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1990 PRELIMINARY DRAFT STRATEGY FOR MUNICIPAL WASTEWATER TREATMENT —FUNDING

PRELIMINARY DRAFT 1990 STRATEGY FOR
MUNICIPAL WASTEWATER TREATMENT

TASK I - FUNDING STRATEGY

OFFICE OF WATER AND WASTE MANAGEMENT

U.S. ENVIRONMENTAL PROTECTION AGENCY

"This paper presents a preliminary draft strategy, proposed by EPA staff, for improving the national municipal wastewater treatment program. EPA is now considering the positions offered here. The document is intended for public review and discussion to assist EPA in developing its final 1990 Strategy."

January 16, 1981

PREFACE

The proposals presented in the preliminary draft Funding Strategy (Task 1 of the 1990 Strategy) are the result of both a major effort within the U.S. Environmental Protection Agency and extensive participation on the part of the interested public through meetings and the distribution of relevant issue and background papers prepared by EPA. Some of the recommendations in the draft represent a compromise among diverse positions of various constituents of the program. Further refinement of those recommendations will continue through public participation and ongoing agency policy review as the draft strategy is put in final form.

In developing the draft Funding Strategy, recommendations were based on an assumption of continued federal funding support. Given current economic conditions and calls for budget constraints, Congress and the Administration may determine that program funding should be reduced. Substantial changes in funding levels would require re-evaluation of some of the recommendations as well as reconsideration of the timetable for achieving the Clean Water Act goals. In light of continuing review of these issues, the draft Funding Strategy provides an analysis of a wide range of funding options in addition to those recommended.

Several of the recommendations in the preliminary draft Funding Strategy will depend on Congressional action for their implementation; others will require the amendment of existing regulations for their accomplishment; and some can be accomplished simply by administrative action by EPA or other federal agencies. In developing a final 1990 Strategy and an action plan for its imlementation, EPA will work closely with Congressional staffs, other federal agencies and the widely varying constituents of the Construction Grants Program to insure that the future course charted for the program is a workable and effective means to achieving the goals of the Clean Water Act.

The 1990 Task 1 Funding Strategy draft was prepared by an EPA Task Force within the Office of Water and Waste Management. Assistance to EPA staff in this effort was provided by Temple, Barker and Sloane, Inc.

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CHAPTER I

INTRODUCTION

In spite of many successes, the construction grants program currently faces a number of challenges, including the prospect of an erosion of funding and political support. Moreover, funding requirements greatly exceed expected appropriations; municipalities complain about a lengthy and complex process; many completed projects do not meet required standards; and widespread improvements in water quality as a result of construction grant expenditures are difficult to demonstrate. These problems, combined with the prospect of a new decade with a changing political climate, have prompted EPA to undertake a wide-ranging study of the construction grants program.

THE 1990 STRATEGY STUDY

The study, referred to as the 1990 Construction Grants Strategy, is a major review and reassessment of the municipal construction grants program. The strategy examines what is to be accomplished by 1990 and what steps (administrative, legislative, etc.) are necessary to accomplish those goals. The study is divided into five major task areas: funding, management, operations, compliance, and planning. A strategy document for each area is being prepared which identifies relevant problems and issues, enumerates and evaluates options for dealing with those problems, and describes EPA's tentative position on the preferred options in each topic area.

In developing the strategy papers, EPA Headquarters and Regional staffs are drawing upon their vast experience with the construction grants program. In addition, EPA is receiving extensive input from interest groups, including environmental, rural, engineering, municipalities, states, and labor interests. Analysis of the strategies will continue within EPA and in the public review arena as part of the public participation process. The public review will include two three-day workshops in November, at which time participants representing interests such as those listed above will discuss particular aspects of the overall strategy.

CHAPTER II

EXECUTIVE SUMMARY

OBJECTIVES

The funding strategy paper is intended to serve as the basis for discussions that will lead to the development of a comprehensive funding strategy for 1990. Its major functions are to identify problems, analyze issues, examine priorities, compare alternatives, and discuss possible funding strategies for the next decade. The funding portion of the overall strategy seeks to develop a plan that will maximize progress toward the goals of the Clean Water Act. Considerations include near-term priorities, long-term goals, and funding mechanisms.

ASSUMPTIONS

The consideration and debate concerning possible construction grants funding strategies require a few assumptions to provide a context for the discussion. It has been assumed that Congressional appropriation levels will be similar to historical levels. This translates to a level of $4.0 billion per year (in 1980 dollars) for the 1980-1990 period. Moreover, to provide additional definition and discipline to the discussion, it is assumed that a time frame to conclude the grant funding program as currently structured must be established.

CURRENT FUNDING POLICIES

The construction grants program represents federal efforts to improve the quality of the nation's waters through the construction of publicly owned wastewater treatment plants. Under this program, municipalities are eligible for 75 percent grants which meet, at a minimum, secondary treatment standards. The program also awards grants for conveyance systems and related needs, as well as for the control of combined sewer overflows (CSO).

The funds are dispersed to states according to an allotment formula. The states then rank eligible projects according to their own priorities. States must reserve, or set aside, two percent of their alloted funds for innovative or alternative treatment technologies which are eligible for an 85 percent federal grant. Rural states, in addition, must reserve four percent of their allotment for use by communities under 3,500 population. The program also recognizes the value of multiple-purpose projects which combine wastewater treatment with the achievement of other environmental goals, and funds these projects according to the costs of the various project purposes.

TYPES OF PROJECTS FUNDED

Since 1972, the program has awarded roughly 25.5 billion dollars in grants, 7.5 billion of which was awarded in 1978 and 1979. Of the 7.5 billion, 53 percent funded treatment needs, almost 38 percent was devoted to conveyance-related needs and the remainder was used for control of CSO problems.

The latest survey of remaining needs conducted in 1980 indicates that $119 billion worth of projects are yet to be funded. Roughly 29 percent of the total is for treatment projects with conveyance-related and CSO projects accounting for 40 percent and 31 percent respectively.

GEOGRAPHIC FUNDING PATTERNS AND COMMUNITY SIZE

The funds obligated to date correlate closely with regional population levels and identified treatment system needs, two major components of the federal allotment formula. Some disparity, however, exists between the total number and size of grants awarded and size of community. Communities under 5,000 population are especially affected, receiving only 55% of the number of all grants awarded even though they represent 80% of all communities nationally. Also, they receive only 12% of the dollar value of all awards, although containing 31% of national population.

MAJOR FUNDING ISSUES

Effectiveness Issue

Funding policies should be modified so that the construction grants program can contribute more effectively to achieving the goals of the Clean Water Act.

Equity Issue

There are some inequities in current funding policies which impact small and large communities differently, and other inequities which will arise if the program is modified.

Efficiency Issues

The current funding distribution system should be improved to maximize efficiency in obligating funds to projects ready to proceed.

Local Financial Capability Issue

Federal funding programs should be designed to ensure: (1) that local communities are capable of funding required sewerage cost, and (2) that local communities have the ability and incentive to operate POTW's on a self-sustaining basis following the first round of EPA grants.

GOALS

To reach, "wherever attainable", a water quality that "provides for the protection of fish, shellfish, and wildlife" and "for recreation in and on the water," by 1990.

To maximize the recycling and recovery of water and wastewater components consistent with sound environmental practice, public health, energy and economic constraints.

Publicly owned treatment works (POTWs) are to achieve "best practicable waste treatment technology (BPWTT) by the date established in their NPDES permits. Extensions beyond July 1, 1983 should be allowed on a case-by-case basis, if consistent with State management plan.

POLICIES

To provide federal financial assistance for planning, design,and construction of POTW's.

To prohibit the discharge of toxic pollutants in toxic amounts.

To ensure the operation of POTW's in compliance with permit conditions and to establish economically self-sustaining operations which will not require additional federal funding.

To recognize, preserve and protect the primary responsibilities and role of the States to prevent, reduce, and eliminate water pollution.

RECOMMENDATIONS

- Direct funds to States, who will be required to develop a funding and management plan by 1982 showing how they will meet the water quality goals of the Clean Water Act. In making this plan, projects will be prioritized according to their anticipated water quality impacts.

- For effluent limited receiving waters, expand the definition of secondary treatment to include trickling filters where water quality is not adversely affected.

- For water-quality limited receiving waters, funding of projects should be linked to the demonstration of attainable water quality goals. Comprehensive before and after stream monitoring should be done for all of these projects.

- Fund collection systems for communities of 3,500 population or less, or for larger communities where necessary for the integrity of the treatment works in order to meet the enforceable requirements of the Act. FmHA should provide assistance for collector systems for small communities in the form of an expanded loan program. Similarly, interceptors should be funded when necessary for the integrity of a treatment system being funded in order to alleviate existing pollution problems.

- Reserve capacity should be funded according to current guidelines, but when funded, a financial plan outlining long-term planning to finance rehabilitation and expansion would be required. A water conservation program should be encouraged to increase the time before expansion is necessary.

- Fund rehabilitation only for projects which will contribute significantly to improving inflow/infiltration problems. Rehabilitation of aging infrastructure of older inner cities should be part of Urban Strategy administered by the Department of Housing and Urban Development (HUD).

- Expand Step I planning eligibilities and modify conditions for grantee eligibility.

- Modify the existing multi-purpose funding policy to the 115 percent option.

- No federal program is recommended for subsidizing low income households. EPA should work closely with State and local governments to explore possible State or local assistance options for mitigating the impacts of cost increases upon low income families.

- Eliminate funding for second-round grants.

- Continue the recently passed option which allows States to establish a lower federal share for all projects within the State.

- States should maintain control and responsibility for the overall priority system and priority list. Through a water quality management strategy States should prioritize projects to be funded in order to meet water quality goals and complete the municipal construction program. The State priority system should be in conformance with the State management strategy.

- Retain the current allotment formula. The FY 82, 83 formula should be based on the 1980 State population and 1980 State Needs Survey. Adopt a two-tier appropriation to provide incentive of additional funds to States ready to proceed.

- Investigate with Congressional staff, the feasibility of establishing a loan or loan guarantee program.

- Maintain a one percent set-aside program for innovative projects but eliminate any special account for alternative projects. Modify the project eligibilities in the rural set-aside program.

- Develop, refine, and implement a combined CSO/Stormwater Strategy.

CHAPTER III

BACKGROUND ON THE CONSTRUCTION GRANTS PROGRAM

In order to consider possible funding strategies for the construction grants program, it is necessary to understand the program's developments, its accomplishments to date, and its current status. This chapter provides a background on the construction grants program in the following sections:

- Historical perspective of the construction grants program,
- Current funding policies,
- Types of projects--remaining needs and past and future funding, and
- Geographic patterns and community size--remaining needs and past funding.

HISTORICAL PERSPECTIVE ON THE CONSTRUCTION GRANTS PROGRAM

The construction grants program receives its authority from the Clean Water Act (P.L. 92-500, passed in 1972) and subsequent amendments. The Act seeks to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." This legislation is the basis for most of EPA's water pollution control activities, including effluent guideline limitations for industries, non-point source programs for areawide activities and the funding of Regional water quality management plans. In addition, the construction of publicly owned treatment works (POTWs) to eliminate municipal discharge of untreated or inadequately treated pollutants is a major focus of effort under the Act.

The objective of the construction grants program is to encourage nationwide construction of sewage treatment facilities--a major step toward the clean water goals of the Act. The following goals for the grants program are specified by the Act:

- Achieving nationwide secondary treatment by 1977-1978 (extension to 1983 possible),
- Achieving best practicable wastewater treatment technology (BPWTT) by 1983, and

- Achieving fishable and swimmable waters where possible.

The grants program provides the financial means by which these goals can be accomplished. Simply stated, the construction grants program will provide up to 75 percent of eligible project costs for conventional treatment systems and 85 percent for systems employing innovative and alternative wastewater treatment methods. The program therefore provides both incentive and assistance to communities seeking to comply with water quality standards.

As of June 30, 1980, $31.6 billion has been appropriated by Congress under this program, of which $26 billion has been obligated by EPA in over 19,000 grants to communities. Available funds since 1973 as well as obligations and outlays are shown in Exhibit III.1. Approximately 2,100 plants representing a value of $2.6 billion have been completed. It is important to note that P.L. 92-500 is not the first effort in this area; during the 1956-1972 period, prior to the passage of 92-500, P.L. 84-660 provided assistance to 13,764 projects in the amount of $5.2 billion. Despite this effort, the 1980 Needs Survey reported a remaining eligible need of $118.7 billion, exclusive of the cost of stormwater controls.

CURRENT FUNDING POLICIES

The construction grants program operates under procedures and policies covering a myriad of issues. In an effort to provide further background on the program, the subsequent sections outline current policies covering the following major topics:

- Eligibility policy and the Needs Survey,
- State priority lists,
- The allotment formula,
- The rural set-aside,
- The innovative and alternative set-aside, and
- Multiple-purpose projects.

Eligibility Policy and the Needs Survey

The Agency currently funds 75 percent of most eligible project costs and 85 percent of innovative and alternative projects.

EXHIBIT III.1 PUBLIC LAW 92-500 AND SUBSEQUENT AMENDMENTS: OBLIGATIONS AND OUTLAYS[1] (IN DOLLARS)

Fiscal Year	Authority	Allotments	Obligated (Each FY)	Outlays
1973[a]	5,000,000,000	2,000,000,000	1,532,048,571	0
1974	6,000,000,000	3,000,000,000	1,444,443,360	158,861,688
1975	7,000,000,000	4,000,000,000	3,616,168,130	874,158,134
1976[b]	0	9,000,000,000	4,813,639,424	2,563,497,940
1977[c]	1,480,000,000	1,480,000,000	6,663,832,006	2,710,444,759
1978	4,500,000,000	4,500,000,000	2,300,916,959	3,612,400,000
1980	5,000,000,000	3,400,000,000	1,765,000,000	3,274,100,000[d]

[1]Does not include reimbursable funds.
[a]Contract authority.
[b]Includes transition quarter (July-September 1976).
[c]Includes $480 million under Public Works Employment Act.
[d]Includes reimbursable and old law projects.

Source: Clean Water Fact Sheet, July 1980.

Wastewater treatment may encompass a number of facilities, but at the present time, federal grants will only fund certain types of activities. Eligible needs are broken down into the following categories and are enumerated every two years in the Needs Survey:

Category I--SECONDARY TREATMENT. This category includes those facilities that are required to provide "secondary treatment" or "best practicable wastewater treatment technology" (BPWTT). Systems designed to serve individual residences are also included in this category. Also included in category I is the cost of treatment necessary to raise the treatment level of facilities from primary to secondary.

Category II--HIGHER THAN SECONDARY TREATMENT. This category includes treatment facilities that must achieve treatment levels more stringent than that afforded by secondary treatment. Requirements for these treatment levels generally exist where water quality standards require the removal of such pollutants as phosphorus, ammonia, nitrates, or organic and other substances.

Category IIIA--CORRECTION OF INFILTRATION/INFLOW. Included in this category are the costs of correcting sewer system infiltration/inflow problems. Needs could also be reported for preliminary sewer system analyses and for detailed sewer system evaluation surveys.

Category IIIB--MAJOR REHABILITATION OF SEWERS. Requirements for the replacement and/or major rehabilitation of existing sewer systems are reported in this category if the corrective actions are necessary to the total integrity of the system. Major rehabilitation is considered to be extensive repair of existing sewers beyond the scope of normal maintenance programs, where sewers are collapsing or structurally unsound.

Category IVA--NEW COLLECTOR SEWERS. This category includes the cost of constructing new collector sewer systems and appurtenances designed to correct violations caused by raw discharges, seepage to waters from septic tanks and the like, and/or to comply with federal, State, or local actions.

Category IVB--NEW INTERCEPTOR SEWERS. Included in this category are costs for new interceptor sewers and transmission pumping stations necessary for the bulk transport of wastewaters.

Category V--CONTROL OF COMBINED SEWER OVERFLOW. Facilities to prevent and/or control periodic bypassing of untreated wastes from combined sewers to achieve water quality objectives are included here; treatment and/or control of storm waters in separate storm and drainage systems are not.

At present, facilities are funded by EPA based on cost-effectiveness reserve capacity with a maximum 20-year reserve capacity, and advanced wastewater treatment and advanced secondary treatment (AWT and AST) projects require justification on a water quality basis.

State Priority Lists

The Clean Water Act requires the development of an inventory of all needed wastewater facilities by each State. The Act further requires each State to develop a system for assigning a priority to wastewater treatment projects and, in turn, to use this system for ranking all such projects within the State. As originally envisioned, it was expected that these requirements would result in the development of a priority listing of all needed wastewater treatment facilities. Based on this "priority listing" and the amount of funds allocated to a State each year, an "imaginary funding line" was to be drawn below the last project for which funds were available in a given year. This process was to be repeated each year until all such wastewater treatment needs were satisfied.

In fact, priority systems as actually developed are methodologies for the selection of projects for funding; they are not strictly used to determine the relative importance of a particular project on an environmental basis. Reasons for this include the provisions that funds not obligated will be subjected to reallotment, the fact that projects must go through rigorous review and public participation activities, and the fact that a specific amount of funds must be directed to certain types of projects or geographic areas. In addition, enforcement actions against municipalities will move systems up on the priority list (this is the philosophical underpinning of EPA's municipal enforcement strategy). Even after the priorities have been decided, in practice "bypass procedures" are frequently used to fund ready-to-proceed projects, that may be lower in priority, in order to use up allotted monies.

Section 126 of the Act provides that each State shall be solely responsible for determining the priority to be given each category of projects within the State. EPA participates in the development of the priority systems, but not in the actual positioning of specific projects. In the past EPA has had a more direct influence on the priority lists. In the 1977 amendments, however, Congress reaffirmed the States' responsibility in that area. At present EPA's influence on specific projects exists only through "jawboning."

The Allotment Formula

The share of each year's Congressional appropriation for which each State is eligible is described in the Clean Water Act itself (Section 205). Though the specifics of the allotment formula have changed over time, the basic factors remain the same. The state share is based on the portion of national needs in certain categories applicable to that State (based on the biannual Needs Survey), and the population of the State. Moreover, each State must receive at a minimum 1/2 of 1 percent of the total funds allotted; and Guam, Virgin Islands, Samoa, and the Trust Territories shall not receive in sum more than 1/3 of 1 percent of the total funds allotted.

Funds allotted to States remain available for obligation to projects for two years. After that period, the funds are reallotted to those States that have obligated all their funds (the reallotment is on the same relative basis as the original allotment).

Currently, a rather complex allotment formula is in force. The House and Senate arrived at slightly different versions of the allotment formula for FY78 and FY79, each giving different relative emphasis to various needs categories (the Senate giving preference to categories I, II, IIIA, IVB, and V; the House giving preference to categories I, II, and IVB) and population (high priority in the Senate, low priority in the House). The resulting compromise formula calculates the amounts a State would receive under the Senate version and under the House version and then averages that amount. The result is a slightly heavier emphasis on needs than on population. The minimums for States and Territories remain in effect.

The Rural Set-Aside

Over 53 million Americans live in small, rural communities; of these rural Americans, over 2.4 million lack adequate sewage disposal and treatment facilities. Of 1978 total estimated national needs of $106 billion for sewage treatment facilities, it is estimated that $23 billion (or 1/5) of these needs occur in communities of less than 10,000 population. Yet while the pollution problem facing a small, rural community may be pressing, the community's position on a State priority list may be so low as to preclude for many years a solution through the use of a federal construction grant. Moreover, rural communities often lack the financial resources or expertise necessary to complete a sewage treatment project on their own.

Beginning in FY79, rural States (i.e., States with at least 25 percent of the population qualifying as rural) were required to set aside 4 percent of their allotments for alternative and unconventional systems to be used in communities with a population of 3,500 or less, or highly dispersed areas of larger communities. At present there are 34 such States. In addition, States not strictly defined as rural may request the Administrator to set aside, in a similar manner, up to 4 percent of their allotted funds (two States have done so to date). In addition, 205(g) monies are available to be used in rural initiatives.

The Innovative and Alternative (I/A) Set-Aside

Section 201(g)(5) of the Clean Water Act of 1977 requires all facility plans initiated after September 30, 1978, to consider innovative and alternative technology for municipal wastewater treatment in order to meet the national goals of (a) greater recycling and reuse of water, nutrients, and natural resources; (b) increased energy recovery and conservation, reuse, and recycling; (c) improved cost-effectiveness in meeting specific water quality goals; and (d) improved toxics management. The Act also requires EPA to set aside a percentage of the State allotment (2 percent in FY79 and FY80 and 3 percent in FY81) and to increase the federal share of grants

for I/A processes from 75 percent to 85 percent. Moreover, the Act provides for grants to pay 100 percent of the cost to modify or replace innovative or alternative technologies that have failed. The three-year I/A program as presently mandated by Congress will expire on September 30, 1981.

Multiple-Purpose Projects

A multiple-purpose project in the construction grants program is one that combines a wastewater treatment project meeting an NPDES permit with another acceptable purpose, such as reclamation and reuse, energy generation, urban drainage, recreation, or the disposal of municipal and industrial waste.

The current funding policy of EPA for the design and construction of multiple-purpose projects involves the use of the Alternative Justifiable Expenditures (AJE) method for allocating the costs to the various project purposes. The AJE method has been used since 1976, primarily in projects involving combined sewer overflow and urban drainage problems.

The AJE method is based on the assumptions that achieving multiple purposes simultaneously should be less costly than achieving them separately, and that all purposes should share in the cost savings. Thus, the funding for a project under this policy is less than it would have been had the project been designed for the single purpose of pollution control. It has been argued, therefore, that this method discourages integrated facilities.

The current funding policy for projects combining water pollution control with recreation is different from the policy for all other types of multiple-purpose projects. The Agency funds such projects at the level of the most cost-effective single-purpose pollution control project, which means that no costs associated with the design and construction of recreation elements are eligible. However, the grantee is not economically penalized for undertaking this particular multiple-purpose approach, as he would be for all others under the AJE method.

TYPES OF PROJECTS--REMAINING NEEDS AND PAST AND FUTURE FUNDING

In considering whether to change the grant program's emphasis on the types of projects to be funded, it is important to understand what types of projects have been funded in the past and what the relative needs are among project categories for the future. Unfortunately, national statistics on the types of projects funded in the past are scarce. Prior to January 1978, statistics were not maintained detailing which needs categories were associated with each grant, or how much of each grant's funds went to treatment plant construction versus other needs categories, e.g., new interceptors. Data have been maintained since 1973, however, concerning

aggregate grants awards, by State and Region and also by community size. Accordingly, the profile presented below of funding under the construction grants program is based primarily on future needs data when describing the types of projects involved, and is based on historical needs data when describing the geographic areas or sizes of communities affected.

As the time for publication of this paper approached, some preliminary national figures from the 1980 Needs Survey became available. These data have been included wherever possible. These numbers are preliminary, however, and subject to further revision. The 1978 data used in the Regional graphs reflect an earlier method of categorizing needs in which the costs of raising treatment levels from primary to secondary were included in Category II.

Remaining Needs

The 1980 Needs Survey estimated that a total of roughly $119 billion would be needed to complete the construction of all the eligible sewage facilities in the country. If, in addition, needs for constructing stormwater collection and treatment systems were included, another $112 billion would be required.

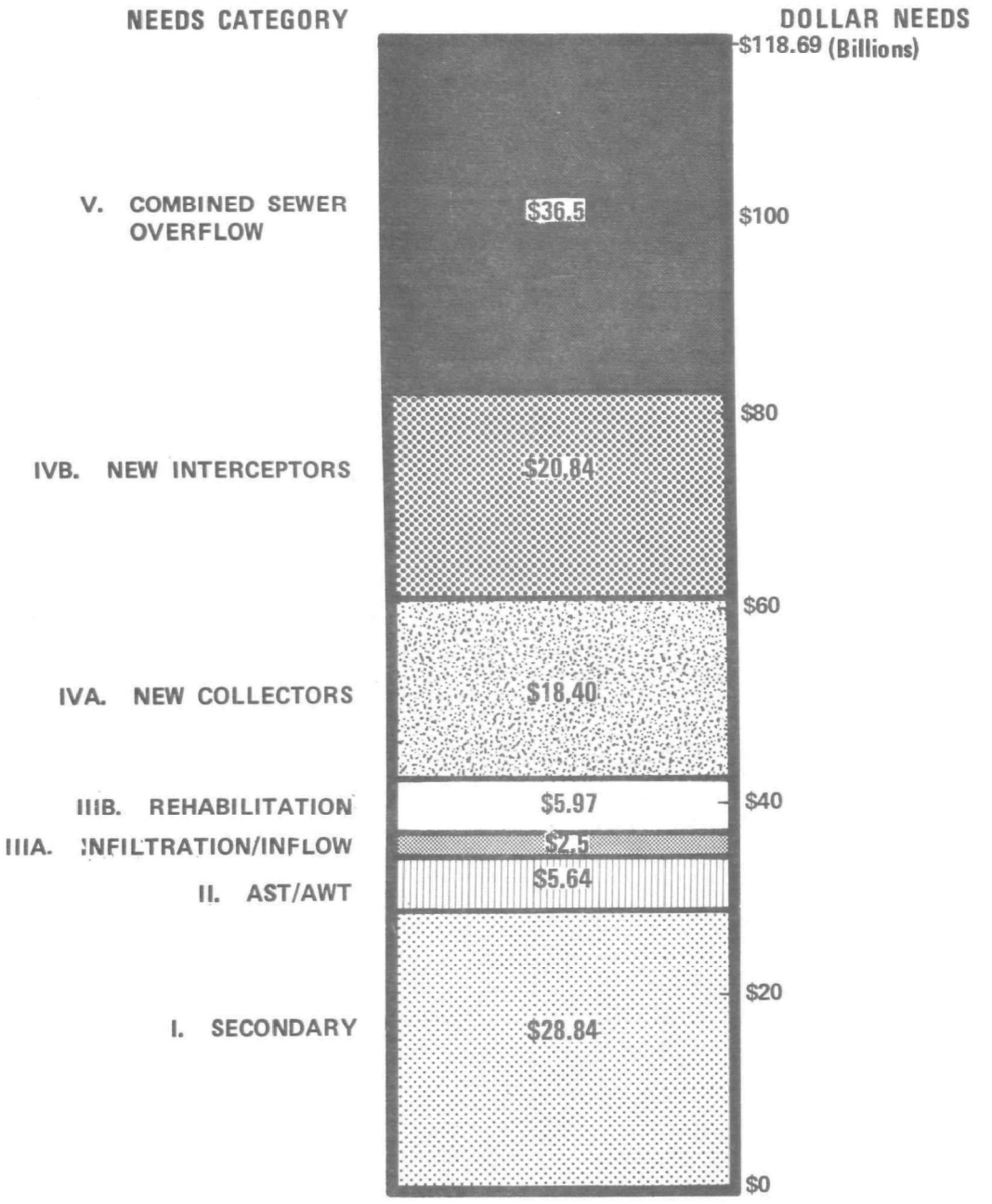
Figure III.1 on the following page illustrates the relative funding needs of the various types of projects. Of the $119 billion total, only $28.8 billion is earmarked for constructing secondary treatment plants (needs category I). Presumably, that amount would complete the national program of achieving secondary treatment for the entire country. Another $5.6 billion is designated for treatment facilities of more advanced design (needs category II). Advanced secondary treatment and tertiary (advanced wastewater) treatment are included in this category.

Three other needs categories range from $18.4 to about $37 billion. The largest is needs category V, combined sewer overflows (CSOs), estimated at approximately $37 billion. The correction of CSOs remedies the problem of overloading treatment plants at times of peak stormwater flow. Categories IVA and IVB, new collectors and new interceptors, totaled approximately $18.4 and 20.8 billion respectively.

The final two needs categories are much smaller, due in part to the limited eligibilities of projects in these categories. These are infiltration and inflow (IIIA) and replacement and rehabilitation (IIIB), estimated at $2.5 and 5.6 billion, respectively. Although these estimates seem relatively small, this is due largely to the restrictive definition applied to this needs category by EPA. For example, if eligibilities were less restrictive for rehabilitation, the needs in urban areas would be much larger.

Table III.1 shows the dollar amount and percentage of needs reductions and increases between the 1978 and 1980 surveys. The 1978 needs were first adjusted to 1980 dollars in order to make a valid comparison.

FIGURE III.1 1980 NATIONAL FUNDING NEEDS BY PROJECT CATEGORY



Source: 1980 Needs Survey, Cost Estimates for Construction of POTW Facilities, GICS Database.

TABLE III.1 1978 VS. 1980 NEEDS[1] (BILLIONS)

Category		1978 Needs ('78$)	1978 Needs ('80$)	1980 Needs ('80$)	Reduction/ Increase (Percent)
I	Secondary	26.1	32.1	28.84	-10
II	AST/AWT	9.5	11.1	5.64	-49
IIIA	I/I	2.4	3.0	2.50	-17
B	Rehabilitation	4.9	6.0	5.97	- 1
IVA	Collectors	19.0	23.4	18.40	-21
B	Interceptors	18.5	22.7	20.84	- 8
V	CSO	25.7	30.1	36.5	+21
	TOTAL	106.1	128.4	118.69	-7.6

[1]The 1980 needs figures are preliminary and subject to further revision.

Reduction in needs can generally be attributed to grant awards. Particularly dramatic reductions, however, are the result of a combination of factors. The sharply diminished needs for AST/AWT projects, for example, is due in large measure to more stringent review processes. The emphasis on small alternative treatment systems was likely responsible for some of the pipe needs reduction, especially for collector sewers, whose needs in towns under 5,000 population comprised 57 percent of all collector needs according to the 1978 Needs Survey.

The only grant eligible category with a net increase in needs is the control of combined sewer overflows. The main reasons for this are increases in storage costs, the addition to the model of costs for interceptors to connect with storage facilities, and the identification of a slightly larger land area subject to CSO problems. While the $36.5 billion figure reflects costs needed to reach the recreational objectives used in the 1978 Needs Survey, CSO correction costs could be reduced to $24 billion if the goal is changed to meet the Fish and Wildlife standards.

Types of Projects Funded, 1978-1979

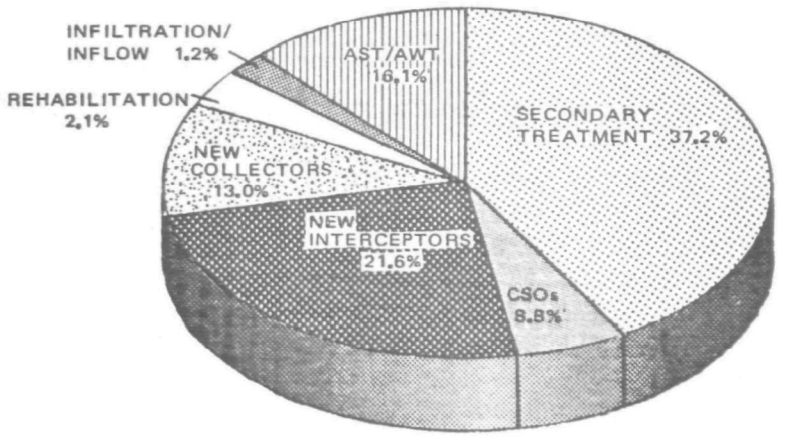
Two important questions in the analysis of the construction grants program are which categories have been funded and at what levels. As discussed previously, data concerned with funding by needs category were not collected until 1978; therefore, it is not possible to examine pre-1978 spending patterns. Post-1978 data, however, provide insight in answering these two questions and are examined in the following sections.

Awards by Needs Category:

In calender years 1978 and 1979, approximately $7.5 billion was spent for construction of treatment plants. Figure III.2 shows the distribution of awards by needs category. As can be seen in the figure, secondary treatment facilities alone account for 37 percent of the grant money, and when coupled with advanced wastewater treatments, a full 53 percent of all awards are accounted for. In addition, new collectors and interceptors represented over 1/3 of all awards.

Table III.2 depicts the 1978 needs and the 1978/79 awards for treatment and pipe-related projects as well as for infiltration/inflow and combined sewer overflows. The heavy emphasis relative to needs on treatment projects is clear. This reflects the emphasis on the part of POTWs to meet current regulatory requirements.

FIGURE III.2 NATIONAL DISTRIBUTION
OF AWARDS DOLLARS BY PROJECT CATEGORY



Source: GICS Database. Awards data were analyzed and refined by EPA staff. Approximately 40 percent of awards required additional analysis.

TABLE III.2 1978-1979 DOLLAR AWARDS:
TREATMENT VERSUS PIPES
(percent of 1978 dollars by need category)

	1978 Needs[1]	1978 and 1979 Awards[2]
Treatment		
Secondary	25%	37%
AST/AWT	9	16
Subtotal	34%	53%
Pipes		
Replacement/ Rehabilitation	5%	2%
Collectors	18	13
Interceptors	18	22
Subtotal	41%	37%
Other		
Infiltration/Inflow	2%	1%
Combined Sewer Overflows	24	9
Subtotal	26%	10%
Total	101%*	100%

[1]1978 Needs Survey, GICS Database; numbers adjusted to reflect changes in definitions of categories I and II.

[2]GICS Database. Awards data were analyzed and refined by EPA. Approximately 40 percent of awards required additional analysis.

*Does not equal 100 percent due to rounding.

Awards by Region:

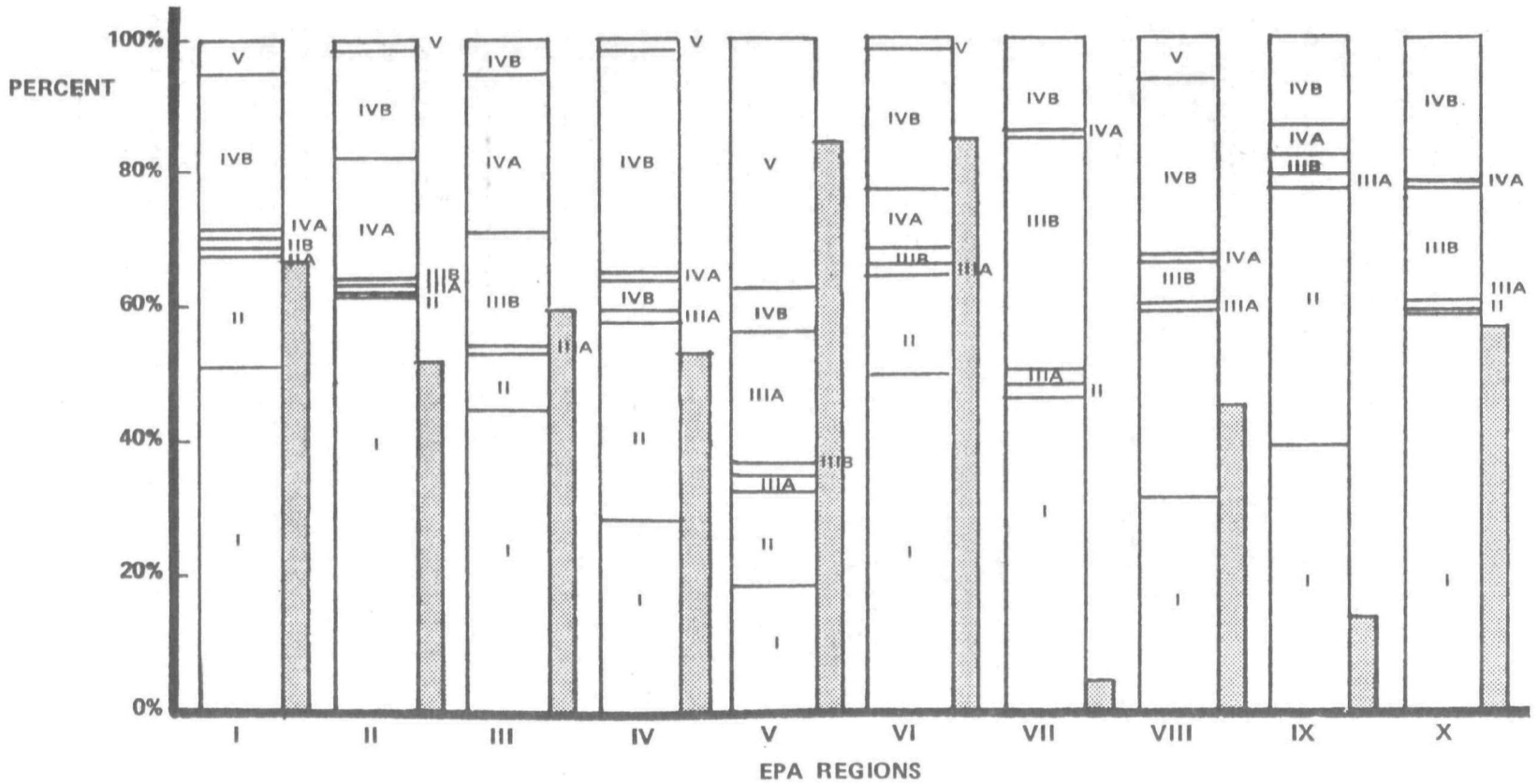
While data on national-level distribution of awards by project category are available, definitive material for Regional analysis is not so easily identified. An initial approach to this analysis has been to use dollar award data collected from the Regions since 1978. Due to data collection and processing problems, however, the quality of some existing information is in question. Therefore, a sample of verifiable data has been developed to provide insight into this area. The sample was derived from all grant awards that correctly identified the breakdown of grant awards into individual needs categories. The resultant sample contained 41 percent of the awards and amendments made for Step 3 and combined Step 2 and Step 3 projects from 1978 to 1979. This 41 percent of the number of awards represents 45 percent of all award dollars. For individual Regions, however, the percentage of award dollars represented in the sample ranges from 85 percent for Region VI to 4 percent for Region VII; the percent of dollars represented in the sample for each Region is illustrated by the shaded areas in Figure III.3. Due to this variation in dollars represented by Region, it must be kept in mind that the smaller the percent of dollars represented, the greater is the likelihood of error in the displayed distribution as compared with the true Regional distribution. However, the sample appears to be, with the exception of Regions VII and IX, very representative, with over 40 percent of each Region's award dollars represented.

Nationally, the sample's percent distribution of award dollars for each project category is very similar to that shown in Table III.1. This fact adds credibility to the results derived from the sample.

Figure III.3 presents the award distribution by EPA Region and project category for grants awarded since January 1, 1978. This figure highlights the diversity of award patterns by EPA Regions. Even for secondary treatment, which typically receives a large commitment of award dollars, there is great variation by EPA Region ranging from 19 to 62 percent of their respective awards.

Figure III.4 shows the sample award dollars distribution for the seven project categories by EPA Regions. Project category V, CSOs, shows an interesting aspect of Regional variation. While, as shown in Figure III.3, the national average of award dollars for CSOs is 10 percent and the vast majority of CSO dollars has been spent in Region V, the actual amount of this difference is apparent only upon examination of Figure III.4.

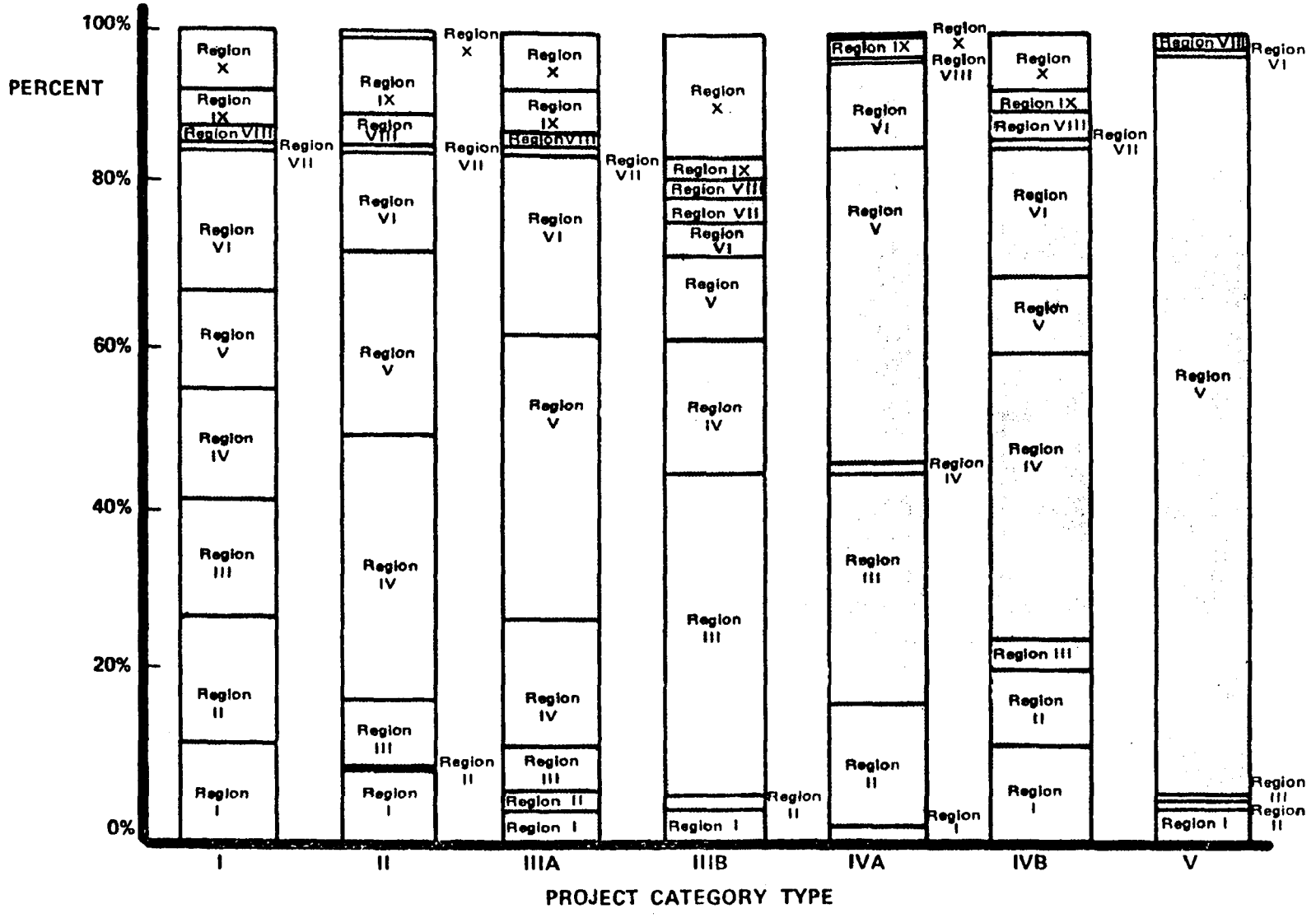
FIGURE III.3 DISTRIBUTION OF SAMPLE AWARD DOLLARS BY EPA REGION
STEPS 3 AND 4 AWARDS AND AMENDMENTS AFTER JANUARY 1, 1978



Source: GICS Database, Program CGP-0046B, Steps 3 and 4; Awards and Amendments After 1/1/78. A sample of 1,428 out of 3,463 awards was used to determine the distribution of award dollars by project categories. This sample represents 45 percent of national total award dollars.

Note: Shaded bars indicate the percent of dollars from the sample used to derive the adjacent region of distribution.

FIGURE III.4 DISTRIBUTION OF SAMPLE AWARD DOLLARS BY PROJECT CATEGORY
STEPS 3 AND 4 AWARDS AND AMENDMENTS AFTER JANUARY 1, 1978



Source: GICS Database, Program CGP-0046B, Steps 3 and 4 Awards and Amendments after 1/1/78. A sample of 1,428 out of 3,463 awards was used to determine the distribution of award dollars by project categories. This sample represented 45 percent of the total award dollars.

From Figure III.4, it is clear that a full 93 percent of all CSO dollars were spent in Region V. Other examples of this type of variation can be seen through similar comparisons of these two figures.

Innovative and Alternative Projects (I/A):

During the period October 1978 through June 1980, a total of 248 I/A technology projects were funded by EPA. The 248 projects totaled over $27 million in I/A set-aside value (32 percent of the $84 million FY79 set-aside available). Of the 248 projects funded, 31 included innovative technology ($4 million) and 224 included alternative technology ($23 million).

Rural Set-aside Projects:

As of September 30, 1980 (end of FY79), of the $77.1 million total of the required individual State set-aside, $7.63 million of FY79 monies could potentially have been lost to reallotment. Several States have excellent records in utilizing the 4 percent set-aside while others show little or no utilization of the set-aside.

Second Grants:

No definitive data are available to assess the current use of second grants to fund additional capacity. For example, it is difficult to differentiate between undesired second grants for additional capacity and intentionally time-phased grants. An effort to determine the extent of second grants was based on sample data of grantees who had secondary treatment but still reported needs. In both these instances, between 85 and 90 percent of the cases were easily determined to be valid awards and not second grants for additional capacity. More detailed analyses of the remaining 10-15 percent were not carried out due to resource constraints. Even using this upper bound, however, would result in a very small dollar estimate of the extent of second grants.

Types of Fundable Projects, 1980:

There have been questions raised regarding whether the federal government ought to give equal funding priority to projects that involve treatment plants and those that involve pipe systems, such as new collectors, new interceptors, and most replacement and rehabilitation projects. There is some feeling that these "pipe" projects ought to be given lower priority, or at least not be allowed to dominate the construction grants funding. There are two primary reasons given for this view: first, some feel that these pipe projects are essentially local responsibilities, especially when related to growth; and second, these projects seem to be less directly affecting water quality because they are merely collecting wastes, not treating them.

The relative shares of the 1978 needs and the presently fundable projects that represent pipe-related projects are shown below in Table III.3. The categories representing treatment plant investments account for only 1/3 of the total needs, but a little over 1/2 of the projects ready to proceed. The pipes categories account for 41 percent of both the 1978 needs and the present fundable projects.

TABLE III.3 1980 FUNDABLE PROJECTS:
TREATMENT VERSUS PIPES

(percent of 1978 dollars by need category)

		1978 Needs[1]	1980 Fundable Projects[2]
Treatment			
I.	Secondary	25%	37%
II.	AST/AWT	9	17
	Subtotal	34%	54%
Pipes			
IIIB.	Replacement/ Rehabilitation	5%	13%
IVA.	Collectors	18	12
IVB.	Interceptors	18	16
	Subtotal	41%	41%
Other			
IIIA.	Infiltration/Inflow	2%	2%
V.	Combined Sewer Overflows	24	3
	Subtotal	26%	5%
	Total	101%*	100%

[1] 1978 Needs Survey, GICS Database; numbers adjusted to reflect changes in definitions of categories I and II.

[2] GICS Database. Awards data were analyzed and refined by EPA. Approximately 40 percent of awards required additional analysis.

*Does not equal 100 percent due to rounding.

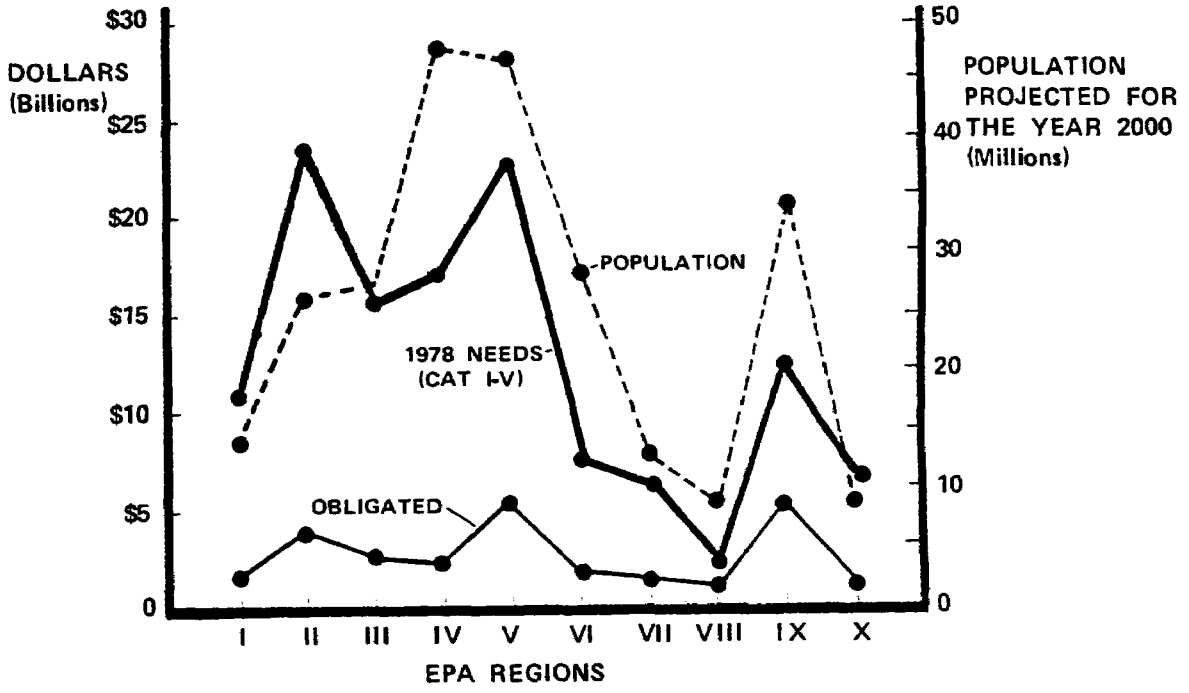
GEOGRAPHIC PATTERNS AND COMMUNITY SIZE--REMAINING NEEDS AND PAST FUNDING

When examining and evaluating the performance of the present construction grants program, it is useful to review where the needs are and where the awards have been going. In this section, needs and awards are examined by Region, by State, and by size of community.

Needs and Obligations by Region

The needs as assessed by the 1978 Needs Survey show a very different level of need among the Regions: Region VIII requires $2 billion, while Region V requires $23 billion. In addition, as shown in Figure III.5, the needs closely follow the population in the Regions. As would be expected, the obligated funds (which follow the allotments that are based on needs and population) also follow that same pattern.

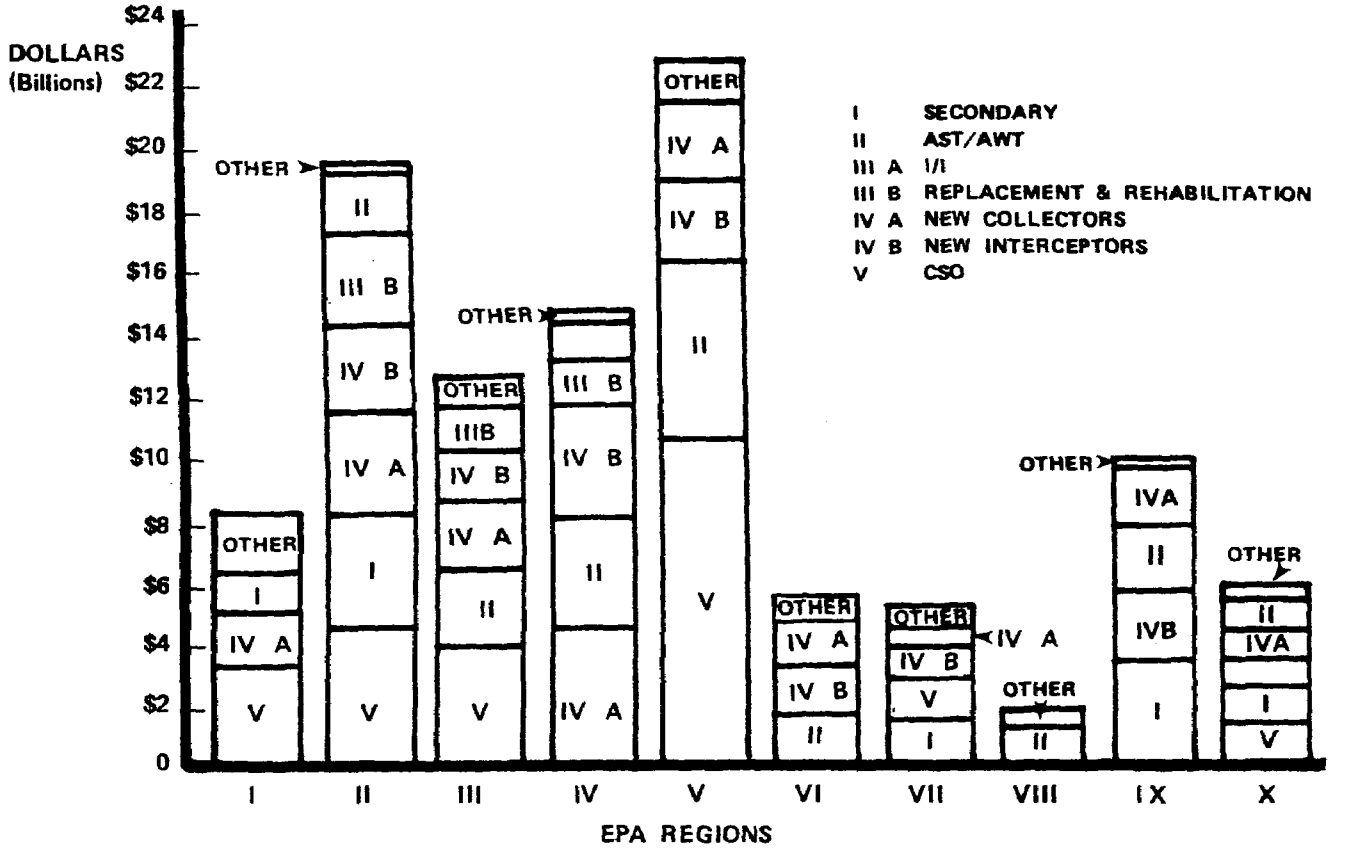
FIGURE III.5 1978 NEEDS, FUND OBLIGATIONS, AND POPULATION



Source: 1978 Needs Survey, GICS Database; Clean Water Fact Sheet, June 30, 1980; 1979 Statistical Abstract of the United States, Table 13.

The particular categories of need that represent the greater amounts of funding requirements differ from Region to Region. For example, as shown in Figure III.6, Regions II and IV have a significant need for pipe-oriented projects (categories IIIB, IVA, IVB): 46 and 54 percent of their total needs, respectively. Region V's biggest need is for CSOs, accounting for 46 percent of its total needs. Secondary treatment, to some the most important needs category, ranks highest in two Regions (VII and IX) and is among the top three needs categories in five of the ten Regions.

FIGURE III.6 1978 NEEDS BY EPA REGIONS

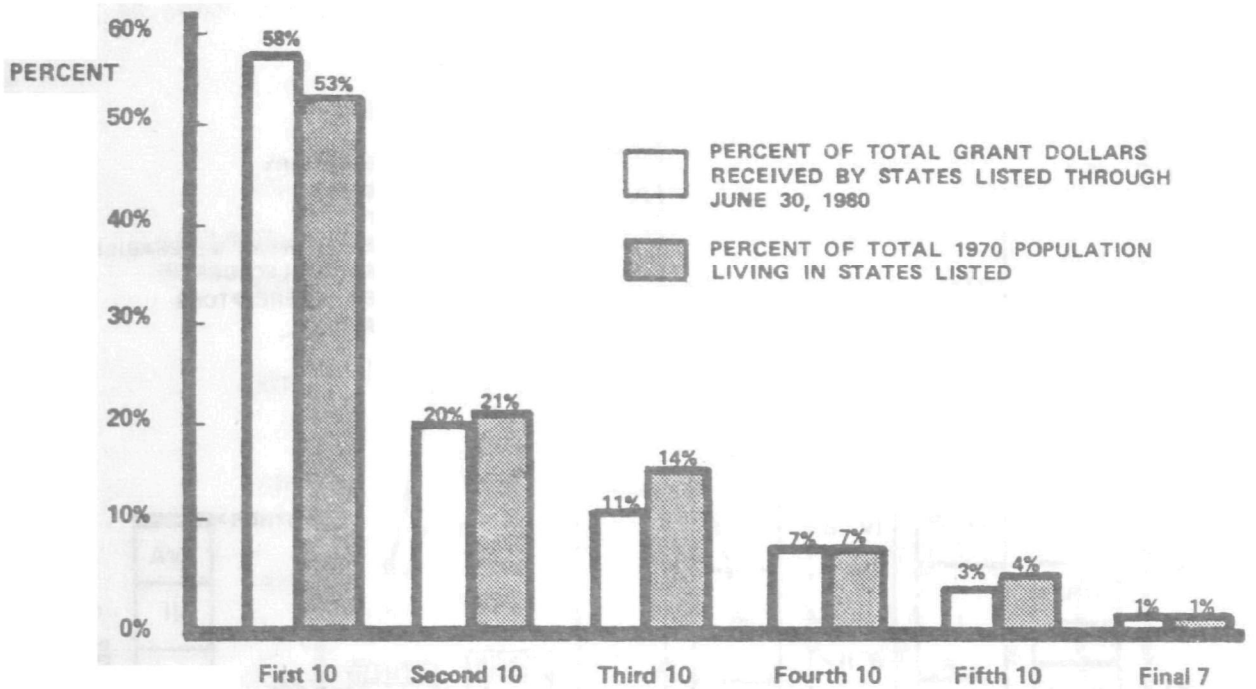


Source: 1978 Needs Survey, GICS Database.

Awards by State

When States are examined across EPA Regions, as shown in Figure III.7, the concentration of total grant dollars among a relatively few States is clear. Twenty States account for almost 80 percent of the grant dollars. However, this closely tracks the population distribution by State: the same 20 States represented 74 percent of the total population in 1970. The remaining States also show a strong correlation between grant dollars received and population size.

FIGURE III.7 DISTRIBUTION OF GRANT DOLLARS



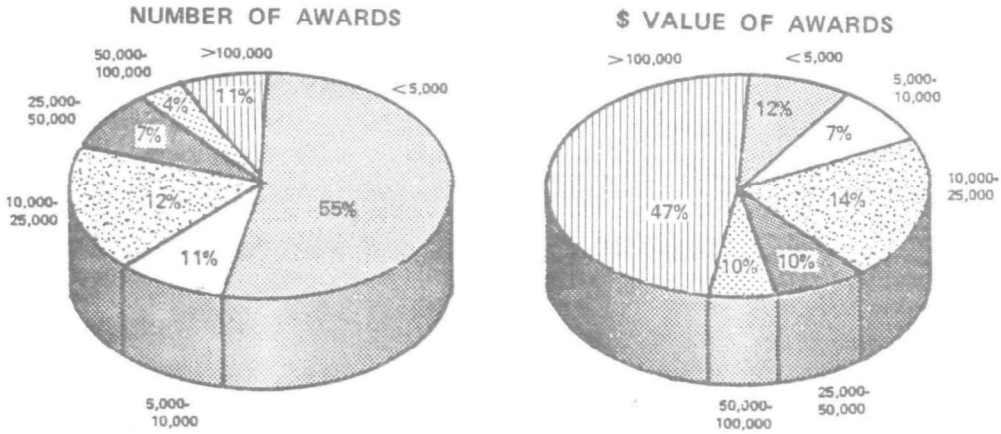
First 10 States	Second 10 States	Third 10 States	Fourth 10 States	Fifth 10 States	Final 7 Areas
New York	Maryland	Tennessee	New Hampshire	Rhode Island	North Dakota
California	Indiana	West Virginia	Maine	Nebraska	Wyoming
Illinois	Virginia	Kentucky	Kansas	Nevada	Pacific Islands
Ohio	Missouri	Iowa	Colorado	Alaska	Guam
New Jersey	Minnesota	South Carolina	Mississippi	Utah	Virgin Islands
Michigan	Wisconsin	Louisiana	Hawaii	Idaho	Samoa
Pennsylvania	Georgia	Puerto Rico	Washington D.C.	Vermont	North Marianna Islands
Florida	North Carolina	Oregon	Arkansas	New Mexico	
Texas	Connecticut	Alabama	Delaware	Montana	
Massachusetts	Washington	Oklahoma	Arizona	South Dakota	

Source: Clean Water Fact Sheet, June 30, 1980; 1970 Census of Population, Number of Inhabitants, Table 14.

Awards by Community Size

At the local level a different view of funding patterns is seen. Figure III.8 shows the dollar value of grants by community size for the 1972-1980 period. In total, 55 percent of the grants went to communities with fewer than 5,000 inhabitants, while 13 percent went to communities with more than 100,000 inhabitants. Conversely, only 12 percent of the dollars went to communities of fewer than 5,000, while those with more than 100,000 people received 47 percent of the grant monies.

FIGURE III.8 GRANTS BY COMMUNITY SIZE (POPULATION)



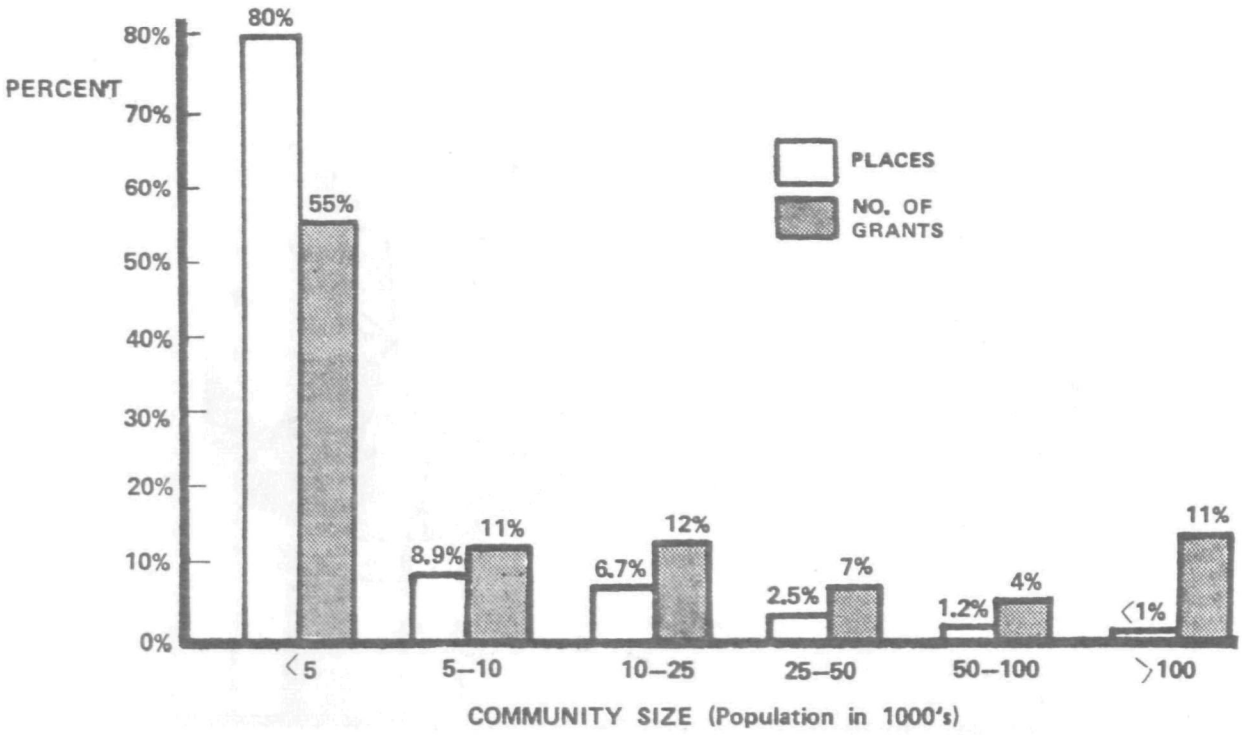
Source: Clean Water Fact Sheet, June 30, 1980.

Figure III.9 shows the number of grants and places by community size, while Figure III.10 shows population and dollar awards by community size. Both figures highlight the relative differences in funding for varying community sizes. The vast majority of places, 80 percent, are small communities, yet they have received only 55 percent of the grants awarded to date. Similarly, although 31 percent of the population resides in small communities, these communities receive only 12 percent of the awards measured on a dollar basis. Less than 1 percent of the places in the United States are communities over 100,000, while 9 percent of the awards go to these areas. Moreover, communities of more than 100,000 people account for 31 percent of the population but receive 42 percent of the funding dollars.

The communities with populations between 5,000 and 100,000 have a distribution of award dollars that is relatively well correlated with population share. On average, however, the larger the community size, the more likely it is to receive an award. It appears that smaller communities are not receiving their share of the awards or dollars based upon the number of places and population. Explanations of this phenomenon may include the following:

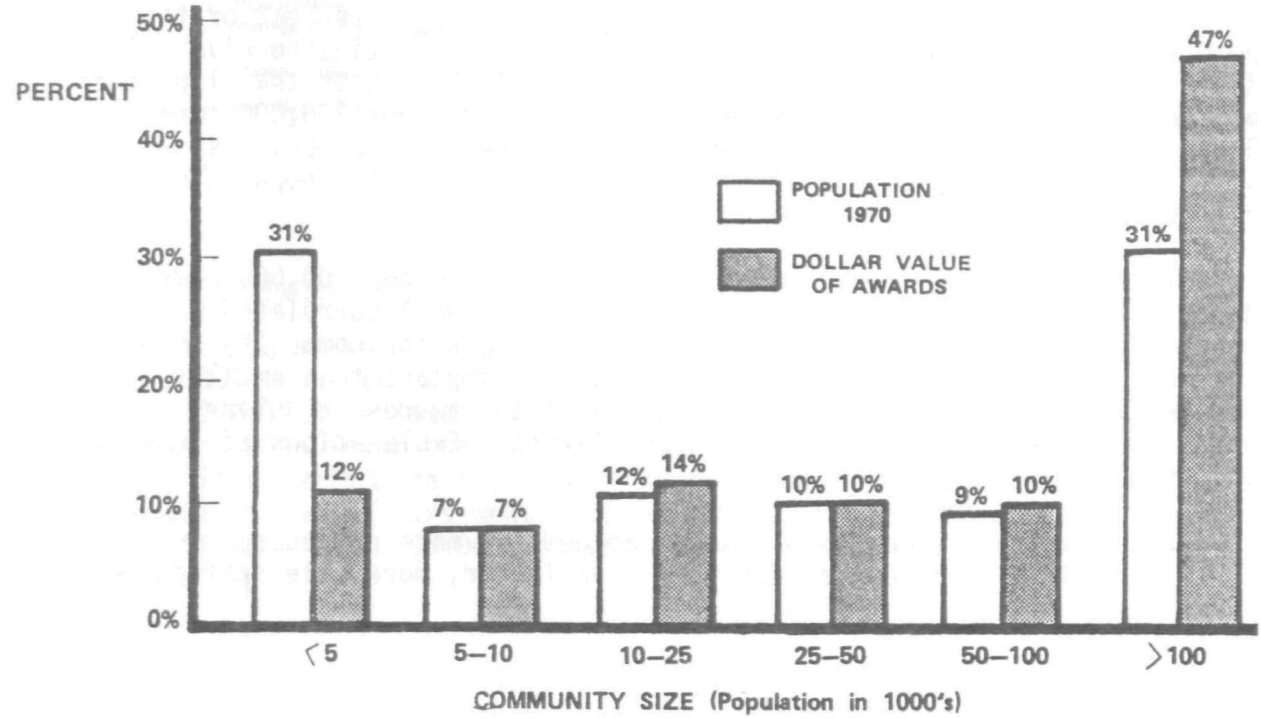
- Large places have been faster at getting more projects ready to proceed because they have larger, more able staffs,

FIGURE III.9 DISTRIBUTION OF NUMBER OF GRANTS AND PLACES BY COMMUNITY SIZE



Source: Clean Water Fact Sheet, June 30, 1980; 1970 Census of Population, Number of Inhabitants, Table 19.

FIGURE III.10 DISTRIBUTION OF POPULATION AND AWARDS DOLLARS BY COMMUNITY SIZE



Source: Clean Water Fact Sheet, June 30, 1980; 1970 Census of Population, Number of Inhabitants, Table 5.

- EPA enforcement policy concentrates on larger municipalities, thus moving their projects up on the priority,
- Water quality impacts may be more important in these large municipalities,
- A conscious policy decision may have been made on this basis by States,
- Other sources of funding may be available to small communities.[1]
- Many small communities are able to avoid sewerage systems.

Standard Metropolitan Statistical Areas (SMSAs)

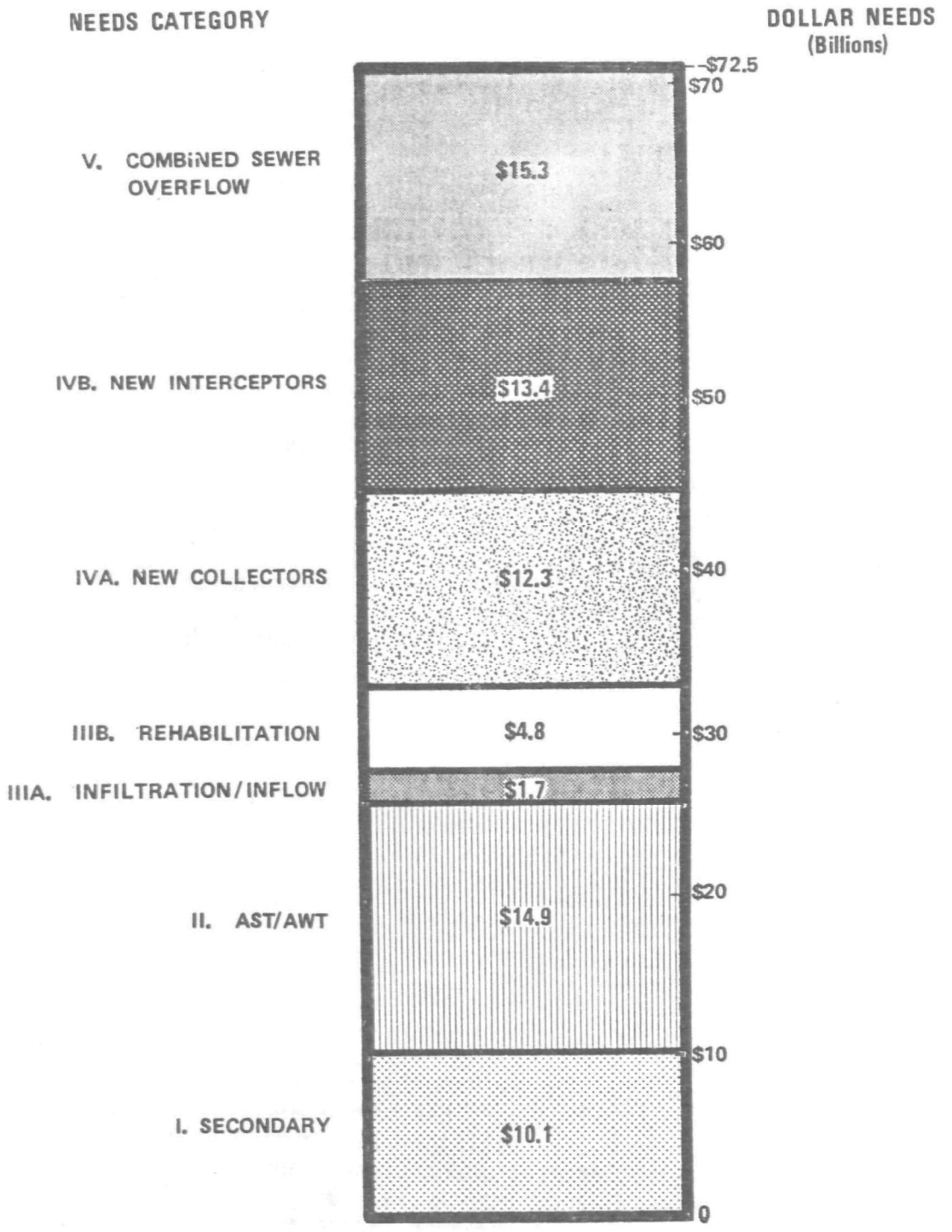
SMSAs represent the more heavily populated areas of the country. It is useful to examine the needs of SMSAs as a way to focus on needs in the more urban areas of the country.

Needs for SMSAs for 1978 were reported for most States, with the exception of Vermont, Wyoming, and Alaska. In addition, no SMSA-related needs were reported for Puerto Rico, Virgin Islands, American Samoa, Guam, or the Pacific Territories.

Figure III.11 shows the SMSA needs by project type for 1978. Of the $72.5 billion in need, only 14 percent was associated with secondary treatment. However, secondary and advanced wastewater treatment represented 35 percent of the total SMSA need. CSOs were also a significant need, accounting for 21 percent of the need.

[1] Approximately 1/3 of the Farmers Home Administration's grant and loan funds over the last five years has been awarded for wastewater projects--a total of over $3.5 billion. In addition, the Housing and Urban Development Department's Entitlement and Small Cities Program also has awarded approximately $3.6 billion in both FY79 and FY80. Most of these funds, however, are awarded to metropolitan areas. In addition, a significant portion of these funds is awarded to drinking water projects.

FIGURE III.11 SMSA FUNDING NEEDS BY PROJECT CATEGORY



Source: 1978 Needs Survey, GICS Database.

Geographic Patterns:

Figure III.12 shows the SMSA needs by category and EPA Region. Clearly, Regions II and V have the most significant needs. Secondary treatment is the largest needs category for only three Regions (IV, VII, IX) while CSOs are a significant need, representing the largest or second largest needs category for six Regions.

Comparison with National Needs:

Figure III.13 shows a comparison of SMSA and national needs by EPA Region. In all cases, more than 50 percent of the people in the Regions live in SMSAs. In Regions II and IX this figure approaches 90 percent. Moreover, for most regions, except Region VIII, SMSA needs represent over 1/2 of the total needs in the Regions. SMSAs in Regions II and IX account for over 80 percent each of the total needs in each Region. Figure III.13 also points out the general correlation between SMSA population and SMSA needs.

LOCAL COST IMPACTS

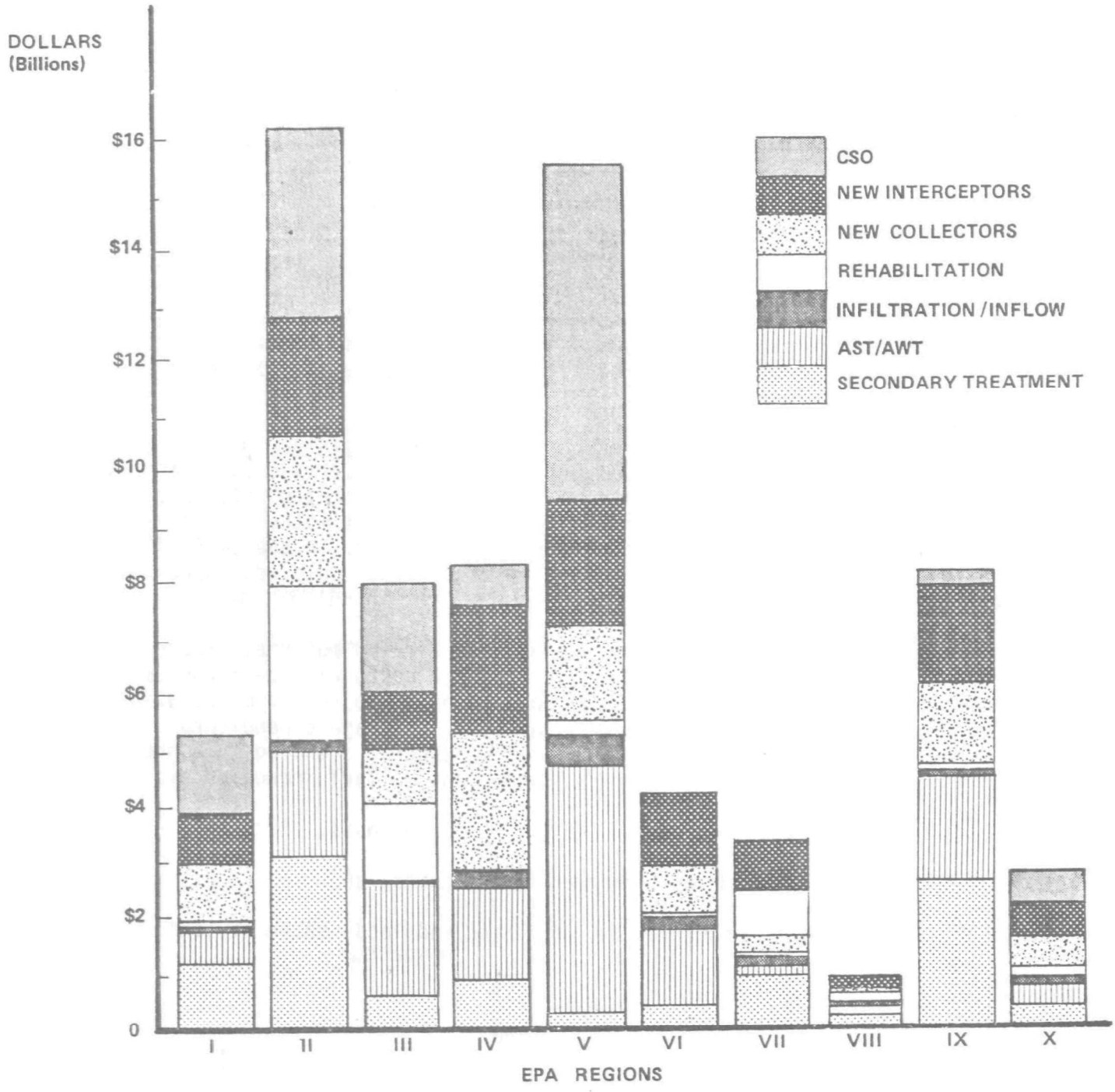
Although wastewater treatment expenditures have historically comprised a small portion of municipal budgets and family incomes, there is concern that construction and O&M costs required for compliance will prove to be burdensome.

In recent years, sewerage costs have increased rapidly. During the 1967 to 1977 period, direct expenditures for sewage increased at an annual growth rate of 15.2 percent, to become more than 5 percent of all local governments' budgets (excluding school districts). Estimates of the local share of sewerage suggest that the 1980 costs are in the $4-5 billion range, exclusive of debt service. Debt service costs would add approximately $1.2 billion additional costs.

Projections of future sewerage costs vary widely, but they are in agreement that significant increases in sewerage costs will be forthcoming. A conservative estimate has been developed using a projection model with a data base from Census Bureau reports of local sewerage expenditures. This model, which assumes a constant level of federal spending throughout the 1980s points to the following real (constant dollar) increases by 1990.

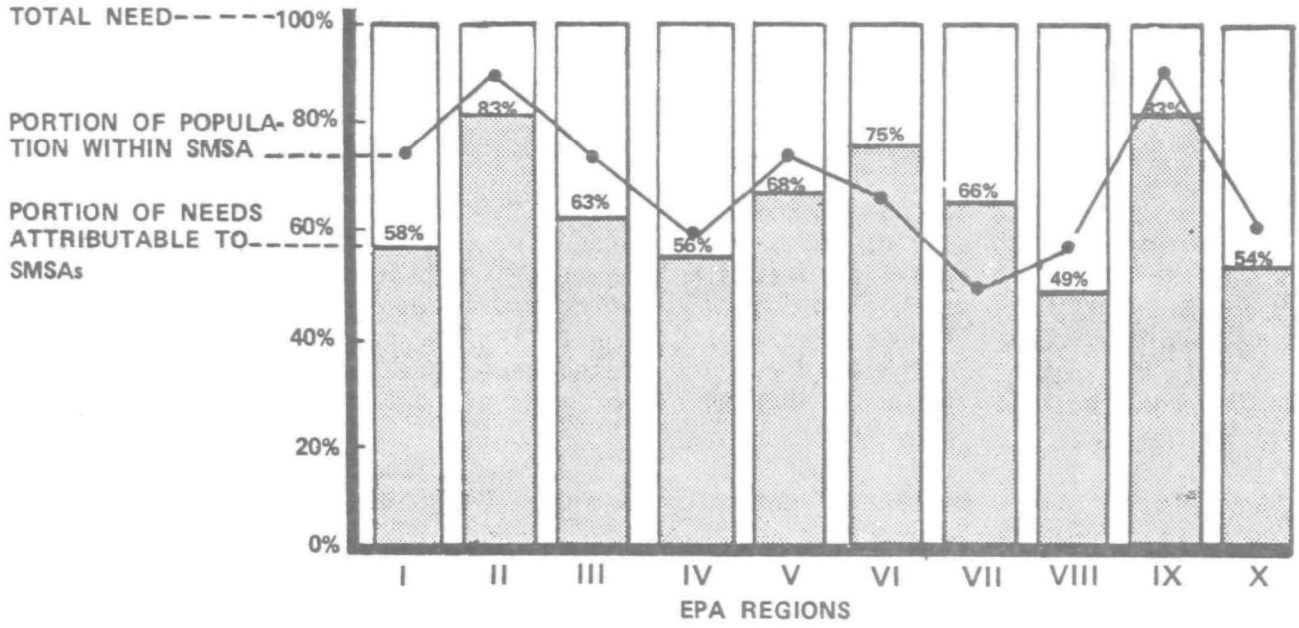
- An 88 percent increase in total sewerage costs,
- A 68 percent increase in per capita costs, and
- A 150 percent increase in the State and local share of total sewerage costs.

FIGURE III.12 1978 SMSA NEEDS BY EPA REGION



Source: 1978 Needs Survey, GICS Database.

FIGURE III.13 PERCENT OF TOTAL REGIONAL NEED ATTRIBUTABLE TO SMSA



Source: 1978 Needs Survey, GICS Database; 1979 Statistical Abstract of the United States, Tables 11 and 19.

These numbers do not include possible increases in future interest payments on debt. Since the model indicates that there will be strong pressures for increased local borrowing, the expected expenditure increases will probably be even higher than those cited here. If 8 percent inflation is added to the cost estimates, the 1990 costs will be approximately 2 1/2 times higher than the above.

Many Regions, States, and localities can expect increases much higher than the national average. The model forecasts, for example, that real per capita costs will increase 100 percent or more by 1990 in Regions I and X, and that community-level fiscal impacts are sketchy, but preliminary evidence suggests that small communities and older urban areas are likely to be especially prone to financial capability problems.

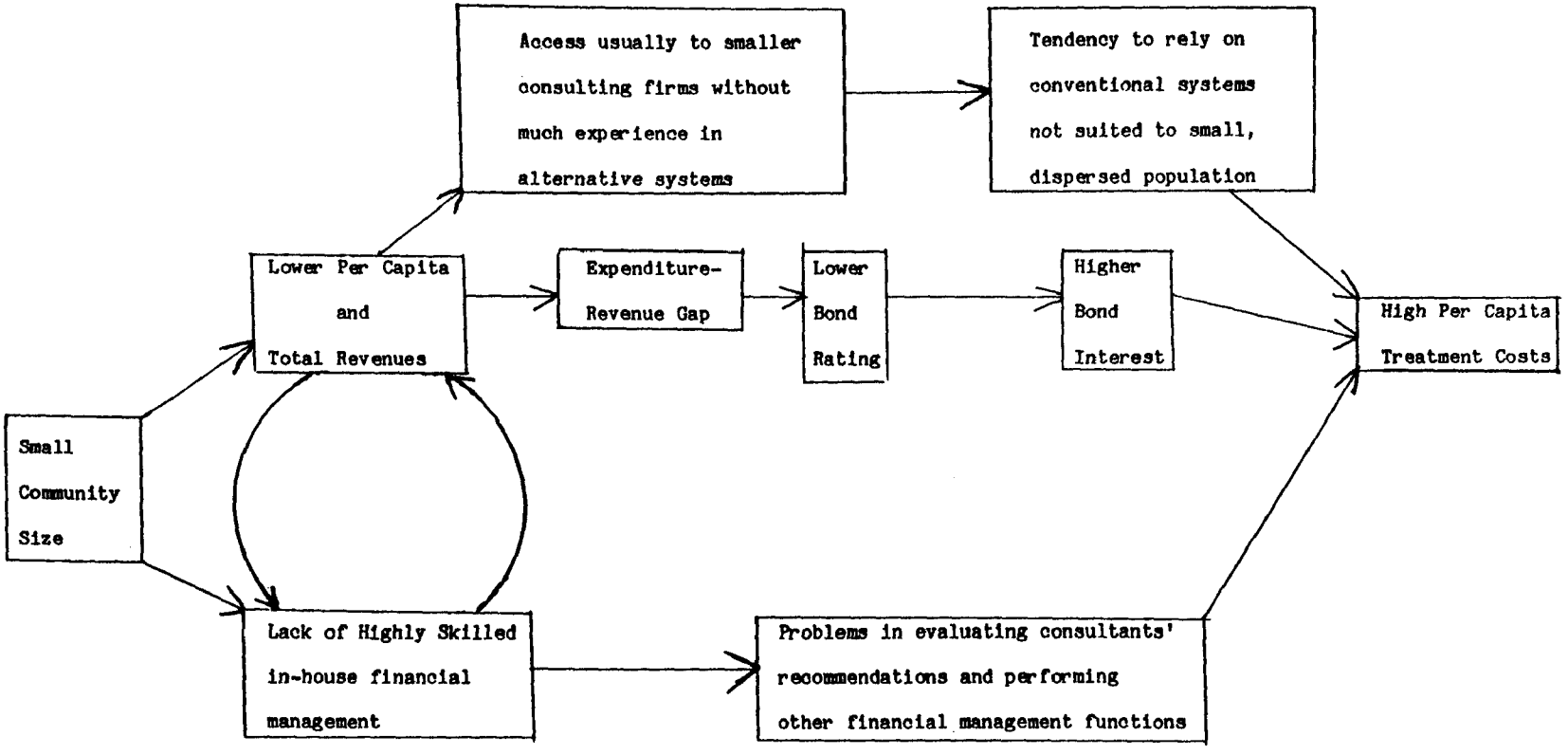
As Figure III.14 indicates, small communities are subject to high treatment cost impacts for a number of reasons. In many instances, increased per capita costs occur because of diseconomies of small scale plant size, or because of costs of providing sewerage for a dispersed population. Also, small cities, on the average, have a lower per capita income and pay higher costs for borrowing money. In some cases, the lack of independent technical and financial management skills may result in the construction of inappropriate systems which they cannot easily afford. An analysis of approved user charge systems from Region V indicates that more than 25 percent of small communities had annual per household costs (based on 100,000 gallons) over $200, while less than 5 percent of communities above 10,000 had charges this high.

A second problem area involves financially distressed, older urban centers whose sewer systems may be in need of substantial rehabilitation and who may have substantial CSO and urban stormwater needs. A study by the Urban Institute of 28 large cities found the highest per capita needs in cities least able to afford them in terms of fiscal capacity. In addition, they noted an actual decline in constant dollar maintenance spending for some large cities because of financial pressures. A striking example is New York City, with $72 billion of categories I-V needs, all of which went unmet during the 1976 to 1978 period. According to the 1978 Needs Survey:

> This situation is not unique to New York, but is a common occurrence in financially troubled cities, which have little prospect of financing the local share of more than a small percentage of their wastewater treatment and conveyance needs. The national total of needs in the 10 most financially distressed large cities is about $15 billion.

As a reflection of this concern with large city costs, EPA has begun an effort to collect financial "community profiles" for the SMSAs with the greatest wastewater treatment needs.

FIGURE III.14 FINANCIAL OBSTACLES TO SMALL COMMUNITY PARTICIPATION IN THE CONSTRUCTION GRANTS PROGRAM



For communities of all sizes, increased costs of wastewater treatment are occurring at a time when intergovernmental aid to local communities has leveled off or decreased. This indicates that the cost increases will be borne locally, and that wastewater treatment will face stiff competition for scarce local resources.

There is also a concern that the impact of new or increased sewerage rates will present a burden to low-income households within a community. The program currently focuses on costs relative to median household income as a measure of ability to pay, but this approach does not identify burdens on very low-income segments within a community. For low-income households, much of the family budget is already consumed by non-discretionary expenses, and some form of assistance may be required in response to higher costs. Analysis of many State programs which currently provide assistance to low-income households for high utility (heating) costs can provide some insight into the advantages and disadvantages of various assistance approaches.

CHAPTER IV

MAJOR FUNDING ISSUES

EFFECTIVENESS ISSUE

Issue

Funding policies should be modified so that the construction grants program can contribute more effectively to achieving the goals of the Clean Water Act.

Discussion

One of the primary objectives of the Act is the achievement of fishable/swimmable waters wherever attainable by July 1, 1983. In funding treatment works to meet this goal, the construction grants program has obligated more than $25 billion, with construction completed for more than 2100 projects valued at $2.6 billion. Final construction costs of projects currently in Step 1 or Step 2 of the grants pipeline are estimated at more than $30 billion. This contruction has resulted in improved water quality in many areas of the country.

Compared with the $119 billion of reported needs, however, construction completions are less than 3 percent of the reported dollar needs for treatment facilities, and future funding is not expected to be adequate to meet all needs. Because of limited funding, categories of projects currently grant eligible must be evaluated carefully in terms of their contribution to achieving goals of the Act, and priorities must be established.

The categories most directly related to fishable/swimmable goal are the treatment plant categories I and II of the Needs Survey. Other categories, such as new collectors, major sewer rehabilitation, and correction of I/I are less directly related to the goal of improved stream quality. In some cases, however, collectors may be an integral part of a treatment system or necessary to prevent groundwater contamination. Major sewer rehabilitation and correction of I/I may have substantial indirect impacts on treatment as they may be needed to maintain or improve treatment system performance.

Priorities among projects may be established by eliminating or reducing funding for certain categories, or by restricting eligibilities within categories. One additional approach is to prioritize individual projects based on direct water quality impacts. Highest priority would be given those projects, regardless of category, which are necessary for the achievement of fishable/swimmable waters, and which by themselves, or in concert with other controllable pollution sources, are sufficient to achieve fishable/swimmable waters.

Prioritization of projects will also be affected by application of the attainability criteria associated with the fishable/swimmable goal. Revised guidelines are under review for making determinations of environmental, technological, and economic attainability as associated with particular water quality standards. In many cases, projects listed as current needs may prove to be unattainable. (See the 1990 Planning Strategy for an extended discussion of this issue.)

In addition to the primary water quality goals, CWA objectives also include: (1) the reclaiming and reuse of wastewater; (2) improved energy recovery and conservation; (3) improved cost-effectiveness in meeting specific water quality goals; and (4) encouragement of integrated facilities for sewage treatment and treatment or disposal of other waters.

The primary EPA programs that are directed specifically to meet these goals are the Innovative and Alternative (I/A) technology program and the funding of multiple-purpose projects. As noted in Chapter III, the current funding policy for multiple-purpose projects generally results in a grant eligible cost which is less than the single-purpose pollution control cost. For more progress toward CWA goals, alternatives should be considered which provide greater encouragement to such projects. The I/A program has made some progress, but has had only a limited national impact. Major issues include:

- long standing conventional approach to municipal water pollution control in the United States,
- brief initial authorization period for program,
- mismatch between demand and distribution of State I/A set-aside funds,
- the administrative and technical complexity of I/A program, and
- inadequate incentives to develop I/A projects.

The I/A program is discussed in detail as part of the 1990 Operations Strategy.

A final effectiveness issue concerns the ability of treatment facilities funded under the program to achieve compliance with permit requirements. This has been identified as a major problem, and measures to be undertaken to reach greater compliance are discussed in the 1990 Compliance Strategy.

EQUITY ISSUE

Issue

There are some inequities in current funding policies which impact small and large communities differently. Other inequities may arise if the program is modified.

Discussion

- Rural Communities

While the construction grants program has historically awarded grants to states roughly in proportion to identified eligible needs and population levels, the number and dollar value of grants given to small communities does not reflect either the relatively large number of such places, or their share of the national population (Figures III.8, III.9, and III.10).

The rural set-aside program was established to ensure that awards better reflect rural needs. Early estimates of funds obligated under this program, however, indicated that $55.5 million of the $85.8 million total could potentially be lost to reallotment. While preliminary figures as of 10/1/80 show that only about $7.5 million will actually be subject to reallotment, the year-end obligation crunch may indicate that some problems remain.

One reason that small town projects may receive less than adequate funding is that their Step 1 grants are made from the general pool of funds according to state priority lists and not from the 4 percent set-aside. Because funds available to states are limited, the priority lists may favor major stream pollution areas to the neglect of rural communities with an interest in protecting groundwater quality. Small towns are also often required to construct more expensive advanced treatment systems, due to their location on smaller streams which are classified by states for higher water quality levels than downstream costs. In addition, many small communities have not constructed less expensive alternative systems because of lack of understanding of alternative technology benefits by local public officials or consulting engineers.

- Inner Cities

Many larger cities have older inner city areas which will have disproportionately high needs for sewer rehabilitation in the future since sewer maintenance is a very low priority at present. In addition, many older cities have combined sewer overflow problems, which nationally total more than $37.8 billion in needs. Technological complexity and local unwillingness to proceed have meant that

a smaller proportion of ultimately necessary projects in large urban areas have been funded. Also, the urban share of the total state allotment has often been inadequate, when compared to their tremendously high needs, and has resulted in the slow progress of many projects. In the end, some urban areas will face higher costs for major rehabilitation because of the age of the system and because they have deferred maintenance costs, which are not grant eligible.

- Program Modifications

Certain new inequities are likely to occur if the current federal share or eligibilities are changed.

Reducing the federal share disadvantages late starters if the delayed initiation is due to special circumstances beyond the local grantee's control. In this sense, reduced federal assistance may impact localities unfairly.

Reducing or eliminating certain eligibilities will also impact certain types of grantees more than others. For example, eliminating collectors may particularly affect small or rural communities. Elimination of eligibility for rehabilitation disproportionately affects older urban areas. Further, some eligible needs are concentrated in particular regions of the country. For instance, more than 50% of CSO needs fall in five states.

Changed federal share or eligibilities also impacts states differently depending upon the individual State's past priorities in reducing needs. For example, some states may have concentrated funding on treatment plant projects, anticipating future funding of pipe needs. If federal funding for pipe needs is reduced or eliminated, States that have concentrated on reducing high priority treatment needs first will be disadvantaged compared to States which have funded pipe needs first.

EFFICIENCY ISSUE

Issue:

The current funding distribution system should be improved to maximize efficiency in obligating funds to projects ready to proceed.

Discussion

Because there is often a mismatch between States with unobligated funds and states with projects ready to proceed, efficient obligation of funds is limited. Some States, in a given year, have funding shortages while others feel pressure at year's end to fund any project ready to proceed to avoid reallotment of funds. The current allotment system is

designed to reflect long-term needs and population and is not responsive to short-term fluctuations in readiness to proceed. Although not the primary problem, the current allotment system has contributed to the program's difficulty in obligating appropriated funds in a timely fashion, which, in turn, has affected the appropriations levels voted by Congress.

Further, the role of the allotment system is to reflect program priorities in distributing funds to states with priority needs. To operate efficiently, an allotment formula must be based on priorities established through eligibilities, federal shares, or priority systems.

Greater program efficiency can also be achieved by leveraging federal funds to encourage States and localities to use more of their own financial and administrative resources to meet program goals. Each federal dollar spent currently funds $1.33 of total construction grants outlays. This implies a federal commitment of $89.5 B to reduce the total $119 B needs. The challenge is to achieve more results with a given federal expenditure level, yet ensure local financial capability, including the long run ability of the POTW to be economically self-sustaining.

LOCAL FINANCIAL CAPABILITY ISSUE

Issue

Federal funding programs should be designed to ensure: (1) that local communities are capable of funding required sewerage costs, and (2) that local communities have the ability and incentive to operate POTW's on a self-sustaining basis following the first round of EPA grants.

Discussion

As indicated in the section on local cost impacts, federally mandated wastewater treatment costs are expected to increase substantially during a period when many cities are anticipating that demands for current expenditures will outstrip revenue growth. In addition, wastewater facility needs facing some communities are very large relative to their ability to afford capital expenditures. This is particularly true of many small communities which have reached their borrowing limits and large, older cities with special problems due to the age of their infrastructure. In the latter case, fiscally strained communities may face difficult choices between competing priorities for capital projects.

An additional area of concern is the impact of increased sewerage costs on low income households within a community. If excessive costs for low income persons are not able to be avoided, options should be considered to ameliorate this burden.

The federal concern in the cost area is reflected in many ways. Excessive costs may be avoided by encouraging better planning, better financial management, and application of economic attainability guidelines. Long-range funding of all needs, and encouragement of local self-sufficiency, should be addressed through consideration of alternative federal funding mechanisms. Local economic self-sufficiency is also addressed in the Financial Management portion of the 1990 Compliance Strategy.

Proposals to reduce the federal share of construction grants or to eliminate categories of eligibilities will have negative impacts on local financial capability. If the federal share is reduced substantially for all categories, local communities, unless rescued by States, will face higher capital costs and expanded debts. A reduced Federal share would provide money for more projects, but more communities would find themselves unable or unwilling to raise sufficient local funds. If federal share reduction or eligibility elimination is directed at a few categories, the overall impact would be lessened, but some communities are still likely to face difficulty in meeting local funding requirements.

A reduced Federal share increases the financial burden on local communities by:

- Raising debt service costs, thereby affecting the capacity of revenues to adequately cover O, M, & R costs, since debt service normally has

- Increasing the difficulties for States and localities to market bond issues at acceptable rates due to increased borrowing; and

- Causing the true local share to increase to more than 50 percent. Although the Act currently provides 75 percent federal funding, in practice, eligibility determinations made during project reviews often result in a given project being awarded substantially less than 75 percent. This being the case, lowering the federal share to 50 percent will result in the actual State/local share exceeding 50 percent.

IMPLEMENTATION CONSIDERATIONS

Any construction grants program funding strategy selected for implementation should be compatible with, and reinforce objectives of, other water quality programs in order to focus on the goals of the Clean Water Act as effectively as possible. Planning and enforcement strategies, contained in other 1990 papers, should be tied directly to the availability and distribution of grants. Both strategies should key on projects meeting identified priority needs.

Implementation must also be consistent with management objectives. Recommendations should be compatible with the current emphasis on delegating project management and responsibility to the States.

Consideration of program priorities or changes must take into account the large number of projects in the grants pipeline in Steps 1 and 2. Implementation of major changes without concern for pipeline impacts could damage the ability of the program to fund construction in a timely manner.

In order to successfully implement a preferred funding strategy, managers in the construction grants program must have rapid access to useful data in order to track and monitor program performance. In a major step in this direction, EPA is implementing an integrated data base management system (IDMS) to provide rapid interchange of information in the permits, needs, grants and other important data files. The IDMS is central to the implementation of the MMS, which is designed to increase the rate of municipal compliance and the rate of municipal construction. Information from IDMS can be used to make mid-course corrections in program elements and to fine-tune the program for maximum water quality impacts.

CHAPTER V

AVAILABLE OPTIONS

The preceding two chapters provided information regarding the current status of the program, and organized the information around four major issues. In this chapter, options designed to deal with program issues are described and analyzed.

The options are organized under five major headings:

- Eligibilities
- Federal Share
- Priority Systems
- Allotment Formula
- Federal Funding Mechanism

Although these options are organized under five separate areas, it is important to recognize that decisions made in any one area have important implications for decisions made in other areas. For example, if program priorities are to be established by eliminating eligibility for one category of projects, the allotment formula should perhaps also be changed to reflect this priority. In Chapter VI of the paper, the relationships between the five areas are important to the formulation of an overall coordinated strategy based upon options chosen in each area.

In general, the primary links between the options and the four issues of Chapter V are best illustrated in Table V.1. Because of the interrelationships among options, the links are in fact more complicated than this table suggests, but the table does provide a useful map of the most direct and strongest linkages.

Some concerns raised in the issue section are not directly addressed in the five major option areas. These concerns, such as funding set-asides and multiple-purpose policy, will be dealt with in Chapter VI.

ELIGIBILITIES

Under existing law, eligibilities are defined in terms of treatment (Categories I and II), new sewers (Categories IV A and IV B), the repair or rehabilitation of sewers (Categories III A and III B), and control of combined sewer overflows (Category V). The estimated costs of these eligibilities (or eligible cost) are reported as "Needs." The Act assigns no particular priority to any of the categories other than requiring that no less than 25 percent of a State's allotment be obligated for sewer rehabilitation, new sewers and control of combined sewer overflow (CSO) projects. Because of funding limitations, however, program priorities need to be established.

TABLE V.1 PRIMARY LINKS BETWEEN ISSUES AND OPTION AREAS

Issues	Option Areas: Eligibilities	Federal Share	Priority Systems	Allotment Formula	Federal Funding Mechanism
EFFECTIVENESS (effectiveness of projects funded in meeting CWA goals)	X	X	X		
EQUITY (equitable distribution of funds between communities and States)			X	X	
EFFICIENCY (ability to direct funding to projects ready to proceed)				X	X
LOCAL FISCAL CAPABILITY (ability of local community to fund and maintain facilities)		X			X

Setting Priorities Among Eligibilities

The current eligibilities make varying contributions to certain clean water objectives. The following discussion, aided by Table V.2, attempts to distinguish among the eligibility categories on the basis of their contribution to several objectives. The apparent differences suggest the basis for establishing priorities among eligibilities.

Secondary Treatment (Category I)

- minimum of secondary treatment is required by the CWA.
- preliminary studies indicate favorable impact on toxic pollutant removal (POTW study)
- secondary treatment sometimes not necessary in order to meet water quality standards or to achieve beneficial uses. (e.g., small discharge into large river).
- technological definition prevents use of less expensive, "near secondary" treatment process, even where they are adequate to meet water quality standards.

Advanced Treatment (Category II)

- focuses funding on reaching levels of treatment critical to meeting water quality objectives.
- administrative reviews require adequate quality justification.
- actual cost of required treatment is expected to decrease with review of State standards and widespread application of attainability criteria (see 1990 Planning Strategy).

Infiltration/Inflow (Category III A)

- represents small portion of needs, but needed for cost-effective sizing of plants.
- elimination of funding of I/I would lead to increased treatment costs.
- recent studies on completed projects show that actual I/I reduction achieved has been substantially less than predicted by sewer system evaluation surveys.

Rehabilitation (Category III B)

- represents small portion of needs, but cost estimate does not account for potential major problems with older, inner city infrastructure.

TABLE V.2 FUNDING CATEGORY IMPACTS ON CLEAN WATER ACT OBJECTIVES

Eligible Category	B P W T T		Attainment of Beneficial Uses	Toxic Pollutant Removal	Prevention of Public Health and/or Groundwater Contamination	Cost-Effectiveness
	Technology Based Standards	Required by Water Quality Standards				
I Secondary	**		*	** (?)	*	
II AWT		**	**	** (?)	*	
III A I/I					*	**
III B Rehab.	0	0	0	0	**	0
IV A Collectors	0	0	0	0	*0	*0
IV B Interceptors	0	0	0	0	*0	*0
V CSO		**	** (?)	?		

Key: * = Low to variable contribution
** = Moderate to significant contribution
0 = As required for system integrity

Assumption: Analysis assumes that AWT/CSO projects will be constructed to meet water quality standards and beneficial uses of water.

- broadening application of the category, however, would reward communities with inadequate sewer maintenance programs.

New Collectors (Category IV A)

- less critical to water quality except where on-site systems are contaminating groundwater. In some cases may be integral part of cost-effective treatment system.
- particularly critical for small communities where they may constitute major part of capital costs, but in many cases decentralized alternative systems are more cost-effective.
- may be used to promote growth rather than correcting existing pollution problems.
- current reviews under PRM 78-9 will lower costs, as would limiting funding to collectors integral to system, but estimate of dollars saved not available.

New Interceptors (Category IV B)

- in most cases can be justified as integral part of treatment system.
- in some cases have been used to promote development in areas that previously had low populations.

Combined Sewer Overflows (Category V)

- needs estimates based on modeling of costs necessary to reach recreation water uses.
- application of attainability criteria may result in reduced needs. Fish and wildlife objective is $15 billion less than recreation goal.
- work progressing on coordinated strategy for evaluation of CSO/Urban stormwater issues. (See Appendix)
- question as to adequacy of standards criteria for high flow conditions.

Reducing Eligible Costs

The primary reason for evaluating and prioritizing eligibilities is to suggest ways of reducing projected federal costs to manageable levels, while maximizing water quality impacts of federal dollars. In the following sections, four approaches to revising eligibilities are discussed:

- elimination of eligibilities,
- restrictions within categories,

- revision of secondary treatment definition.
- review of attainability for water quality limited stream segments, and
- water quality-based eligibilities.

A summary of the primary options is provided by Table V.3.

Elimination of Eligibilities:

The categories most frequently recommended for elimination are new collectors, infiltration/inflow correction, and major sewer rehabilitation. These categories have the least direct impact on the treatment goals of the Act. As we have noted, however, elimination of eligibility for I/I may be reflected in increased costs for treatment, and elimination of eligibility for rehabilitation may increase costs for interceptors, as new pipe is substituted for rehabilitation. Also, elimination of categorical funding for new collectors would limit flexibility, as collectors may be critical for some public health problems.

Restriction of Eligibilities within Categories:

A more flexible approach is to restrict eligibilities within categories. Current administrative reviews of new collectors, AWT projects, and interceptors closely limit funding in these areas.

Program Requirements Memorandum (PRM) 78-9, for example, limits collection system eligibility to systems proven to be "necessary and cost-effective," in addition to meeting the substantial human habitation and two-thirds rule requirements. In order to be "necessary" a collection system must be replacing existing systems which are creating a public health problem, contaminating groundwater, or violating point source discharge requirements of the Act. The collection system must also be proven to be more cost-effective then decentralized or on-lot systems. Thus, collectors are to be funded only if an integral part of a treatment system necessary to meet enforceable requirements or a groundwater contamination/public health problem.

Interceptor eligibility could similarly be limited to funding only those interceptors which are a necessary part of a treatment system being funded in order to meet existing pollution problems. Interceptors would also be eligible where substituting for a treatment plan need by conveying sewage from one locality to another in lieu of constructing a treatment facility at the first location.

TABLE V.3 OPTIONS TO CHANGE ELIGIBILITIES
(Reductions in Billions of 1978 Dollars)

Category	Eliminate Eligible Category	Restrict Eligibility					Defer	Lower Treatment Requirements
		Reserve	Industrial Flow	To 1972 Population (Collectors)	Present Administrative Reviews	Attainability Evaluation		
I Secondary		X (8.45)	X (3.5)					X (Unk)
II AWT		X (3.98)	X (1.41)		X (Unk)	X (Unk)	X (AWT)	
III A I/I	X (2.29)[1]							
III B Rehab.	X (4.61)							
IV A Collectors	X (17.38)			X (10.0	X (Unk)			
IV B Interceptors		X (10.1)	X (.79)		X (Unk)			
V CSO						X (Unk)	X (Unk)	X (Unk)
TOTAL	24.28	22.53	5.7	10.0				

1) Cost reduction figure based upon 1978 needs reduced by subsequent authorizations, including local 25% share

Two other areas in which funding might be restricted are industrial flow and reserve capacity. Eliminating eligibility for industrial flow would remove the need for an industrial cost recovery (ICR) program and encourage conservation and pretreatment of non-domestic wastewater. Under an authorization bill (S-2725) signed into law in October, the ICR program is repealed as of December 27, 1977. Any ICR grant provision in a grant made since March 1, 1973 is to be removed. No grant funds shall go to the industrial portion of a treatment works after November 15, 1981 for a Step 3 grant, except where a Step 2 grant was made before May 15, 1980. EPA is to make a report to Congress on the effect of these amendments by March 15, 1981.

One disadvantage of this approach is that it discourages mixed treatment of industrial and domestic waste which can be a beneficial approach in some cases. Also, under these amendments pretreatment will be required, thus precluding flexible approaches suggested by an integrated waste management strategy.

Reducing reserve capacity eligibility would concentrate federal funding on the correction of backlog needs and allow funding of more treatment works than would otherwise be possible. It would also discourage oversizing of treatment works, and provide incentives for measures to reduce wastewater flows. On the other hand, it would substantially increase the state/local cost share and may decrease the opportunities for municipal/economic self-sufficiency. Also, reserve capacity can contribute to compliance: because of variations in wastewater characteristics, more conservative design may be warranted. One suggestion is to tie funding of reserve capacity to a commitment to a water conservation plan and a financial management system designed to ensure future self-sufficiency.

According to the 1978 Needs Survey, the backlog needs represent the following portions of year 2000 needs.

Category	1978 Needs	Backlog Needs	Backlog as % of all needs
I	15.1	9.7	64%
II	20.5	10.6	52%
III A	2.4	2.4	100%
III B	4.9	4.9	100%
IV A	19.0	19.0	100%
IV B	18.5	6.7	36%
V	25.7	25.7	100%
Total	106.1	79.1	74%

Another option is to change the "two-thirds of flow" rule for funding collectors, and limit funding to flow for 1972 populations alone. This would lower federal costs for a category with less critical water quality impacts, but for some small communities it would have major cost impacts.

One objective of the construction grants program is to ensure that following a first-round grant, municipalities will become economically self-sufficient with respect to future wastewater treatment costs. Under the economic self-sufficiency concept, second-round grants would not be eligible for funding. Second-round grants are defined as grants for planning, design or construction with respect to expansion (including the construction of a new plant), upgrading or replacement for a POTW previously funded by 201 program. Second and subsequent portions of a phased or segmented project will be be considered second-round grants if specifically planned in original facility plan as segmented portions of 20-year cost-effective treatment works. Limited funding for corrective action for new plants out of compliance due to design error or equipment failure could be eligible, but would be followed up with an attempt to establish liability and recover costs.

Revision of Secondary Treatment Definition:

The cost of achieving secondary treatment currently represents 35 percent of 1980 Category I-IV Needs. Revising the current requirements for meeting secondary treatment offers the potential to impact water quality by reducing federal and local treatment costs and enabling more projects to receive grants. No data are available to predict the precise size of the cost savings, but they would be substantial, depending upon the particular revision proposed.

Proposals for revision of the secondary treatment definition would apply to effluent limited stream segments where such treatment is now required. Under all the of the following proposals, the revised requirements would not permit degradation of water quality below that required by the designated use of classification of the receiving water.

1. A process-based approach which would expand the current definition to include specified treatment processes. While specification of a process would be made on the basis of its ability to produce a certain quality of effluent, the definition itself would be in terms of the process and the technical procedures needed to make the process effective. The model for this approach is the existing specification of lagoons as secondary treatment. Current discussion focuses on the additional specification of trickling filters as a secondary treatment process.

2. An effluent based approach allowing lower removal rates and higher effluent concentrations. Pollutant parameters would be raised from 30 mg/l of OBD and SS to 40 mg/l, for example. Any treatment system which could attain these levels would then qualify as secondary treatment.

3. A water-quality based approach which makes secondary effluent limitations relative to ambient water quality and use objectives of a given reach. Under this approach, secondary treatment would be defined as the minimum necessary to avoid degradation of receiving water uses. A lower limit of primary treatment might be established.

4. An approach which blends technology and water quality standards. Under this approach a variety of treatment technologies is linked to attainable effluent quality which would support given water usages. With site-specific knowledge of the receiving stream, States ould match an attainable usage with appropriate technology. In effect, there would be a number of "minimum technologies" keyed to a variety of water quality conditions and desired stream uses.

Although revising secondary treatment regulations might more efficiently focus funding on water quality impacts, the following factors should also be considered:

- The current definition of secondary treatment in terms of effluent limitations is a clear, generally accepted and absolute prescription of minimum treatment levels.

- Any redefinition at this point might be disruptive to projects now in planning and design.

- It would be inequitable for those municipalities that have already achieved initial compliance, and it may set back ongoing compliance actions.

- Preliminary studies indicate that secondary treatment is effective in removing toxics. Therefore, perhaps secondary treatment requirements should not be modified until toxics are incorporated into water quality standards.

Of the four options presented above, option 1, involving expansion of the secondary treatment definition to include specific processes, would produce the least disruption in the current grants pipeline.

Review of Attainability (Water-Quality Limited Stream Segments):

A major new initiative in standards is the review of attainable uses for water quality limited segments (which require some form of advanced treatment to meet their water quality and beneficial use goals). A policy is being developed for downgrading water quality standards when environmental, technological, or economic factors preclude use attainment. (This issue is discussed in detail in the 1990 Planning Strategy.) The impact of this initiative on dollar needs is uncertain, but needs for CSO correction and advanced treatment should be reduced somewhat.

A related approach from the funding perspective is to fund projects in water quality limited segments only when attainability of beneficial uses and related water quality criteria can be demonstrated. Thus, attainability reviews would have two primary objectives: (1) to allow stream reclassification if preferred uses are unattainable, and (2) to focus funding for advanced treatment on projects which will have substantial water quality impacts.

Water-Quality Based Eligibilities:

Current eligibilities established in the Clean Water Act range widely in their contribution to statutory clean water objectives. Further, the eligibilities are not "treatment system" or "water quality problem" oriented. Some are related to types of construction such as "secondary treatment," "new collectors", or "interceptors," while others are related to correction of pipe problems or combined sewer overflows. A treatment system designed to treat a specific water quality problem will normally involve components involving two or more eligible categories. This may create problems if different eligibility categories are given widely different priorities.

As an alternative approach, eligibilities could be redefined in terms of water quality objectives. Given an eligible objective, treatment works construction necessary for meeting the objective would be eligible regardless of current category. This approach would provide considerable flexibility to localities in determining the most cost-effective mix of construction types needed to achieve the water quality goal.

Some proponents of this approach have argued for including eligibility for nonpoint source controls when such controls appear to be part of the cost-effective solution to water quality problems. In order to ensure a primary focus on point sources, NPS funding could be limited to some fraction, such as 5 percent, of 201 funds. One suggestion is to defer any funding of NPS controls pending completion and evaluation of a number of studies currently underway designed to determine the effectiveness of various NPS control techniques.

The problems involved in implementing an entirely new set of eligibilities would be substantial. Since current eligibilities are defined by statute, a change in the law would be required, followed by new regulations. Further, unless projects currently in the pipeline are exempted , a change in eligibilities would require substantial re-evaluation of all existing grants. The primary argument against a comprehensive redefinition of eligibilities, however, is that such a step is unnecessary given State control of priority systems. Under existing priority systems, States may evaluate projects in terms of water quality impacts regardless of eligibility category.

CHANGE IN FEDERAL SHARE

Lowering the federal share is an option which serves two major purposes depending upon how it is applied.

A uniform drop in the federal share for all categories could be used to lower program costs and to spread the currently available federal monies among a greater number of projects. It would also have a leveraging effect, stimulating more State and local funding for each grant dollar spent.

Lowering the federal share for only some categories may be done to establish priorities among categories. For example, to reflect national priorities, treatment categories could be funded at 75 percent while collection could be funded at 50 percent. This approach would also have some leveraging impacts.

A third alternative is to allow States discretion in adopting a 50 percent federal share, provided that the State provides an additional 25 percent share. This adds considerable flexibility to the program, as fast moving States could allocate federal money to more projects while slow moving States could continue to use the 75 percent share.

Table V.4 indicates program costs by category for a 75 percent and a 50 percent federal share. Program costs for a mixed 75/50 program can be calculated by adding across categories using the relevant federal share.

Table V.5 summarizes the implications of lowering the federal share for four different scenarios (including the current 75 percent share). Descriptive paragraphs on column headings follow.

- Establishes Priorities Among Eligibilities -- By their nature, some scenarios, in which the federal share is higher on some eligiblities than others, tend to implicitly prioritize the eligibilities.

- Allows Federal Funds to Impact More Projects -- This criterion assumes that total federal program costs remain constant, allowing the lower share to be spread among more projects. It also assumes that a State has sufficient projects ready to absorb the money.

- Leveraging Potential -- This column shows the option's relative potential for stimulating States and localities to use more of their own financial resources to meet program goals. It assumes the States or localities will make up the difference in funding created by the lowered federal share, and that there are priority projects ready to be funded with the smaller share.

TABLE V.4 DIFFERENT FEDERAL SHARE COST SCENARIOS BY CATEGORY

CATEGORY
(Billions - 80 Dollars)

	I	II	IIIA	IIIB	IVA	IVB	V	Total
TOTAL 1978 NEEDS	28.84	5.64	2.50	5.97	18.40	20.84	3.65	118.69
75% FEDERAL SHARE	21.63	4.23	1.88	4.48	13.80	15.63	27.38	89.02
50% FEDERAL SHARE	14.42	2.82	1.25	2.99	9.20	10.42	18.25	59.35

TABLE V.5 IMPLICATIONS FOR DIFFERENT FEDERAL SHARE FORMULAS

FEDERAL SHARE	Establishes Priorities Among Eligibilities	Allows Federal Funds to Impact More Projects	Leveraging Potential	Promotes Proper Sizing of Treatment Works	IMPLEMENTATION				Avoids Locational Effects	Avoids Equity Issues	Allows Flexibility	Avoids Increased Pressure on LFC	No Additional Federal Assistance Implied	EXPECTED COST* (Billions '80 $)	
					Avoids Priority List Disruption	Maintains Federal Commitment	Avoids Unobligated Balances	Avoids Increased Demand on Fed. Admin. Res.						Federal	State/Local
MANDATORY 75%			X	X	X	X	X	X	X	X		X	X	89.02	29.67
MANDATORY MIXED SHARE	X	X	XX	XX									X	Depends on Mix	Depends on Mix
MANDATORY 50%		X	XXX	XXX					X					59.35	59.35
OPTIONAL 50%		X	XX	X	X	X	X		X	X	X		X	?	?

* Reduced by authorizations since 1978, including local 25% share.

- Promotes Proper Sizing of Treatment Works -- To the extent that the State and local governments are funding a larger proportion of the total bill, there is more of an incentive to keep costs down by not funding excess reserve capacity.

- Avoids Priority List Disruption -- Any change in the federal share will probably change State needs, and possibly priorities, as they are currently defined. Furthermore, lowering the federal share may force the deferral, for cost considerations, of projects having high water quality benefits and may provide an incentive to proceed with projects that are desirable in terms of State and local priorities at the expense of those having higher environmental benefits.

- Maintains Federal Commitment -- Proposals reducing federal share are likely to amplify State and local uncertainty about the strength and duration of the federal commitment.

- Avoids Unobligated Funds -- Lowering the federal share may increase available funding for fast moving States, but it aggravates the problem of obligating the allotted funds in slow-moving States.

- Avoids Locational Effects -- Reducing the federal share for certain eligibilities will impact certain types of grantees more than others. For example, reducing the federal share for collection may particularly affect small or rural communities. Further, some eligible needs are concentrated in particular regions of the country. Fifty percent of total CSO needs fall in five States.

- Avoids Equity Issues -- The proposal to lower the federal share raises a question of equity in its treatment of applicants yet to receive a step 3 grant. Late starters are disadvantaged even if the delayed initiation is beyond the local grantee's control. Another equity question hinges on an individual State's past priorities in reducing needs. If federal funding is reduced for pipe needs, for example, States that have concentrated on reducing high priority treatment needs first will be disadvantaged compared to States which funded pipe needs first.

- Avoids Increased Pressure on Local Financial Capability (LFC) -- This criterion assumes that either the State or the locality picks up the difference when the federal share is reduced.

- Allows Flexibility -- The optional 50 percent share would provide fast-moving States an opportunity to build more projects without aggravating reallotment problems in slow-moving States.

CHANGE STATE PRIORITY SYSTEMS

Under current law and regulations, States are given primary responsibility for establishing a priority system and preparing an annual project priority list which ranks projects in preferred order of funding. The construction grants regulations regarding the project rating system require the inclusion of some general criteria and specifically exclude other criteria. Additional criteria, however, may be included at the State's option and the State has the authority to determine the relative influence of the rating criteria. The State also has sole authority to determine the priority for each eligibility category. Regional EPA Administrators must review and approve State priority systems for "procedural completeness," ensuring that each is designed to comply with enforceable requirements of the Act.

Establishment of the annual project priority list is the responsibility of the States, and EPA is not involved in the ranking of individual projects. If the Regional Administrator determines that a project or specific portion thereof will not result in compliance with the enforceable requirements of the Act, the State is obligated to remove it from the priority list.

Under the current approach to priority systems, each State's system reflects localized concerns, and a great variation among priority systems results. While this approach provides the benefits of flexibility and decentralized control, it also means that in some cases national priorities are not being reflected in projects being constructed.

One basic approach to deal with this issue is to establish uniform national criteria for priority systems. Although States would still be responsible for ranking individual projects and constructing project priority lists, more specific, uniform criteria would guide the ranking process. This approach to establishing program priorities is more flexible than options which consider the elimination of needs categories. It recognizes variations among States in terms of the categorical mix of remaining needs, and provides for within-State prioritization rather than wholesale eliminating of categories.

Two basic sets of options need to be considered in the application of this approach. The first set involves the responsibility for, and degree of, specificity of the priority system criteria. The second set of options deals with the type of criteria which should be included.

RESPONSIBILITY FOR PRIORITY SYSTEM

Criteria for a priority system may be established by detailed statutory guidance, or by administrative action under a more general grant of statutory authority. Similarly, responsibility for establishing a priority system or systems may be placed on Congress, EPA or the States. In combination, these choices suggest five options.

Primary Responsibility	How Specified
1. Congress	Detailed Statutory System
2. EPA	General Statutory Guidance
3. EPA	Detailed Statutory System
4. State	General Statutory Guidance
5. State	Detailed Statutory System

Option 4 represents the existing situation with States having primary responsiblity under the general grant of Section 216 of the CWA. Option 4 is also the approach most consistent with the current management objective of delegating increasing control and responsibility to the States. Options 1, 3, and 5 while providing Congress the opportunity to make a clear statement of national policy, provide little flexibility for those closest to the program to respond to the complexities involved. Option 2 provides an opportunity for both flexibility and national program direction, but may produce a degree of uniformity not compatible with the goal of delegating to the States the responsibility for program management.

Priority System Criteria

A priority system reflecting uniform national criteria would involve the mandatory inclusion of one or more criteria as part of the system. If more than one criterion is included, weighting of the components would be specified.

Existing regulations provide for wide variation but require the inclusion of the following criteria: (1) the severity of the pollution problem; (2) the existing population affected; and (3) the need for preservation of high quality waters.

Other criteria which might be desirable would include:

1. categories of projects,
2. enforceable requirements, and
3. water quality impacts, particularly beneficial uses achieved.

Categories of Projects:

In the analysis of eligibility options, a table (V.2) was developed indicating the relative impacts of project types on the goals of the Clean Water Act. Ranking projects by prioritizing eligible categories is an approach which provides more flexibility than the elimination or restriction of categories. One disadvantage to this approach is that many projects involve components reflecting different categories (e.g., secondary treatment plus collectors) which may have very different rankings.

Enforceable Requirements:

EPA recently adopted a National Municipal Policy and Strategy (NMPS) for improving the effectiveness of municipal compliance and accelerating the construction of facilities required to achieve initial compliance. A stated goal of the NMPS is "coordinating with States to develop State Project Priority Lists which assure that grant funding is allocated to projects necessary to meet the enforceable requirements of the Act before funding is allocated to other projects, to the extent authorized by law."

An outgrowth of NMPS, the Municipal Management System (MMS), is a guide for regional/state personnel in setting priorities for managing grant schedules and municipal permits. The focus of MMS is on those projects within the 106 SMSAs which have treatment needs exceeding $50 million each and which are in the fundable portion of the State priority lists. The MMS further provides that within the context of the NMPS priorities, "emphasis should be placed on major grantees within the top 106 SMSAs."

EPA intends to use the State priority system as one of the key mechanisms to implement the NMPS. State priority lists are screened to determine whether they contain projects that do not meet enforceable requirements of the Act and have a higher ranking than the unfunded projects pending enforcement actions described above. If so, EPA conducts a review of the State priority system to ascertain what changes might be made in the system to elevate the ranking of the significant polluters. Basically the system must give preference to projects that will meet enforceable requirements over the construction of other projects. EPA then requests the State to modify its prjority system accordingly.

The MMS guidance makes it clear that the basis for approval (or disapproval) of a State priority system and pending extension requests could be the nature of the State response to requests for modification of their priority system. Moreover, a noncomplying POTW without an active grant this is not in the fundable range and is causing significant water quality or public health problems will be referred for judicial action if the project is not moved into the funding range.

The NMPS represents an ambitious attempt to establish national priorities through the State priority systems without statutory changes. The emphasis is placed squarely on major grantees in the 106 SMSAs. (This priority should give clear direction and focus to efforts underway to accelerate Step 1 facility planning.)

Water Quality/Beneficial Uses:

Prior to the 1972 Act, effective implementation of pollution control was hampered by EPA's difficulty in identifying specific sources of pollution and by State water quality standards based on insufficient information relating them to beneficial uses or cost of implementation. Following the 1972 Act, EPA's principal focus has been on the development and enforcement of technology-based effluent limitations instead of water quality standards. In light of several years additional experience with the program, perhaps it is now useful to reassess the potential of basing funding priorities on water quality standards and attainable beneficial uses. Because of competition for resources, money spent for water pollution control should have maximum possible impact on water quality.

An alternative for establishing priorities would be initially funding only those projects which result in the achievement of fishable/swimmable waters. Other projects would be delayed, although an exception could be made for very large discharges whose planned facilities to meet enforceable requirements of the Act will take many years to construct.

Another alternative is to adopt a ranking adapted to newly defined, water quality-based priorities. Such a system might provide three classes of priority, such as the following list ordered from highest to lowest priority, or it might include an expanded set of objectives such as those listed below:

- Projects which are necessary for achievement of beneficial uses and which, by themselves or in concert with other controllable sources, are sufficient to achieve those uses. Also included would be projects protecting public health and the quality of Outstanding National Resource waters.

- Projects necessary to meet secondary treatment requirements or other enforceable requirements of the Act, but not included in the above category.

- Projects which are unnecessary to meet fishable/swimmable waters, secondary treatment requirements or other enforceable requirements of the Act, but which include all Needs Survey eligibilities not accounted for in the above categories.

The objective of this approach is to focus limited funds on projects that will show direct water quality improvement benefits. While agreement with this objective is widespread, debate has centered on the feasibility of the undertaking.

First and foremost, there is concern that current monitoring systems are incapable of providing information adequate for establishing a priority system on this basis. This priority system taxes the limited ability of analysts to define and measure "water quality" and beneficial uses, and to measure accurately the impact of effluent limitations on water quality. For example, a recent report on EPA monitoring of ambient water quality indicates that the current data base on point and nonpoint sources is inadequate for national analyses and for documenting before and after treatment effectiveness.

Improved monitoring, including before and after construction evaluations, would be an imperative for a water quality based system.

The Water Quality Based Management Plan:

In order to focus funding on projects with water quality impacts, EPA could require states to develop strategies or management proposals by 1982 showing how they plan to meet program goals in the coming decade. Water quality problems and BPWTT requirements will be matched to proposed and existing grants in a long-range management plan. Under delegation, EPA would exercise oversight concerning each State's success in establishing and implementing this plan. This plan could be required in conjunction with required priority system elements or in lieu of EPA attention to priority system management. Further development of these concepts can be found in the planning and management strategies.

ALTER THE ALLOTMENT FORMULA

The allotment formula in distributing the annual appropriations among the States serves as a vital function in the funding strategy. If distribution is not closely related to priority needs, then no dependable or functional relationship exists between a State's share of the allotment and its share of priority needs.

Figure V.1 shows the relationship of the allotment formula to major elements of a needs based strategy.

The current formula has been criticized because of two recurring problems: (1) high unobligated balances in some States that persist late into the allotment period, and (2) the occasional use of allotments to fund low priority projects in avoiding reallotment. The formula itself has been a factor in, but not the cause of, the problem. In general, high unobligated balances have not occurred because some States receive a disproportionate share of funding. For the most part these same States with chronic surpluses have high remaining needs. Instead, the issue is one of the program management and project readiness to proceed in these States. The question then is whether it is practical to include readiness to proceed in the formula.

The funding of low priority projects is due in part to use of these projects as a sponge to soak up surplus funds that otherwise would be realloted. The question then is whether an extension of the allotment period would offset this tendency.

Thus, it is far from certain that changes in the current formula would correct these problems. Changes may be desirable, however, to place stronger emphasis on priorities.

Three major variables logically deserve consideration in devising a new formula:

1. Needs (costs of eligibilities)
   - Total Needs
   - Subsets of priority needs
   - SMSA needs

2. Population
   - Total state
   - Requiring service

3. Readiness to proceed
   - Proposed near term obligations
   - Recent past obligation performance

FIGURE V.1 POSITION AND FUNCTION OF ALLOTMENT FORMULA IN A NEEDS BASED STRATEGY

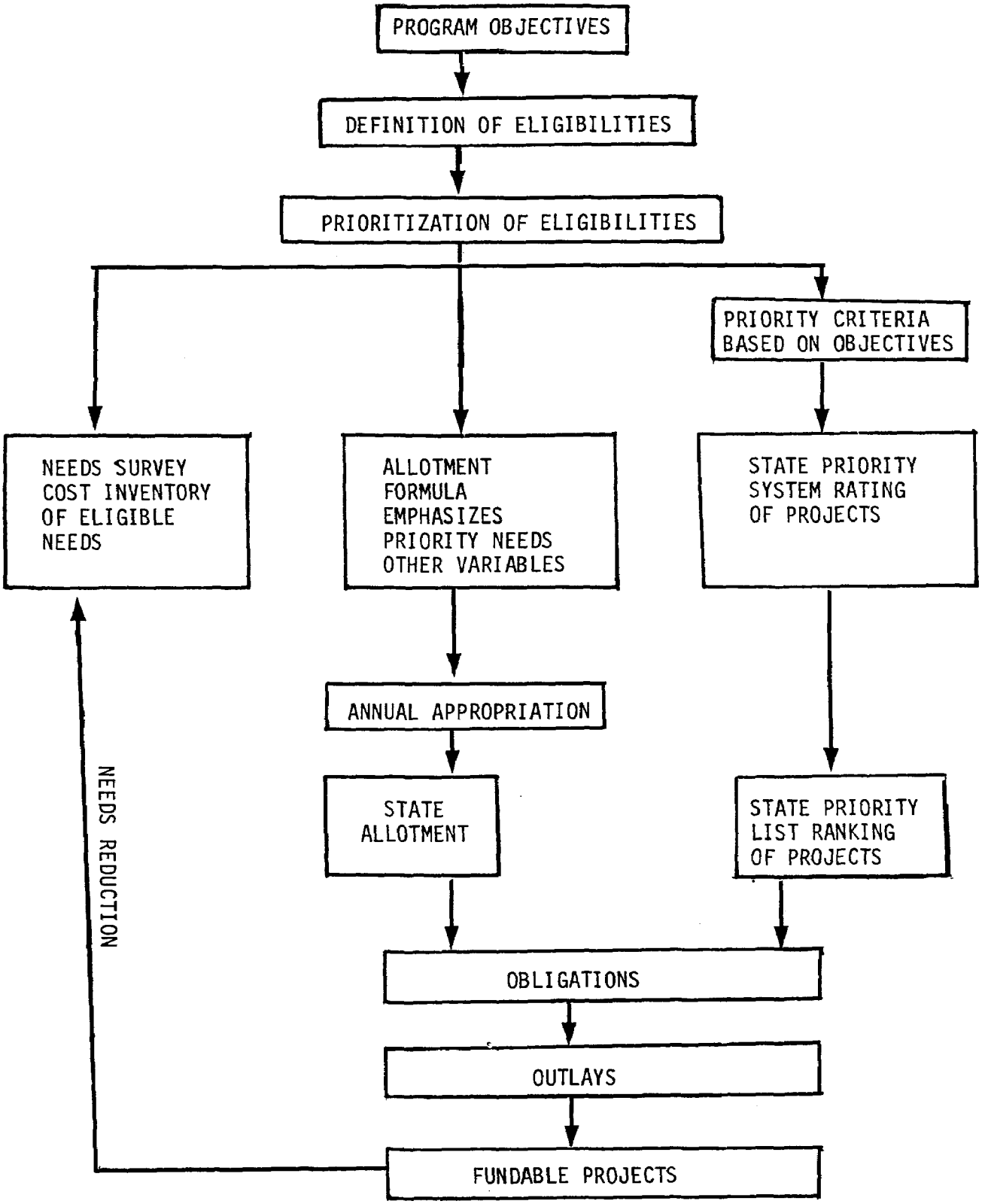


Table V.6 pits these variables against several evaluation criteria. Each variable is considered as if it were the sole factor in an allotment formula. Obviously the "best" formula for a needs-based strategy is to allot funds based solely on priority needs. Population has several appealing features (predictability, ready availability) but needs costs estimates are already heavily influenced by population levels. Readiness to proceed measured by projected obligations could be a powerful tool to link the near term demand for funding to priority needs in determining state shares. In practice, however, developing estimates of readiness to proceed each year would probably be resource intensive, difficult to verify, open to question and subject to padding. Past performance in obligating funds is at best a poor substitute for projected obligations as an estimate of rediness to proceed.

Additional Considerations

1. Weighing variables in a formula permits the inclusion of more variables than priority needs. Weights can also serve to generate or modify locational effects.

2. Floors and ceilings applied to changes in state percentages can control the degree of change as the formula is put into effect and subsequently updated. Large, rapid changes in State allotments would be extremely disruptive to the State planning process.

3. Set-asides can be used not only to distribute funds based on priorities but to direct the use of funds as well. They tend, however, to be inflexible in comparison with the use of priority systems for the same purpose.

4. A fixed allotment period is essential to effective management of obligations and outlays. Whether extension of the allotment period would lessen the obligation of funds for low priority projects is problemmatic. There is no real evidence that extension would stimulate or divert obligations to high priority projects. It may, in fact, encourage further delay in slow-moving states and, in effect, merely postpone the year-end crunch to obligate funds. Relief from reallotment of some funds might be used as an incentive to secure commitments to fixed construction schedules for key projects.

5. Incentive and borrowing systems may provide a means of balancing State allotments and readiness to proceed without changing the allotment formula itself. The borrowing pool approach would permit States in need of more funds to borrow in the next fiscal year from the unobligated balances of other States at the end of the current year. Borrowing States repay their loans at the beginning of the next fiscal year following the year of the loan.

An alternative approach which provides an incentive for fast moving States is the two-tier system. This approach sets aside part of the annual appropriation as a "second-tier" of funds which will be divided up among those States which achieve the goal

TABLE V.6 EVALUATIVE CRITERIA FOR ALLOTMENT FORMULA VARIABLES

		IN CURRENT FORMULA	READILY AVAILABLE	PREDICTABILITY	EMPHASIS ON PRIORITY NEEDS	HELPS REDUCE HIGH UNOBLIGATED BALANCES	HAS MAJOR LOCATIONAL E EFFECTS	SUBJECT TO JUDGMENT/ MANIPULATION	REQUIRES ANNUAL CHANGE	SERVES AS INCENTIVE TO FUND PRIORITY NEEDS
Needs	TOTAL STATE	YES	YES	HIGH	MODERATE	NO	NO	LIMITED	NO	NO
	PRIORITY	YES	YES	HIGH	ABSOLUTE	NO	YES	LIMITED	NO	NO
	SMSA	YES	YES	HIGH	STRONG	NO	YES	LIMITED	NO	NO
Population	TOTAL STATE	YES	YES	HIGH	INDIRECT LIMITED	NO	NO	NO	NO	NO
	REQUIRING TREATMENT	YES	YES	HIGH	INDIRECT STRONG	NO	NO	NO	NO	NO
Readiness To Proceed	PROJECTED NEAR TERM OBLIGATIONS	NO	NO	UNCERTAIN	STRONG	YES	YES	YES	YES	YES
	RECENT PAST OBLIGATION PERFORMANCE	NO	NO	HIGH	INDIRECT	POSSIBLY	YES	YES	YES	YES

* Adapted in part from table in report of ASIWPCA Subcommittee No. 2 on alternatives to Construction Grant distribution formula, August 14, 1980.

established for obligation rates. For example, States that obligate 90 percent of their 1981 allotments by March 31, 1982 would receive incentive funds from the second-tier of the appropriations. A number of variations of this approach have been suggested, but all focus on providing bonus funds to those States demonstrating an ability to proceed rapidly.

CHANGES IN FUNDING MECHANISMS

Many of the proposed refinements of the construction grants program necessitate a review of the current funding delivery systems. A lowered federal share may require some additional form of assistance to help ensure local financial capability. Also, specific objectives such as leveraging the impact of the federal grant dollars, can be furthered through alternative funding mechanisms. Finally, it is appropriate during this comprehensive review of the construction grants program to examine changes proposed by interested groups and individuals. This section discusses several options for changing the present funding approach. The characteristics of several possible changes in funding mechanisms are in Table V.7.

Assistance Through Existing State Programs

One possible funding conduit is existing State programs on a specific program basis. For example, funds could be provided to a State to supplement or start its own construction grants program. Another possibility is to provide start-up funds for a State financial intermediation program (for example bond banks). Many varied State programs provide assistance to local communities. Several points are noteworthy:

- Thirty States provide construction grants ranging from 5-20 percent of the construction costs, generally financed through State general obligation funds.
- Some States use variable participation based upon need.
- New York subsidizes O&M costs based on compliance.
- A few States provide grants to subsidize debt service.
- Some States provide guarantees of local debt.
- Several State programs operate as financial intermediaries through:
  - State Bond Banks
  - State general obligation bonds issued to support municipal loan program.
  - State revenue bonds repaid with local sewer revenues.

TABLE V.7 POSSIBLE CHANGES IN FUNDING DELIVERY SYSTEM -- EVALUATIVE MATRIX

	Requires Legislative Change	Requires Substantial Increase of EPA Admin.	Targeted on Basis of Financial Distress	Presents Retro-activity	Implied EPA Role	Funding Linked To Compliance	Already Done In One Or More States	Promotes Leveraging	Necessarily Involves Continuous Federal Commitment
Assistance Through Existing State Programs	X				F			MAYBE	
Block Grants	X			X	R			X	
Line Item Appropri-ations	X			X	R			X	
Loan Guarantees	X	X	X	X	S/F		X	X	X
Loans	X	?	MAYBE	X	S/F		X	X	X
Mini-Grants To Achieve Compliance	X	X	MAYBE		S	X			
Interest Rate Sub-sidies	X	X	MAYBE		S/F		X	X	X

Block Grants

EPA is considering a variation on the block grant concept as an alternative funding conduit between the Federal government and the States. Block grants differ from the present system of project specific awards to allow greater discretion by the States in disbursing their allotted funds. As this recommendation is envisioned, it is important to note that it is far from a true block grant. The States would allocate allotted funds under specific roles, regulations and guidelines promulgated by EPA. In this respect, the modified block grant is an extension of the delegation concept currently being implemented.

The basic rationale behind block grants is to increase the economy and efficiency of a complex program by providing financial assistance in a single, broad functional area in contrast with multiple separate, but related categories. In the past, funding by strictly defined categories has proven inflexible with respect to special problems and circumstances by some States and local grantees. It would be expected that giving the States greater discretion would increase program flexibility in a positive manner. However, this increased flexibility may run counter to uniform, national program goals.

Further, it is not guaranteed that the block grant is a panacea for excessive federal regulation or inflexible categorical priorities. It is very possible that, as block grant funds filter down through the intergovernmental system, substantive strings will be added, restricting recepient flexibility in tailoring federal funds to local priority needs.

From EPA's standpoint, the modified block grant offers several potential advantages and disadvantages.

- EPA's role would be reduced to that of "regulator." Rather than overseeing each step of the grants process, EPA would concentrate on results.

- Administrative and policy decentralization would occur as States, and to lesser extent, localities would be encouraged to identify and prioritize their needs, develop plans and programs to meet them, allocate funds accordingly, and account for the results. Since the grant administration would be shifted to the States, EPA's administrative load would be reduced dramatically. EPA would make 50 grants instead of over 10,000.

- Although one of the reasons for this approach is to increase the efficiency of the construction grants program, the degree to which this will occur is unclear. While EPA's administrative reviews would be eliminated, the States would be required to carry on much the same review and program control functions. The capability of individual States to administer such a program varies widely.

- Existing block grant programs have traditionally presented formidable problems for tracking funding and monitoring the program's effectiveness and results.

- Since the States would have greater responsibility for meeting water pollution problems, the maintenance of national priorities and program goals might be less assured. In the past, some States' program goals have been much closer to national program goals than others. The failure to achieve an effective balance between the priorities of the States and those of the Federal government or EPA may compromise the effectiveness of any block grant program.

Line Item Appropriations for Large, High-Cost Projects

Under the line item approach, separate appropriation requests are made for major projects meeting requisite needs and eligible cost threshold.

- Line item appropriations would sharply distinguish the large number of relatively lower-cost projects and a much smaller number of very large and expensive projects.

- Under present program procedures, funding of the large projects will likely divert funding from the smaller projects, disrupting a State's project development process.

- Debate, delay and political tradeoffs generated in the appropriations process limit any assurance that line item appropriations will be made at all, much less on a timely basis.

Loan Guarantees

The present loan guarantee program (Section 213, P.L. 94-588) has never been used and probably never will be. To quality for a loan guarantee, the applicant must receive a loan from the Federal Financial Bank (FFB). The FFB's interest rates are based upon rates of U.S. Treasury bonds of comarable maturities which have historically been 1-2 percent higher than the interest rates in the municipal bond market. Obviously, there is no incentive for municipal borrowers to use the program.

- This approach could be revised by changing the present federal guarantee program to apply to State and local bonds, thus improving their security and marketability and lowering interest rates.

- Possibly the best leveraging potential per federal dollar spent.

- Guarantees could be tied to compliance.

- Requires additional federal administrative resources to administer loan guarantee programs.

- Could be targeted by need.

- No impact on federal budget at implementation. Future outlays are uncertain.

- Could be used to influence State programs and/or policies, but excessive federal requirements may discourage some States from participating.

Federal Loan Programs

The federal government could provide a loan as a last resort for local government borrowers unable to sell bonds for POTW construction at reasonable rates of interest in the open market. This could be done as a supplement to the eixsting grants program or as a long range replacement for it.

- Targets assistance to areas of need, including small communities ineligible for or unable to get FmHA assistance.

- Requires additional federal financial and administrative resources to administer.

- May discourage long run self-sufficiency for POTWs.

Mini-Grants for Compliance

Some plant-related deficiencies which lead to noncompliance may require additional construction to achieve compliance. EPA could provide a limited-scope construction grant which focuses on the compliance problems of an existing POTW. This mini-grant could be exempt from many normal grant requirements since it would not change the scope or purpose of the original project.

- Ties funding directly to existing problems of noncompliance.

- May be highly cost-effective in terms of water quality impact per dollar expended.

- Does not directly encourage the concept of local self-sufficiency.

Interest Rate Subsidies

Another method for leveraging State and local spending while aiding local financial capability is through interest rate subsidies. The borrower pays the market interest rate minus the subsidy which is made up by the federal government.

Assistance can be provided directly by subsidizing the borrower of the funds - in this case, the local government unit financing an individual project.

- Alternatively, the State, acting as a financial intermediary, might borrow in the market, receive an interest subsidy, and then provide low interest loans to municipalities.

- Annual payment of subsidies can be linked to continuing compliance with permit specifications.

- One important feature of the interest rate subsidy is that (unlike a federal government loan guarantee) the government does not intercede directly into the marketplace, thereby minimizing any disruptive interference. However, indirect pressure on the financial markets can result if the subsidy is raised by increasing government debt in the Treasury or municipal markets as opposed to raising general revenues.

- The potential for leveraging is very high. Assuming a 2 percent subsidy on interest rate, an increase in State and/or local spending by 5 billion dollars causes total federal program costs to rise by just a hundred million dollars annually over the life of the loan.

CHAPTER VI

ALTERNATIVE STRATEGIES BASED ON PREFERRED OPTIONS

DESCRIPTION OF STRATEGY ELEMENTS

In order to develop a long range plan, the large number of possible options must be reduced to choices involving a manageable number of strategic alternatives. These strategic alternatives consist of packages of preferred options in combinations expected to have the greatest positive impacts on program goals. The approach here is to develop some core strategic models, which are then fleshed out with preferred options to produce ten strategic alternatives.

Core Strategic Models

The 1990 Funding Strategy will be the result of key decisions in five basic areas:

- Eligibilities
- Federal share
- Priority systems
- Allotment formula
- Alternative federal funding mechanisms.

While many specific options exist in each area, there are two or three basic choices which set key directions. These basic choices are indicated in Table VI.1.

Choices in the five areas are not independent, but are strongly interrelated. For example, a substantial reduction in the federal share for construction grants is likely to increase the need for other federal assistance mechanisms.

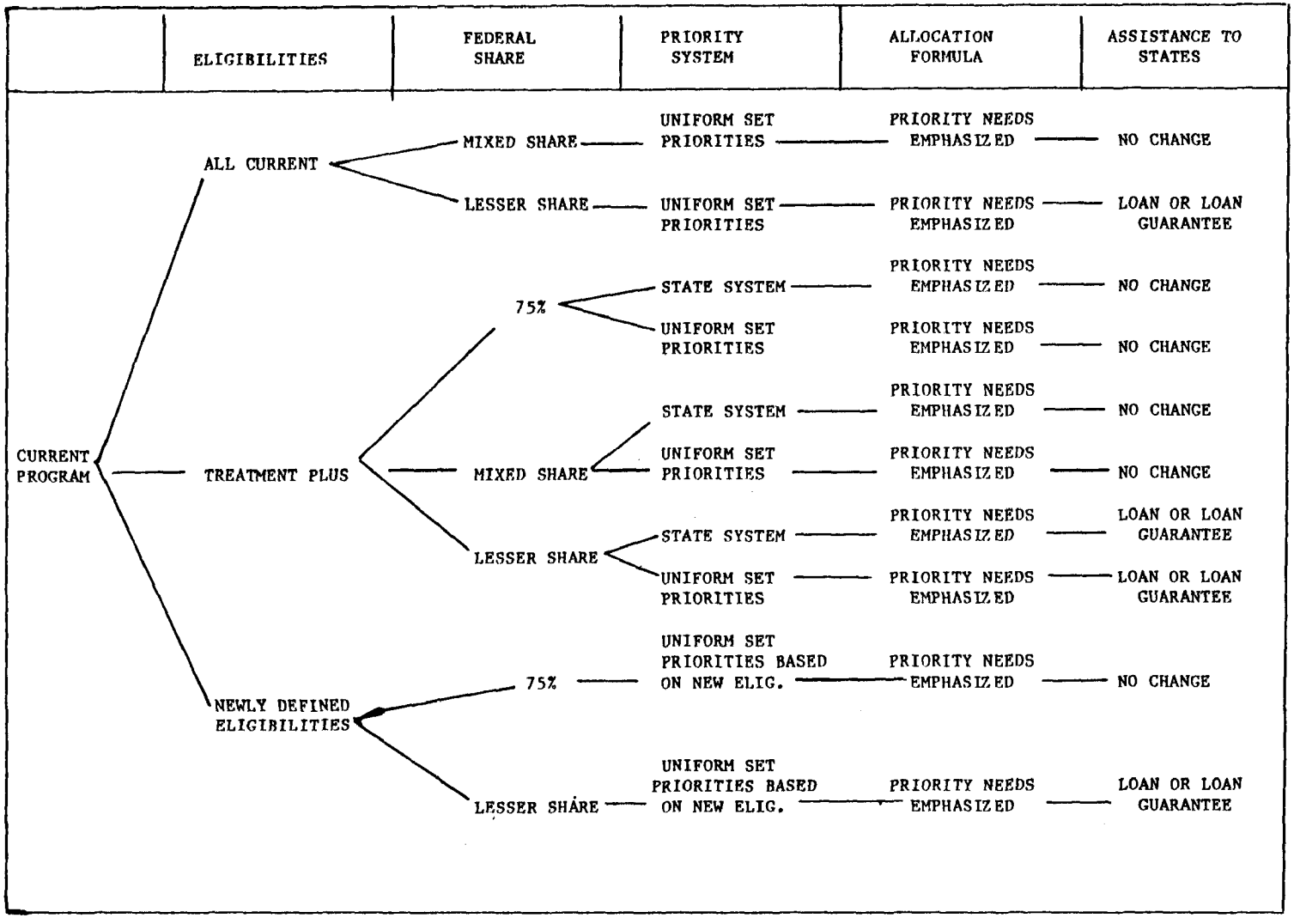
Following the basic choices outlined in Table VI.1, and a limited number of assumptions, strategic alternatives can be reduced to ten core models. A decision tree illustrating the logic involved in reaching the ten models is shown in Table VI.2. The assumptions used to guide the reduction process included the following:

- Some priority setting is required
- The allotment system should reflect the priorities established
- Fewer changes are better than many changes to accomplish the same objective
- Where the federal share is lowered across the board some other form of federal assistance is necessary.

TABLE VI.1 BASIC OPTION MODELS

ELIGIBILITIES	FEDERAL SHARE	PRIORITY SYSTEM	ALLOCATION FORMULA	ASSISTANCE TO STATES
All Current Eligibilities	75%	State System	No Change	No Change
Treatment Eligibilities Plus _____	Mixed Share			
Newly Defined Eligibilities	Lower Share	Uniform Priorities Set by Law/Regulation	Priority Needs Emphasized	Loans Guarantees or Loans

TABLE VI.2 DECISION TREE TO DEVELOP STRATEGIC ALTERNATIVES



The Strategic Alternatives

The core model suggested by the decision tree may now be fleshed out by linking the basic choices in each decision area to the preferred options evaluated in Chapter V. The resulting strategic alternatives are described in Table VI.3. These ten alternatives, plus the "no change" option, comprise the set of alternatives to be evaluated.

The strategic alternatives provide basic policy direction but do not encompass the entire range of decisions which must be made in conjunction with a funding strategy. The basic alternatives may be modified, however, to embrace a large number of secondary options, many of which may be compatible with most of the ten alternatives. The secondary options will be discussed following the evaluation of the ten alternatives.

The ten strategic alternatives listed here are not meant to preclude consideration of other alternatives and should not be viewed as the range of options evaluated by EPA. Rather, this approach should be regarded as a framework for evaluating and comparing strategies which forces the evaluator to explicitly link the option areas into a coherent strategy. The recommended strategy in Chapter VII closely approximates the strategic alternative No. 4 in Table VI.3.

EVALUATION OF STRATEGIC ALTERNATIVES

The matrix provided in Table VI.4 compares the strategic alternatives on the basis of descriptive and evaluative criteria. The evaluative criteria are linked to the basic issues of effectiveness, efficiency, equity, and implementation. Since options with a 50 percent federal share are tied to a loan or loan guarantee program, the options should not be distinguishable on the basis of local financial capability.

Effectiveness in Meeting Environmental Goals

1. Are Fishable/Swimmable Goals of CWA Promoted?

   - To what extent does the option effectively prioritize projects directly promoting the fishable/swimmable objective?

     X : Limited
     XX : Moderate
     XXX : Great

TABLE VI.3 TEN STRATEGIC ALTERNATIVES

ELIGIBILITIES	FEDERAL SHARE	PRIORITY SYSTEM	ALLOCATION FORMULA	ASSISTANCE TO STATES
1. All Current Eligibilities I-V	75% Secondary AST, AWT Int. + I/I (modified) 50% all remaining	Emphasize Beneficial Uses & Enforceable Requirements	Emphasize Priority Needs	No Change
2. All Current Eligibilities I-V	50% All Eligibilities	Emphasize Beneficial Uses & Enforceable Requirements	Emphasize Priority Needs	Loan Program or Guarantee
3. Treatment plus*	75% All Eligibilities	State System	Emphasize Priority Needs	No Change
4. Treatment plus*	75% All Eligibilities	Emphasize Beneficial Uses & Enforceable Requirements	Emphasize Priority Needs	No Change
5. Treatment plus*	75% Treatment (CSO) 50% All Remaining	State System	Emphasize Priority Needs	No Change
6. Treatment plus*	75% Treatment (CSO) 50% All Remaining	Emphasize Beneficial Uses & Enforceable Requirements	Emphasize Priority Needs	No Change
7. Treatment plus*	50% All Eligibilities	State System	Emphasize Priority Needs	Loan Program or Guarantee
8. Treatment plus*	50% All Eligibilities	Emphasize Beneficial Uses & Enforceable Requirements	Emphasize Priority Needs	Loan Program or Guarantee
9. Newly Defined** Eligibilities	75% All Eligibilities	Priorities I & II With Control Other Services	Weighted 50% I, II 25% III 25% Pop.	No Change
10. Newly Defined** Eligibilities	50% All Eligibilities	Priorities I & II With Control Other Services	Weighted 50% I, II 25% III 25% Pop.	Loan Program or Guarantee

* Treatment-Secondary, AWT and CSO deferred except where justified by water quality analysis, collectors and interceptors only for integrity of system, I/I and rehabilitation modified.

** Categories I facilities necessary to achieve fish/swim, II facilities necessary fish/swim but control other sources required, III all other facilities required to meet enforceable requirements of Act.

TABLE VI.4 CHARACTERISTICS OF STRATEGIC ALTERNATIVES

	DESCRIPTIVE CRITERIA					EVALUATIVE CRITERIA							
						Effectiveness		Efficiency		Equity	Implementation		
	Eligibility C=Current T=Treatment Plus N=Newly Defined	Federal Share	Priority System S=State U=Uniform National	Allotment P= Priority Needs	Financial Assist Program	Promote Fishable/ Swimmable	Promote Secondary Treatment	Promotes Leveraging	Discourages Excess Reserve Capacity	Equal Treatment an Issue	Requires New Info. System	Compatible With Enforcement Strategy	Disruption of Priority Lists
1	C	75/50	U	P	No	XX	XX	XX	XX	X		X	XX
2	C	50	U	P	Yes	XX	XX	XXX	XXX	X		X	XX
3	T	75	S	P	No	XX	XXX	X	X	X		XX	X
4	T	75	U	P	No	XXX	XXX	X	X	X		XX	XX
5	T	75/50	S	P	No	XX	XXX	XX	XX			XX	XX
6	T	75/50	U	P	No	XXX	XXX	XX	XX	XX		XX	XXX
7	T	50	S	P	Yes	XX	XXX	XXX	XXX	XX		XX	XX
8	T	50	U	P	Yes	XXX	XXX	XXX	XXX	XX		XX	XXX
9	N	75	U	P	No	XXX	X	X	X	X	X	XX	XX
10	N	50	U	P	Yes	XXX	X	XXX	XXX	XX	X	XX	XXX
Current	C	75	S	Mixed	No	X	XX	X	X			X	

2. Are Secondary Treatment Goals of CWA Promoted?

   - To what extent does the option effectively prioritize projects directly promoting the secondary treatment objective?

     X : Limited
     XX : Moderate
     XXX : Great

Efficiency

3. Leveraging

   - Leveraging involves the use of limited federal government resources to stimulate States and localities to use more of their own resources for achievement of national program goals.

     X : Limited
     XX : Moderate
     XXX : Great

4. Discourages Excess Reserve Capacity

   - This rating is based on the presumption that the larger the State/local share the less likely a treatment works will be oversized.

     X : Limited Discouragement
     XX : Moderate Discouragement
     XXX : Great Discouragement

Implementation

5. Compatibility with EPA Enforcement Strategy

   - This rating reflects the extent to which the current enforcement strategy in the NMPS and MMS is consistent with the proposed option. Enforcement emphasis is on minimum secondary treatment and 106 SMSAs.

     X : Limited to Moderate Compatibility
     XX : Substantial Compatibility

6. Does not Require Major New Information System

   - This rating is based on the assumption that establishing newly defined eligibilities will require substantial new management information/tracking systems for EPA and the States.

7. Disruption of Current Priority Lists

   - If eligibilities are redefined or eliminated, or if the federal share is reduced, some projects currently high on State priority lists may be unable to proceed further. The greater the degree of program change, the more disruption of current priority lists. One "X" is awarded for each program change proposed.

Equity

8. Equal Treatment of Applicants Raised as an Issue

   - If the federal share is decreased, or eligibilities changed or eliminated, POTWs receiving reduced funding may raise the issue of unfair treatment compared to POTWs previously funded.

X : Eligibility of share changed
XX : Both changed

SECONDARY OPTIONS

In conjunction with the basic funding strategy choices, there exists a number of additional issues concerning the construction grants program which have important implications for the funding strategy. Although we are designating these issues as secondary to the basic strategic choices, they impact program funding requirements and priorities. Therefore, the options related to these issues must be considered carefully and evaluated in terms of their compatibility with program objectives and the basic funding strategy.

Since most of the secondary issues and options are discussed in related 1990 issue papers, only a brief summary of the funding-related aspects of each is presented here.

Multiple-Purpose Projects

The current funding policy on multiple-purpose projects involves application of the Alternative Justifiable Expenditure (AJE) cost allocation procedure. Under this policy, grant eligible cost are costs limited to costs directly attributable to pollution control costs, plus some portion of the shared costs. Non-pollution control costs of such

projects are not eligible. Generally speaking, the grant eligible portion of a multiple-purpose project will be less than that for a comparable single-purpose pollution control project.

Even though EPA advocates the use of multiple-purpose projects, the restrictive nature of the AJE funding policy does not appear to encourage recycling, reclamation and energy recovery projects to the extent envisioned by the Clean Water Act. During a major review of alternative multiple-purpose funding strategies conducted during 1979, considerable support was expressed for an alternative called "The 115 Percent Option."

This option uses the following eligibility formula for I/A projects: 115 percent of the ratio of (a) the present worth cost of the most cost-effective single-purpose option, to (b) the present worth cost of the multiple-purpose project, with a minimum eligibility of 115 percent of the capital cost of the single-purpose alternative. Non-I/A projects (CSO-urban drainage, co-landfills, wastewater treatment plus recreation) are eligible at the cost of the single-purpose alternative.

This option offers a strong encouragement to the multiple-purpose approach, and will fully fund some of these projects. It will divert few funds away from the current needs categories except for the billion dollars for CSO projects. It requires no legislation, nor does it rely on the difficult measurement of water quality benefits.

A strong advantage of this option is that it is fully consistent with policy on single-purpose I/A projects. The Clean Water Act authorizes EPA to fund a single-purpose I/A project if its present worth cost does not exceed that of the most cost-effective conventional alternative by more than 15 percent. This policy option, by utilizing the 115 percent factor, makes the funding of multiple-purpose I/A projects closely parallel to the policy on single-purpose projects.

This option also has disadvantages. The principal one is that the policy does not distinguish between desirable and less desirable multiple-purpose projects. For example, the policy funds a reclamation project which recycles nutrients to the land at the same level as one which requires a high treatment level so as to provide industrial water supply.

Low Income Households

Some low-income households may face difficulties in meeting the increased cost of sewerage service resulting from the construction grants program. Additonal assistance to these households (including the elderly on fixed incomes, the urban and rural poor) will increase the equity of the program. One key question is how to effectively deliver additional assistance to those who need it. Some possible assistance initiatives are (1) increased federal aid from EPA or other federal

agencies; (2) federal, state or local assistance through tax credits or deductions; and (3) aid through discriminating rate structures.

I/A Set-Aside Program

As described in Chapter III, a major concern for the I/A set-aside program is the fact that, as of June 1980, only a small percentage of the available funds had been used by the States, thus creating year-end pressures to fund marginal projects. Some States have also made better use of the program than others, exhausting their set-aside and still leaving additional demands unmet. Various proposals related to the funding strategy have been set forth in the 1990 operations strategy. These are designed to make more effective use of the program by eliminating those program requirements which give rise to the above problems.

Under one option, a proposal to create a national I/A pool, grants would be awarded on a first-come, first-served basis, with the maximum amount of the pool not to exceed the sum of each State's present set-aside. Another proposal would eliminate the set-aside for alternative projects while continuing to fund such projects at 85 percent. A one percent innovative set-aside would be maintained.

Because concern centers on the grantee's uncertainty over continued availability of funds under the present three-year authorization, one suggestion is to extend the set-aside for five years, or make it a permanent part of the grants program. This would stimulate a higher level of interest on the part of program partipants and would demonstrate a stable, national commitment.

Additional incentives might also be offered by expanding the coverage of the 85 percent grant to include the entire project, not just the innovative or alternative part of it. Another approach would widen the margin of the federal share between conventional and I/A projects by either increasing the federal I/A share, or by reducing the federal share for conventional systems.

Rural Set-Aside Program

As noted in Chapters III and IV, the rural set-aside program appears to be underutilized. Possible solutions to this problem are considered in detail in the 1990 operations strategy and those of particular significance for the funding strategy are presented briefly below.

The first approach is to do nothing now. Because the program is so new, many small community projects are still in Step 1 and thus are not yet ready to use set-aside funds, which are reserved for Steps 2 and 3. This option assumes that, as Step 1 projects move into subsequent steps, available funds will be used within the allotment period.

Other options include expanding set-aside eligibilities to include Step 1 planning and expanding the definition of alternative systems to include lagoons, oxidation ponds and other technologies papropriate to small community needs and capabilities. Another possible way of expanding program coverage is to raise the population ceiling for eligible communities to over 3,500. In keeping with the rural aims of the program, small communities in urbanized areas would be excluded. States which do not now have a rural set-aside would be encouraged to establish one. The 4 percent minimum set-aside level should be maintained. There is some support for allowing individual States to voluntarily increase the rural set-aside above the 4 percent level.

SMSA Strategy

Needs are largely concentrated in the nation's major urban areas. The largest cities receive 4 percent of the grant awards, but 27 percent of the dollar awards. Of the total 285 SMSAs, 106 have category I and II needs exceeding $50 million. Together, the category I and II needs for these 106 SMSAs are 61 percent of all I and II needs reported. Further, more than half of the CSO needs fall in these same SMSAs. The concentration of needs coupled with the poor financial condition of many of the major cities leads to a special concern about SMSA needs. In addition, many cities with large projects feel that States tend to postpone such projects because of their great impacts on a State's allocation.

The national municipal policy and strategy and the May 14 funding strategy both suggest emphasizing the priority funding of large city projects with basically two goals in mind: (1) to ensure the availability of federal funds for SMSA projects as they become ready to proceed; and (2) to ensure the local financial capability of the receiving SMSA. To accomplish these goals, close coordination between funding, enforcement and water quality planning is required. The incidence of CSO needs in the SMSAs also points to a need for a coordinated CSO strategy.

EPA should work with the States to encourage placing SMSA projects high on the State priority lists. If a question of the local financial capability of the SMSA exists, other forms of federal assistance such as loans, loan guarantees or interest rate subsidies should be considered.

Expanded Step 1 Eligibilities

Expanding planning activities eligible for Step 1 funds will help to address a wide variety of issues related to the funding strategy. Current facility planning does not always give sufficient emphasis to environmental and management problems which is desirable, if not required, in order to achieve a comprehensive, realistic plan.

Therefore, Step 1 planning funds should be allowed to be utilized for:

- Development of local management and financial plans to provide for local self-sufficiency after first-round grants.
- Water quality analysis necessary to ascertain "attainability" and reevaluate water quality standards and waste load allocations.
- Nonpoint source planning where a relationship or possible trade-offs exists with point source pollution and where nonpoint source controls may be necessary to achieve fishable/swimmable waters.
- Compliance diagnostics
- Third party management of grant projects
- Integrated waste management planning.

The program should therefore encourage grantees to make maximum use of the facility planning grant. Eligibility for specific project proposals can be made by Regional Offices on a case-by-case basis. Because the entire facility planning process requires only a small fraction of total funds, the additional funding required is expected to be minimal. EPA is currently moving to implement a new POM which details the types of planning activities contemplated for eligibility. Eligible activities include but are not limited to planning or development of financial management systems, training and technical assistance programs, small system and innovative management systems, pre-treatment programs, and screening and evaluating multiple-purpose options.

CSO and Urban Runoff

The distinction between runoff passing through storm sewers or combined sewers may no longer be as valid as once supposed. We are now beginning to understand the water quality effects and means of control of separate stormsewer discharges, due to the efforts of the National Urban Runoff Program. This research indicates that, at least in some areas, funding CSO projects while neglecting stormwater runoff may not result in the expected benefits. Another concern, in view of high remaining needs in these categories, is to establish conditions for deviations from standards where beneficial uses permit.

During the next two years EPA will be developing and implementing elements of a combined CSO/Urban Runoff Strategy. Elements of this work include:

- Completion of CSO Handbook
- Completion of the National Urban Runoff/CSO Strategy
- Establishment of conditions for deviations from standards for stormwater events
- Refined definition of CSO/Urban Runoff needs for the 1982 Needs Survey
- Coordination of point source and nonpoint source pollution control as part of Stormwater Management Program in place by 1983.

CHAPTER VII

SUMMARY AND PROPOSAL

GOALS

The Clean Water Act of 1977 established time-based goals for cleaning the nation's waters and identified a number of related environmental goals such as the reuse and recycling of wastewater. The Act assigned a leading role in meeting these goals to the construction grants program. The 1990 strategy strongly reaffirms the basic intent of the goals, but suggests some modifications in terms of emphasis and timing.

> Goal:
>
> To reach, "wherever attainable", a water quality that "provides for the protection of fish, shellfish, and wildlife" and "for recreation in and on the water," by 1990.

The time-based water quality goals of the Act should be modified to reflect the remaining needs and the limited availability of funding. The goal of aquatic protection and recreation should be reached as quickly as possible, with needed POTW construction completed by 1990. The feasibility of this goal will be continually reevaluated in response to updated cost estimates and anticipated funding levels. Projects to be funded should be prioritized on the basis of water quality impacts.

In addition, greater emphasis should be placed on the "wherever attainable" phrase and the definition of fishable/swimmable. EPA will encourage and assist States to review designation of stream water uses and to ensure appropriate criteria based upon improved scientific and environmental considerations. Where environmental, technological or economic constraints prevent attainment of a designated use, adjustments should be made.

> Goal:
>
> To maximize the recycling and recovery of water and wastewater components consistent with sound environmental practice, public health, energy and economic constraints.

The Act establishes as a goal the elimination of pollutant discharges, (Sec. 101(a)(1)), but there is concern regarding the feasibility of this goal. Technical and economic constraints preclude mandating recycling/reuse projects. However, EPA should encourage such projects wherever feasible in order to minimize pollutant discharges. In support of this, EPA must sustain a strong innovative/alternative program and reconsider its current funding policy for multiple-purpose projects.

Goal:

Publicly owned treatment works (POTWs) are to achieve "best practicable waste treatment technology" (BPWTT) by the date established in their NPDES permits. Extensions beyond July 1, 1983 should be allowed on a case-by-case basis if consistent with State management plan.

Since the CWA goal of 1983 for BPWTT will not be met, time extensions for POTW's should be granted as established in NPDES permits with extensions beyond 1983 determined on a case-by-case basis. Achievement of BPWTT should proceed in accordance with the State plan for accomplishing water quality goals. The total cost of reaching this goal is difficult to calculate as many currently eligible costs are not directly related to the attainment of BPWTT. (Treatment needs are estimated at $34.5 billion in 1980 Needs Survey, but these needs may be reduced somewhat due to attainability reviews, the elimination of second-round grants, expansion of the definition of secondary treatment, and the elimination of eligibility for industrial flow. Pipe-related needs (including correction of combined sewer overflows) account for the remaining $84.2 billion of current needs, but a substantial portion of this need is not necessary for achievement of BPWTT.) A more accurate cost calculation will be made as States develop funding and management plans showing how they will meet the water quality objectives of the Clean Water Act. Based on these plans and anticipated funding levels, a goal for achievement of BPWTT will be established.

As indicated previously, some modification of BPWTT requirements can be expected as a result of anticipated analyses of water quality standards and reviews of use attainability. In addition, consideration should be given to a redefinition or modification of the secondary treatment requirements to allow trickling filters or other biological treatment alternatives where water quality is not adversely affected.

POLICIES

In addition to establishing environmental goals, the Clean Water Act affirms a number of implementing policies which deserve further examination or elaboration as part of the 1990 strategy.

Policy:

To provide federal financial assistance for planning, design, and construction of POTW's.

The high remaining treatment needs indicate that continuing federal funding is required to meet the goals of the Act. The Strategy assumes a funding level of $4 billion a year (in 1980 dollars) through 1990 to meet this end. It should not be anticipated, however, that a federal grant program will continue beyond 1990, so States must carefully prioritize their needs to accomplish program goals. The availability of federal funding in the next decade will depend upon remaining needs to meet essential water quality goals. Federal funding for future replacement or expansion (second round grants) should not be made available. The Strategy recommends consideration of a federal loan program as a possible source of funding following achievement of highest priority national water quality objectives.

Policy:

To prohibit the discharge of toxic pollutants in toxic amounts.

A primary goal of EPA's water quality standards effort is to establish toxic pollutant criteria and to prepare guidance relating to the inclusion of toxic criteria in State water quality standards. Discharge of toxic pollutants in toxic concentrations should be controlled by effluent limitations and Section 402 permits at the earliest possible date. This effort is discussed in detail in the 1990 Planning Strategy.

Development of local pretreatment programs is required by July 1, 1983, and municipalities may receive construction grant funding for development of pretreatment programs. As the 1990 Operations Strategy indicates, the pretreatment program should receive higher priority, in combination with the exploration and development of additional alternatives to control industrial toxic pollutants under an integrated waste management approach.

Policy:

To ensure the operation of POTW's in compliance with permit conditions and to establish economically self-sustaining operations which will not require additional federal funding.

In order to preserve water quality and protect the large Federal investment in wastewater treatment systems, it is essential that POTW's achieve compliance and be operated and maintained properly. Financial management concerns and other aspects of compliance are discussed in the 1990 Compliance Strategy.

As an emerging major industry, annual wastewater treatment user costs are expected to rise from nearly $6 billion today to a projected $30 billion by 1990 (includes an inflation factor). It is anticipated that local communities will be responsible for raising all wastewater treatment costs, including operations and maintenance, expansion, and eventual rehabilitation. In view of this, it is essential that wastewater treatment systems be operated on a sound financial basis.

Policy:

To recognize, preserve and protect the primary responsibilities and role of the States to prevent, reduce, and eliminate water pollution.

Delegation of program management to the States will continue throughout the 1980's. Primary responsibility for identifying critical needs and managing the program to meet them will rest with the States. EPA's role will be to provide technical assistance and program oversight with a minimum of requirements. These considerations are discussed in detail as part of the 1990 management strategy. However, as part of the state responsibility, a well defined, realistic project management plan for those projects which will be funded during the 1980's should be developed. This plan, based on water quality impacts, should show how the State will complete the construction program in order to meet Clean Water Act goals.

FUNDING POLICY RECOMMENDATIONS

Assumption

In recommending the following options, it is assumed that the construction grants program will be funded at $4 billion annually (in 1980 dollars) until 1990. This funding level should be continually reevaluated, however, based upon the proposed State funding and management plans and future needs surveys. Considerations should also be given in the future to a federal loan program or a federal loan guarantee program. Since the amount of funding will not meet all needs, States must direct limited funds to priority projects and the program must strongly encourage POTW economic self-sufficiency.

Funding Priorities

Recommendation:

Direct funds to States, who will be required to develop a funding and management plan by 1982 showing how they will meet the water quality goals of the Clean Water Act. In making this plan, projects will be prioritized according to their anticipated water quality impacts.

This recommendation represents the keystone of the strategy in establishing priorities among eligible needs. Projects dealing with impaired uses, public health problems (including groundwater concerns), or protection of outstanding national resource waters would receive highest priority. The State plans will also include plans for meeting other program needs such as attainability reviews and monitoring data needs. A fuller discussion of this approach can be found in the 1990 Planning and Management Strategies.

Since priorities will be established by means of the water quality plan, there is no need for a major redefinition of eligibilities. Some modifications of eligibilities should be made, however, to support the water quality based priorities. Recommended changes in eligibilities follow.

Eligibilities

Recommendation:

For effluent limited receiving waters, expand the definition of secondary treatment to include other biological treatment alternatives (such as trickling filters) where water quality is not adversely affected.

The definition of secondary treatment based on effluent limitations of 30 mg/l BOD and 30 mg/l suspended solids has effectively disqualified trickling filters which historically have performed at slightly better than 40/40. EPA analysis suggests that roughly 30 percent of Category I plants identified in the Needs Survey could consider construction of a 40/40 trickling filter instead of the proposed 30/30 secondary plant on a water quality basis. Construction of trickling filters in these instances would result in substantial capital and operating savings. A preliminary estimate puts the ten-year capital savings in the 1 to 4 billion dollar range.

Recommendation:

For water-quality limited receiving waters, funding of projects should be linked to the demonstration of attainable water quality goals. Comprehensive before and after stream monitoring should be done for all of these projects.

This approach essentially continues the present policy embodied in PRM 79-7 which focuses funding on treatment critical to meeting water quality and beneficial use objectives of the Act. However, the present plan is under review and may be modified in the future.

It is important to determine what measures will be necessary to attain beneficial uses. Funding of AWT projects should be considered if reasonable further progress can be made in achieving beneficial uses. The delineation of this policy is part of the Action Plan.

AWT deferrals currently total over $100 million. It is expected that more stringent justification procedures and application of better attainability criteria in the future will save money through the construction of fewer, more cost-effective AWT projects. However, it should be emphasized that in many areas, AWT projects will be needed.

States should prioritize their standards reviews in accordance with the five-year construction grants priority list. Streams where AWT projects are anticipated over the next five years should be reviewed first, so that facility planning is based on attainable uses and appropriate criteria adopted through the standards revision process.

Similar to AWT projects, water quality analyses should be completed to determine the need of CSO projects in relation to achieving beneficial uses. Due to the level of funding need and the interrelationships to stormwater, the 1990 strategy is recommending that a CSO/storm-water strategy be developed. (See later section.)

Recommendation:

Fund collection systems for communities of 3500 population or less, or for larger communities where necessary for the integrity of the treatment works in order to meet the enforceable requirements of the Act. FmHA should provide assistance for collector systems for small communities in the form of an expanded loan program. Similarly, interceptors should be funded when necessary for the integrity of a treatment system being funded in order to alleviate existing pollution problems.

This recommendation essentially continues present policy for collectors as detailed in PRM 78-9, which limits collection system eligibility to systems proven to be "necessary and cost-effective" in addition to meeting the substantial human habitation and two-thirds role requirements. Some additional flexibility is given to small communities less than 3,500 in part due to their limited financial capability. The collection system must also be proven to be more cost-effective than decentralized or on

lot systems. Collectors may be eligible if rehabilitation of on-lot systems is not feasible, or where necessary in order to attain the highest priority treatment.

Funding for interceptors should only be considered when they are necessary for the integrity of the treatment system. However, interceptors should be eligible if built in lieu of a treatment plan in order to convey sewage to another location for treatment if this option is more cost-effective.

The rural initiative program which coordinates several federal funding programs for sewerage facilities should be implemented. Consideration should also be given to increasing the funds managed by FmHA.

Recommendation:

Reserve capacity should be funded according to current guidelines, but when funded, a financial plan outlining long-term planning to finance rehabilitation and expansion would be required. A water conservation program should be encouraged to increase the time before expansion is necessary.

Funding reserve capacity will help keep the State/local cost share down and increase the potential for municipal economic self-sufficiency. Also, reserve capacity can be used as an incentive to promote financial planning and water conservation.

Recommendation:

Fund rehabilitation only for projects which will contribute significantly to improving inflow/infiltration problems. Rehabilitation of aging infrastructure of older inner cities should be part of Urban Strategy administered by the Department of Housing and Urban Development (HUD).

The current policy on rehabilitation funding remains in effect with this recommendation. The amount of funding required to bring into good repair the sewer systems of older inner city areas is unknown, but is believed to be extremely large. The Needs Survey of eligible costs is not an estimate of true costs, nor are current program funds adequate to meet these needs. A current Congressional proposal would include sewer rehabilitation as part of an overall Urban Strategy under HUD leadership to assist declining older cities. The primary role for EPA in this approach would be to continue ORD research into better methods of rehabilitation and to provide technical assistance.

Recommendation:

Expand Step I planning eligibilities and modify conditions for grantee eligibility.

Proposed expanded eligibilities for planning would include funding the development of local financial management systems, compliance diagnostics and studies on integrated waste management which includes municipal and industrial sludges and pretreatment program options. Planning for municipal facilities should also consider in appropriate situations the impact on water supply, solid waste management and energy recovery. Expanding eligibilities will promote a greater return on the federal water quality investment and will assist in ensuring that operating plants live up to initial expectations.

In promoting an effective construction grants process, the Agency envisions a greater use of 201 funds by State agencies and third party managers. Modifying current eligibility to include third party or State management of grants is designed to benefit grantees with existing management deficiencies, especially small grantees. This approach is also particularly well suited to areas where 201 wastewater treatment projects raise legitimate planning opportunities beyond its scope of the individual grantee's expertise or needs, or where State involvement is otherwise desirable, for example, in the development of a State-wide model.

There are two ways a State agency or a third party may become eligible for 201 funds:

- Funds may be received by executing a subagreement with an eligible grantee to undertake part or all of the management of the grant;
- The agency can be designated as the management agency for a function in the State Water Quality Management Plan (as required by Section 208).

As an example, New York and New Jersey State agencies have been designed as the pretreatment planning agencies and thus have received 201 grant funds.

Recommendation:

Modify the existing multi-purpose funding policy to the 115 percent option.

This option increases incentives for the multiple-purpose approach in an attempt to encourage recycling, reclamation, and energy recovery projects consistent with the goals. In order to address concerns over the national cost implications and to identify any possible diversion of funds from other needs categories, EPA should make every effort to project and monitor total program costs, as well as benefits which will result from this recommendation. This option is consistent with EPA policy on single-purpose I/A projects.

The 115 percent option uses the following eligibility formula for I/A projects: 115% of the ratio of (a) the present worth cost of the most cost-effective single-purpose option, to (b) the present worth cost of the multiple-purpose project, with a minimum eligibility of 115% of the capital cost of the single purpose alternative. Non-I/A projects should be eligible at the cost of the single-purpose alternative.

Recommendation:

No federal program is recommended for subsidizing low income households. EPA should work closely with State and local governments to explore possible State or local assistance options for mitigating the impacts of cost increases upon low income families.

EPA is aware of the concern for the impact of high costs on low income families resulting from the construction grants program. Assistance, however, should remain a function of the local or State government. EPA's role should be limited to providing technical assistance to States or localities considering such options.

Recommendation:

Eliminate funding for second-round grants.

A second-round grant has been defined as a grant for planning, design or construction associated with expansion (including construction of a new plant), upgrading or replacement for a POTW previously funded by the 201 program. Second and subsequent portions of a "phased" or segmented project will not be considered second-round grants if specifically planned in the original facility plan as segmented portions of 20-year cost effective treatment works. Limited funding for corrective action for new plants out of compliance due to design error or equipment failure should be eligible, but would be followed up with an attempt to establish liability and recover costs.

Second-round grants are inconsistent with the goal of encouraging self-sufficient POTW's. They also strain the limited amount of grant funds available.

Summary of Eligibility Recommendations

As noted earlier, it is not possible to quantify the anticipated savings resulting from recommendations which give priority to water quality benefits. Funding for the five needs categories has not been deferred or eliminated, but rather modified to obtain the greatest water quality improvements possible with existing resources. These modifications, operating through State management plans, will reduce the dollar needs for the various categories of projects as follows:

CATEGORY	1980 NEEDS* (Billions)	COST IMPACTS OF MODIFICATIONS
I Secondary Treatment	$28.8	Could be reduced by $840 million to $4.6 billion over a ten-year period by including trickling filters in definition of secondary; further reductions possible if other processes included; use of Industrial Cost Exclusion (ICE) could save $5.9 billion in Categories I and II.
II Advanced Treatment	$ 5.6	Could be reduced by attainability reviews.
IIIA I/I	$ 2.5	Could be reduced by modifying cost benefit evaluations.
IIIB Rehabilitation	$ 5.6	Could be reduced by restrictive definitions of eligible projects.
IVA Collectors	$18.4	Could be further reduced as full effect of PRM 78-9 is felt.
IVB Interceptors	$20.8	Could be reduced by restricting eligible projects to those needed for integrity of entire system; use of ICE could save $1 billion.
V CSO (recreational uses)	$36.5	Could be reduced by focus on attainable uses.
(fish and wildlife)	$23	Change to this water quality objective could save approximately $13.5 billion.

*(1980 Needs are preliminary figures and may differ slightly from the final report)

Additional cost savings will occur with the elimination of second-round grants. The federal share of costs will decrease if States make significant use of the recently enacted lower federal share option.

FEDERAL SHARE

Recommendation:

Continue the recently passed option which allows States to establish a lower federal share for all projects within the State.

The recent 1980 authorization bill permits a State to lower the federal share if the state prefers, while retaining the federal commitment to fund up to 75 percent. This option provides flexibility for States and will broaden the impact of federal funds. If States electing the option assume the additional costs, no additional financial hardship will impact municipalities. Recommendations have not been made to require mandatory lowering of the federal share. This option may produce a financial hardship in states the majority of whose projects are in SMSAs or small communities which often have problems with financial capability.

STATE PRIORITY SYSTEM

Recommendation:

States should maintain control and responsibility for overall priority system and priority list. Through a water quality management strategy States should prioritize projects to be funded in order to complete the municipal construction program. The State priority system should be in conformance with the management strategy.

Because of limited funds, projects must be prioritized, and two important priorities which should be an integral part of all state priority systems are: (1) enforceable requirements, and (2) water quality impacts/beneficial uses.

But for these priorities to be implemented fully, States must strengthen their planning resources and allocation process, as well as develop resources for adequate time management of the program. EPA should assist States in developing this capability.

CSO/URBAN RUN-OFF STRATEGY

Recommendation:

Develop, refine, and implement a combined CSO/Stormwater Strategy.

During the next two years, EPA will be developing and implementing elements of a combined CSO/Urban Runoff Strategy. The work areas include: completion of a CSO handbook, establishment of conditions for deviations from standards for stormwater events, refining the definition of CSO/Urban Runoff needs for the 1982 Needs Survey, coordination of point source and non-point source pollution control as part of the Stormwater Management Program, and developing the technical base for cause/effect relationships of urban runoff controls under the National Urban Runoff Program (NURP). In the interim the moratorium on funding stormwater treatment should be extended from 1982 to 1985.

FUNDING IMPLICATIONS OF INFLATION

The recommended funding proposals set forth in this paper assume that forty billion 1980 dollars will be available for grants over the next ten years. Inflation will have tremendous impacts on this long-term program if it is not drastically reduced or considered in appropriations. This is illustrated by the following figures which indicate annual funding levels required at several inflation rates in order to fund $40 billion worth of projects by 1990.

Program Cost in Billions of 1980 Dollars	Annual Funding Levels at Various Inflation Rates			
	0%	7%	10%	13%
$40	4.0	5.7	6.5	7.4

Under current estimates, the 1990 goal for fishable/swimmable waters where attainable appears to be feasible if federal funding is available throughout the decade at a rate of approximately $4 billion annually in 1980 dollars. The feasibility of this goal and the funding level required will be continually reevaluated as cost estimates are refined and updated. If funding is reduced much below this level, however, the ability to meet this goal will be severely compromised. One particular problem involves States with large urban projects. With smaller allocations under reduced funding, many States would have insufficient funds to complete very large projects even if the entire allotment were committed to those projects for several years. Alternatively, the commitment of most of a State's funds to a few large projects could end progress on other important projects in the State.

There is a major need for a realistic priority list so communities can be adequately prepared to raise local funding or, if far down the list, can make a decision to proceed on their own.

ALLOTMENT SYSTEM

Recommendation:

Retain the current allotment formula. The FY 82/83 formula should be based on the current State population and 1980 Needs Survey. Adopt a two-tier appropriation to provide incentive of additional funds to States ready to proceed.

Analyses of modifications to the funding formula (varying percentage of population and needs) indicated minimum changes in funding distribution. As population figures and needs are refined, current data should be used in the formula. Although a major priority of the program is to direct funds into projects which will have greatest impact on water quality, a factor is retained related to population. This will retain a level of funding to States which have met priority needs to fund secondary priorities. Without doubt over the next decade, reassessment of funding allocation will be required.

A two-tier program within an appropriation should be adopted which will help to correct existing inbalances between remaining allotments and readiness to proceed. Fast moving States will divide up incentive monies in proportion to their share of the first-tier allotment.

FUNDING MECHANISM

Recommendation:

Investigate with Congressional staff, the feasibility of establishing a loan or loan guarantee program.

Two options for a loan program could be considered. A loan guarantee or loan program may be necessary to assist localities unable to raise money at reasonable rates of interest in the open market to meet capital needs for expansion or rehabilitation. This could also provide broader coverage for project eligibility to assist in meeting the water quality objectives of the Act.

Given the compliance problems and the large federal investment, another option could be considered. The current grant program for construction could be converted to a modified loan program. The loan program would be linked to compliance by exempting a municipality from

all or a portion of principle and interest payments each year the POTW is in compliance. The potential administrative problems need to be explored with this concept, but given the compliance problems the concept may have merit.

SET-ASIDE PROGRAMS

Recommendation:

Maintain a one percent set-aside program for innovative projects but eliminate any special account for alternative projects. Modify the project eligibilities in the rural set-aside program.

The set-aside programs, while important to meet program goals, require some modification for operational purposes. To minimize the grantee uncertainty over the continual availability of funds under the current three year I/A authorization, the innovative set-aside program should be made a permanent part of the construction grants program. Innovative projects as well as alternative projects should be funded at 85 percent. A one percent set-aside should be retained which converts to a national pool for innovative projects if not obligated. Major administrative modifications are made to this program which are detailed in the Operations Strategy.

The rural set-aside program should also be modified and EPA should encourage governors of States which are not currently designated as rural to establish a rural set-aside program. This is based on the fact that 41 percent of the rural needs (communities under 10,000 population) are in the 15 urban states. Individual states should have the option to increase the rural set-aside above the present 4 percent level. The population criterion for the set-asides should be expanded from 3,500 to 10,000. However, the criterion should be accompanied by safeguards to ensure that projects serving urban fringe areas are not funded over truly rural projects.

It is reasonable to conclude that the 4 percent set-aside was established to fund alternatives to the traditional, costly collection and treatment system. Expanding eligibilities to include all good cost-effective projects is in line with the intent in establishing the set-aside. Therefore projects employing conventional technology that are found to be cost-effective approaches should be eligible for the set-aside if they demonstrate low cost pollutant removal benefits. Reference should be made to the small community strategy.

CHAPTER VIII

ACTION PLAN

The action items for implementation of the funding strategy recommendations are outlined below and summarized in Figure VIII.1. The items are organized according to whether the proposed changes are to be made by legislation, regulation, or administrative action. First, however, is a brief discussion of action items from the planning and management strategies which are of critical importance to the funding strategy.

FEDERAL FUNDING UNDER DELEGATION

Under the recommended management strategy, EPA will move to fully delegate the program to the States and to change its role to that of Environmental Manager. In conjunction with this new role, the grant funding mechanism should be changed to provide greater authority to States acting as agents for EPA. The management strategy action plan calls for submission of this proposed legislative change as part of the 1983 budget submission and legislative package.

FEDERAL FUNDING UNDER WATER QUALITY MANAGEMENT PLANS

As the primary recipients of EPA grants, States will be required to develop a funding plan by 1982 showing (1) how they will meet the water quality goals of the Act and (2) how they will prioritize projects according to their water quality impacts. Actions to implement this concept are included as part of the planning strategy.

LEGISLATION PACKAGE

1. Propose legislative change to appropriation process and funding mechanism to adopt a two-tier appropriation to provide an incentive of additional funds to States proceeding rapidly with construction.

2. Propose legislative change to modify the existing multiple-purpose funding policy to provide for the 115 percent option.

3. Propose legislative change to modify the present I/A set-aside program by eliminating set-asides for alternative projects and making the innovative set-aside a permanent part of the construction grants program. (Also see operations strategy.)

4. Propose legislative change to expand the rural set-aside to allow funding for cost-effective conventional processes as well as alternative projects. There is some question as to whether this will require legislative change. A memo is being prepared for the Office of General Counsel and a ruling is expected by the end of January. (Also see operations strategy.)

REGULATIONS

1. Develop regulations to implement provisions of Stafford Amendment allowing individual States to voluntarily establish a lower federal share for projects within their jurisdictions.

2. Develop regulations to implement provisions of Stafford Amendment to limit Step 3 grant funding for industrial flows.

3. Develop regulatory proposal and supporting memorandum to expand definition of secondary treatment to include additional biological treatment alternatives in situations where water quality is not adversely affected.

GUIDANCE

1. Develop and issue policy to define second round grants and eliminate funding for them.

2. Develop and issue policy defining range of eligibilities under expanded view of Step 1.

3. Develop and issue policy indicating financial planning requirements to be included as part of Step 1 requirements. This will be done in conjunction with major overhaul of guidance linked to program delegation. (See operations strategy.)

LONG-RANGE ISSUES

1. Develop, refine, and implement a combined CSO/stormwater strategy.

2. Investigate the feasibility of establishing a loan or loan guarantee program as a future substitute for construction grants funds.

FIGURE VIII.1

MILESTONES/OUTPUTS

Legislative Package	March 31, 1981	June 30, 1981	September 30, 1981	December 31, 1981	1982 and Later	Comments
Two-tier Appropriation 1. Draft language and support memo 2. Submit to Congress	-----X ----------X					
Modify Multi-purpose Funding to 115% Option 1. Draft language and support memo 2. Submit to Congress	-----X ----------X					
Modify I/A Set-aside 1. Draft legislative package 2. Submit to Congress	-----X ----------X					Also see Operations Strategy
Expand Rural Set-aside 1. Draft legislative package 2. Submit to Congress	-----X ----------X					Also see Operations Strategy

FIGURE VIII.1

MILESTONES/OUTPUTS

Regulation Package	March 31, 1981	June 30, 1981	September 30, 1981	December 31, 1981	1982 and Later	Comments
Lower Federal Share 1. Draft regulation in Federal Register 2. Final regulation in Federal Register	-----X ----------X					Provision of Stafford Amendment
Industrial Cost Exclusion 1. Draft regulation in Federal Register 2. Final regulation in Federal Register	-----X ----------X					Provision of Stafford Amendment
Redefine Secondary 1. Develop regulatory proposal and supporting memo 2. Draft regulation in Federal Register 3. Final regulation in Federal Register	-----X ----------X ----------X					

FIGURE VIII.1

MILESTONES/OUTPUTS

Guidance Package	March 31 1981	June 30, 1981	September 30, 1981	December 31, 1981	1982 and Later	Comments
Second Round Grants 1. Define SRCs and formulate draft PRM to eliminate 2. Final PRM	------X ----------+	+-----X				
Expand Step One 1. Formulate draft PRM 2. Final PRM	------X ----------+	+------X				
Financial Plan for Reserve Capacity 1. Develop issue and formulate policy	----------+	+----------+	+--------X			Also See Operations Strategy

FIGURE VIII.1

MILESTONES/OUTPUTS

Long-range Issues	March 31 1981	June 30, 1981	September 30, 1981	December 31, 1981	1982 and Later	Comments
Develop, refine and implement a combined CSO/Stormwater Strategy					X	
Investigate the feasibility of establishing a loan or loan guarantee program					X	

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