported that they expected to incur in 1997 to meet the standards specified by the SDWA. Those costs tend to be larger than the 1993 costs for two reasons. First, not all of the capital projects necessary to comply with the final rules are in place yet. Water systems that need to install treatment equipment or infrastructure will be further along in that process by 1997. Second, some communities incorporated estimates of the costs that they expected to incur from the proposed rules into the compliance costs that they reported for 1997.

Notwithstanding the additional quality control steps that CBO took, readers should keep in mind several points about the analysis of the Price Waterhouse surveys. The surveys were limited in several ways: lack of explicit instructions about what costs to report, an incentive to provide upper-bound cost estimates to draw attention to the issue of unfunded mandates, and the lack of representativeness of the sample for any attempt to determine the national cost of complying with the SDWA.²⁶ In addition, cities and counties were not asked to exclude costs that they would have incurred to treat their drinking water in the absence of federal mandates. The reported costs, therefore, reflect total treatment costs rather than the incremental cost of federal requirements.

26. The Senate Committee on Environment and Public Works also reviewed the quality of the Price Waterhouse data. (See Senate Committee on Environment and Public Works, *Analysis of the Unfunded Mandates Surveys Conducted by the U.S. Conference of Mayors and the National Association of Counties*, Staff Report, June 1994.) Two of the criticisms that the committee noted are less relevant to the SDWA portion of the survey than to other parts. First, the committee faulted the survey for including the cost of complying with state mandates as well as federal ones. Although that criticism applies to some sections of the survey (such as the part dealing with municipal solid waste), the portion that deals with drinking water only has clearly identified federal requirements. Second, the committee criticized the survey for listing costs that had been offset at least in part by federal funds. That criticism is particularly relevant to the section of the survey dealing with the cost of wastewater treatment. Because virtually no federal funds have been available to local communities for implementing drinking water requirements, however, that criticism does not apply to historical expenditures for drinking water treatment. Federal funds may be available for drinking water expenditures in future years, a possibility that is discussed in the text.

PRELIMINARY STUDY FINDINGS

The Congressional Budget Office presents below some preliminary conclusions of its analysis of unfunded federal mandates.

Rising Concern About Federal Mandates Is Accompanied by Declining Funds

Although the topic of federal mandates is not new in the realm of public debate, the level of concern associated with it has been rising. That concern stems in part from two disparate trends: the number of federal mandates is increasing (as measured by the Advisory Commission on Intergovernmental Relations and the National Conference of State Legislatures) while federal aid to state and local governments for categories other than public welfare has been falling on a per capita basis since 1978. In addition, local officials argue that federal mandates force them to allocate limited local funds in a manner that is inconsistent with local priorities. They maintain that these problems stem at least partially from inadequate input by local officials and inadequate consideration of local costs when federal legislation and regulations are being developed. They also cite insufficient flexibility in federal regulations as a contributing factor.

Measuring the Cost of Federal Mandates Is Difficult

Several considerable problems hinder analysts in measuring the costs of federal mandates. The first is isolating the incremental costs that federal mandates generate. Mandates generally involve worthwhile goals that most communities share. As a result, communities would probably incur some costs to achieve those goals even without mandates. Once mandates are in place, however, those costs are difficult to determine. CBO addressed this issue in the case of the SDWA expenditures by comparing actual expenditures for drinking water in the period following passage of the first federal requirement for drinking water--the interim rules promulgated in 1978--with the trends in per capita expenditures established before that period. The method revealed a change in historical trends following the 1986 amendments; the data did not reveal how much of that change can be attributed to increased treatment of drinking water or to EPA regulations.

When the EPA estimates regulatory costs, it does not attempt to predict what municipalities would have done on their own in the absence of regulation. Therefore, its cost estimates reflect the total rather than the incremental cost of compliance. That assumption tends to push up its estimates. However, the ultimate accuracy of EPA's cost estimates depends

on numerous other assumptions as well, such as which technologies will be chosen and the cost of capital, chemicals, and labor.

A second measurement issue is how to properly account for federal funds. Calculating the unfunded cost of a federal mandate obviously requires deducting any federal funds that are provided from the cost of complying with the regulation. To date, no federal funds have been available to offset the costs that municipalities incur in complying with the SDWA. The Congress has, however, appropriated (but not yet authorized) \$600 million for a state revolving fund (SRF) to provide low-interest loans to municipalities to help them meet drinking water requirements. Under the SDWA reauthorization measure passed by the Senate, annual contributions to a drinking water SRF would rise to \$1 billion by fiscal year 2000. In addition, the measure would give governors the ability to shift some funds from an SRF for wastewater treatment into the drinking water SRF (and vice versa), depending on their state's needs.

In addition to federal funds that are directly linked to a particular mandate, the federal government provides other general subsidies to state and local governments. For example, the federal government allows taxpayers who itemize their federal income tax deductions to deduct income and property taxes paid to state and local governments. That deduction is thought to increase the willingness of taxpayers to support state and local services. In addition, the federal government allows individuals to deduct interest payments for certain types of state and local debt. The value of these general subsidies was equivalent to \$66 billion in federal outlays in 1994.²⁷ Although these general subsidies to state and local governments must be recognized, attributing a particular share of them to any given mandate is not an easy task.

A third measurement issue is the appropriate treatment of capital expenses. A problem with the Price Waterhouse data is that many municipalities failed to measure capital costs properly. To gain a more representative picture of the annual costs for drinking water treatment borne by local governments, capital investments should be amortized over the life of the equipment. In many instances, however, municipalities attributed the entire cost of the investment to the year in which it was made. Treating capital expenditures in that fashion overstates the costs of federal requirements for the first year of the investment. Failing to account for the annual cost of investments made in prior years can understate the cost of requirements.

27. *Budget of the United States Government: Analytical Perspectives, Fiscal Year 1995*, p. 54.

Measuring the costs of federal legislation and mandates is difficult, even after the laws and regulations have taken effect. Measuring costs is even more difficult when mandates are in the form of a legislative proposal. Legislation is often broad and lacks the specifics needed to project future effects. Those specifics are usually developed by executive branch agencies through the regulatory process. Sometimes both legislation and implementing regulations are challenged in court, and important details are not clarified for a considerable period of time. Because in many cases the costs of mandates are sensitive to the details of the applicable regulations, cost estimates prepared before the regulations are issued usually have to encompass a wide range of regulatory alternatives.

In addition to uncertainty about the final form that the mandate will take, measurements of costs are hindered by the fact that none of the sources of information discussed above are typically available: engineering analyses are usually developed only as the specific regulations are formed, and little, if any, information on the costs that municipalities would actually experience for compliance is available from census data or case studies. The primary source of information for cost estimates developed at the legislative stage is often the views and judgments of federal, state, and local officials or others in the regulated community. Often, a different set of individuals must be contacted for each legislative proposal. In addition, the most informed people in the regulated community may have an interest in the outcome of the legislative debate and may therefore have an incentive to over- or underestimate costs. As a result of these complicating factors, cost estimates constructed at the legislative stage will be less precise than examinations conducted after a law or regulation is in effect.²⁸

The Costs of Federal Mandates Should Be Considered in Context

Placing costs in an appropriate context is a crucial issue in measuring the burden of federal mandates. Ideally, the costs of each mandate should be weighed against its benefits. Generally, however, the data to compare costs and benefits for individual localities are not available, and information on benefits at the national level can be limited.

Reporting costs on a per capita or a per-household basis allows costs to be compared among municipalities. Such calculations must be performed carefully, however, because the service area that the mandate covers may not

28. For a more detailed discussion of this issue, see the statement of Robert D. Reischauer, Director, Congressional Budget Office, before the Senate Committee on Governmental Affairs, April 28, 1994.

correspond with municipal boundaries. For example, the service areas of many water systems do not correspond with city or county boundaries.

Fiscal capacity is another important element in figuring costs. In determining how affordable a mandate is for an individual municipality, the cost of the mandate (once it has been carefully measured) should be weighed against the city's fiscal capacity. Choosing a measure of fiscal capacity requires great care because some can be misleading. Measuring the cost of the mandate as a percentage of an individual municipality's budget, for instance, can reflect more about the total level of services the municipality provides than about the cost of the mandate.

To Date, the SDWA Has Resulted in Fairly Modest Costs for Most Households

CBO's analysis of census data suggests that changes in national trends in per capita expenditures for water supply followed the passage of the 1986 amendments to the SDWA. Clearly, expenditures have gone up. But what portion of that increase is due to water treatment and how much per capita expenditures would have risen in the absence of federal mandates are impossible to determine.

Available evidence from the EPA and the Price Waterhouse surveys indicates that, to date, the cost of treating drinking water has been less than \$20 dollars per year for most households. Yet the numerous limitations that attend such estimates must be kept in mind. Although the cost of treating drinking water to the standards specified under the SDWA appears to be modest for most households, some could be bearing large costs. In addition, the proposed rules could eventually triple the cost of complying with the SDWA.

APPENDIX A: DESCRIPTIONS OF UNFUNDED FEDERAL MANDATES PROVIDED BY THE U.S. CONFERENCE OF MAYORS AND THE NATIONAL ASSOCIATION OF COUNTIES

The U.S. Conference of Mayors and the National Association of Counties each described the mandates that they included in their surveys. The basic language that they used in their descriptions is presented below. The descriptions for the Davis-Bacon Act and the Immigration Act/Refugee Act are drawn from National Association of Counties, *The Burden of Unfunded Mandates: A Survey of the Impact of Unfunded Mandates on American Counties* (Washington, D.C.: National Association of Counties, October 1993). All of the other descriptions come from U.S. Conference of Mayors, *Impact of Unfunded Federal Mandates on U.S. Cities* (Washington, D.C.: U.S. Conference of Mayors, October 1993).

Underground Storage Tanks

The federal Underground Storage Tank law regulates tanks that store petroleum and hazardous substances and covers preventing, detecting, and correcting damage done by leaks and spills. Many local governments are required to regulate tanks in their jurisdictions and also are responsible for tanks that they own and operate.

Clean Water Act

This federal statute regulates discharges into navigable waters, setting standards for improving and maintaining water quality, regulating and requiring permits for point-source discharges, and controlling discharges to public waters by publicly owned treatment works and direct discharges by industry. It requires sewerage authorities to assume a wide range of responsibilities.

Clean Air Act

This act is the primary federal statute governing air emissions from stationary and mobile sources. It sets air quality standards, requiring state implementation plans in which local governments must participate, and it requires permits for all major sources of pollution. For those cities in nonattainment areas, the act requires that corrective activities be undertaken.

Resource Conservation and Recovery Act

Enacted in 1976 as the primary federal statute regulating solid and hazardous waste, the Resource Conservation and Recovery Act (RCRA) completely replaced the Solid Waste Disposal Act of 1965 and supplemented the Resource Recovery Act of 1970. RCRA itself was substantially amended by the Hazardous and Solid Waste Amendments of 1984.

Safe Drinking Water Act

As the primary statute regulating drinking water standards, the act establishes maximum levels for contaminants that are known to occur in public water systems. The SDWA certifies appropriate analytical techniques, specifies appropriate treatment techniques, and establishes public notification procedures, among other directives. It requires suppliers of drinking water to assume a wide range of responsibilities.

Asbestos Abatement

A wide range of federal requirements cover the handling of asbestos-containing materials in properties or buildings undergoing rehabilitation or demolition, and the treatment of asbestos in school buildings. The mandate regulates inspection, removal, transportation, disposal, and worker exposure, among other areas.

Lead Paint Abatement

Under the Residential Lead-Based Paint Hazard Reduction Act of 1992 (title X of the Housing and Community Development Act of 1992), local governments responsible for federally assisted housing must assess, inspect, and reduce or abate lead hazards in such housing.

Endangered Species Act

This act provides for the conservation, protection, restoration, and propagation of species of fish, wildlife, and plants facing extinction. Various federal agencies work to implement the act by monitoring the potential destruction of natural habitats through public- or private-sector projects in communities.

Americans with Disabilities Act

Title II of the Americans with Disabilities Act (ADA), which covers public services, has several provisions. It prohibits discrimination on the basis of disability in state and local government employment and services. It requires that all new buses be accessible and that supplementary paratransit services or other special transportation services be provided to individuals with disabilities who cannot use fixed-route bus services. It also requires that all new rail vehicles and all new rail stations be accessible, that existing rail systems have one accessible car per train by July 26, 1995, and that existing key stations in rapid rail, commuter rail, and light rail systems be accessible by that date, unless an extension has been granted. In addition, title II requires that every local government with 50 or more employees designate an ADA coordinator, complete a self-evaluation (unless this was already done under section 504), and complete a transition plan (by July 26, 1992).

Fair Labor Standards Act

The Fair Labor Standards Act establishes and sets the minimum wage and specifies a range of labor practices, including overtime compensation, for both the public and private sectors.

Davis-Bacon Act

Local governments receive federal assistance under Community Development Block Grants and the Intermodal Surface Transportation Act to construct and repair buildings, roads, and other public facilities. When federal funds are used, the Davis-Bacon prevailing wage must be paid to construction workers.

Immigration Act/Refugee Act

The number of immigrants and refugees admitted into the United States is determined by the national government. If these people require medical care, social services, or other assistance and cannot afford it, states and counties have to provide these services. Some federal reimbursement of these costs is provided, but states and counties have to shoulder most of them.

APPENDIX B: FINAL AND PROPOSED RULES AS OF SEPTEMBER 1994 UNDER THE SAFE DRINKING WATER ACT

The Environmental Protection Agency promulgated seven major final rules following the 1986 amendments to the Safe Drinking Water Act. In addition, three more rules are proposed.

Final Rules

The EPA has issued rules for both individual contaminants, such as fluorides, and groups of contaminants, such as inorganic compounds. Each of the final rules is listed below. The phase II rule is broken down into synthetic organic compounds and inorganic compounds. The date in parentheses indicates when the rule was published in the *Federal Register*. Rules generally become effective 18 months after they are published.

Fluoride (April 2, 1986). Fluorides occur naturally and are added in the treatment process in many water systems. Amounts greater than 2.0 parts per million can have harmful effects, ranging from discoloration and pitting of teeth to bone and skeletal damage. Systems must test for fluoride; if it is found to be above allowable levels, they must change their operations or take other actions to lower the level.

Phase I Volatile Organic Compounds (July 8, 1987). Volatile synthetic organic chemicals (VOCs) are man-made compounds used for a variety of industrial and manufacturing purposes in the form of products such as solvents, degreasers, and dry cleaning chemicals. VOCs have adverse effects on the liver, kidneys, and nervous system, and they may cause cancer in humans. Water systems must sample for VOCs. When the compounds are found, the source of the VOCs must be removed or treatment must be undertaken.

Surface Water Treatment Rule (June 29, 1989). The surface water treatment rule requires treatment to control bacteria and other microbes that are difficult to detect and pose immediate health risks. This rule covers all surface water systems and groundwater systems that are under the direct influence of surface water. The rule requires affected systems to disinfect and install a subset of systems to filter their water.

Total Coliform Monitoring (June 29, 1989). Total coliform monitoring requirements affect all community water systems. Systems are required to conduct monthly tests for coliform bacteria, which provide an indication of whether potentially harmful bacteria may be in the water. Over the years,

bacteria from sewage and animal wastes have presented the most frequent and immediate health risks to community water supplies.

Phase II Synthetic Organic Compounds (January 30, 1990, for 14 contaminants; July 1, 1991, for one contaminant). This rule covers phase II synthetic organic compounds (SOCs) and nonvolatile man-made compounds, primarily pesticides and polychlorinated biphenyls. Adverse health effects from exposure to SOCs include damage to the nervous system and kidneys and cancer risk. Vulnerable water systems must test for SOCs. If the contaminants are found, the source of the SOCs must be removed, or the water supply must be treated to remove them.

Phase II Inorganic Compounds (January 30, 1990, for 19 contaminants; July 1, 1991, for 4 contaminants). Phase II inorganic compounds (IOCs) may be naturally occurring in geological structures, or they may be caused by mining, industrial, or agricultural activities. In large amounts, these chemicals can damage the liver, kidney, nervous system, circulatory system, blood, gastrointestinal system, bones, or skin. All community water systems must monitor for regulated IOCs. If IOCs are found, their level must be adequately reduced or treatment must be undertaken.

Lead and Copper (June 7, 1991). Lead and copper contamination generally occurs after water has left the public water system. Therefore, testing for it should be done at household faucets. Water systems must target homes with a high risk of lead and copper contamination and conduct tests in those locations. If contamination is found, water systems must reduce the corrosiveness of the water or replace lead-containing materials under the control of the water system. Water systems are not required to replace lead-containing pipes of customers.

Phase V SOCs and IOCs (July 25, 1992). See the description above of phase II SOCs and IOCs.

Proposed Rules

The EPA has proposed three rules that are not yet final. The radon rule and the disinfectant and disinfection by-products rule cover compounds that the EPA was specifically required to regulate under the 1986 amendments.¹

Radon. Radon is a naturally occurring gas that is colorless, odorless, tasteless, chemically inert, and radioactive. It is the second leading cause of lung

1. Environmental Protection Agency, *Technical and Economic Capacity of States and Public Water Systems*.

cancer in the United States. Household exposure to radon occurs primarily from radon gas seeping up from the soil. People can also be exposed to radon by drinking tap water that contains it or by inhaling radon released into indoor air from tap water. The proposed radon rule would require treatment for groundwater systems that have high levels of radon. Surface water systems typically have low radon levels because radon is released into the air.

Disinfectants and Disinfection By-Products. Disinfectants (such as chlorine) are used by over 90 percent of surface water systems and less than one-half of groundwater systems to prevent diseases caused by microbiological contaminants. Although disinfection provides important benefits, the disinfectants themselves can react with organic materials in water supplies to form disinfection by-products. Such by-products may ultimately increase the risk of cancer. Stage I of the proposed rule would require systems to use existing treatment processes to remove precursors (for example, total organic carbon) of disinfection by-products. Stage II would require systems serving more than 10,000 people to undertake testing and treatment for disinfection by-products. An extended stage II would expand these requirements to all systems.

Enhanced Surface Water Treatment Rule. The enhanced surface water treatment rule (ESWTR) would expand the controls established under the SWTR. Additional controls are proposed because of new evidence that exposure to microbial contaminants in surface waters may be significantly greater than previously believed. In addition, requirements under the proposed rule for disinfectants and disinfection by-products may result in increased risk from microbial contaminants. Under the proposed rule, an "interim" ESWTR would require additional controls for systems serving more than 10,000 people. A "long-term" ESWTR would extend those requirements to all systems.

