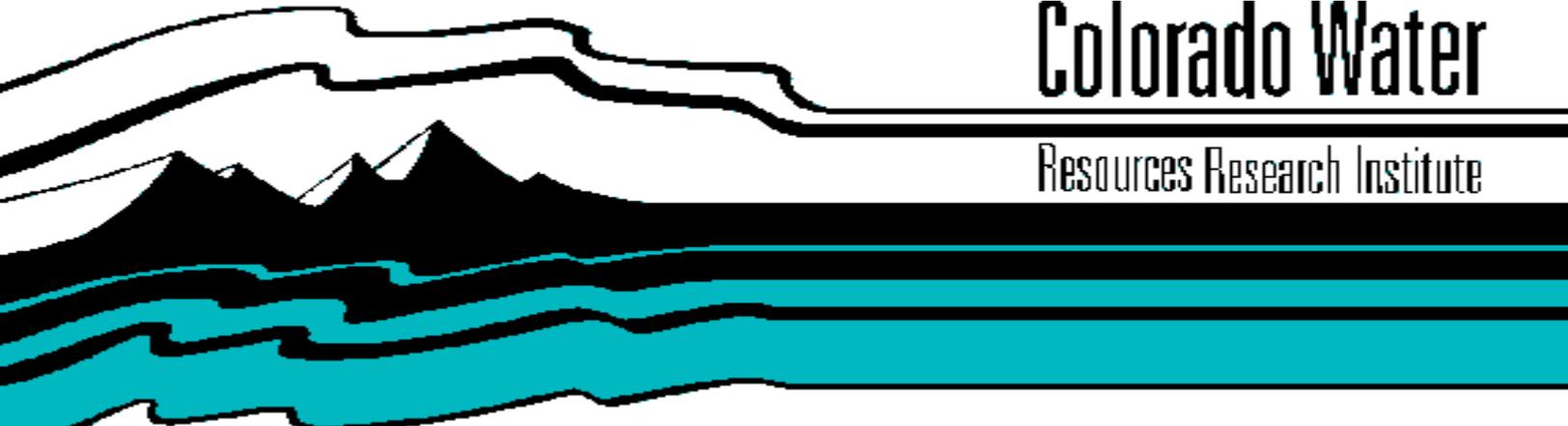


**The Declining Role of the U.S. Army Corps of Engineers in the
Development of the Nation's Water Resources**

by

Charles Yoe

A stylized graphic on the left side of the cover. It features a black silhouette of a mountain range with several peaks. Below the mountains, there are several horizontal, wavy lines representing a river or water flow. The top line is black, followed by a white line, then a black line, and finally a thick, solid teal line at the bottom. The text 'Colorado Water Resources Research Institute' is positioned to the right of this graphic.

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THE DECLINING ROLE OF THE UNITED STATES ARMY CORPS OF ENGINEERS
IN THE DEVELOPMENT OF THE NATION'S WATER RESOURCES

by
Charles Yoe

Submitted to
The Water Resources Planning Fellowship Steering Committee
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EXECUTIVE SUMMARY

The historical rationale for federal involvement in water resource development is founded on the growth and development ethic which dominated the first 200 years of this country. The United States Army Corps of Engineers is the nation's oldest and largest water resource development agency. Despite its unquestionable successes in aiding the development of America, the Corps role in the development of the nation's water resources is declining at a time when new water resource problems and needs are increasing in number, complexity and scope.

This study found incontrovertible evidence of decline in the Corps water resource development activities. Evidence of this decline over the last 30 years is summarized as follows:

- Though current dollar construction funds are growing at an average annual rate of 4.9 percent, constant dollar funds are decreasing at a rate of 1.1 percent annually.
- The decline in the real value of construction is due primarily to the end of the "big dam" era as evidenced by an annual 3.7 percent decline in constant dollar multiple purpose project construction.
- Non-construction activities of the Corps are increasing at a constant dollar rate of 2.4 percent annually, resulting in non-construction work funds increasing from about 20 percent to 40 percent of total funds.

- New construction starts have declined in number and value. The average value of new starts from 1977 to 1981 was \$660 million in 1980 dollars, less than one-tenth the high 5-year average of \$6.9 billion in the 1960s.
- Three of the last five Congresses have not passed omnibus authorization acts.
- Only one-tenth of the total value of new authorizations (\$1.2 of \$12 billion) of the last 30 years have occurred in the most recent third of that time.
- Seventy-two percent of the Corps leaders surveyed believe the Corps role in water resource development is declining.
- Water supply is regarded by a vast majority of Corps leaders as the most important water resource problem in the country. Water supply is not one of the traditional cornerstones of the Corps program.
- Most Corps leaders do not agree with current trends in the Corps overall program.
- Corps leaders expect the trends in the traditional Corps program functions of navigation and flood control to be declining trends.

The primary cause of the decline of the Corps program evidenced by the above factors, and others discussed in the study, is the weakening of the historical rationale for the Corps program. This weakening has resulted from the interaction of at least the following factors:

- Changes in national values and priorities.
- Opposition of the Office of Management and Budget

- The environmental movement.
- The decline of the federal role in the development of the West.
- Needed federal development has largely been accomplished.
- The emergence of the national urban majority.
- The emergence of states as a viable alternative to federal development.
- Criticism by intellectuals.
- Lack of political support for water resources.

With a declining role in water resource development for the nation's largest water resource development agency in the face of growing problems and needs, the nation's water resource problems and needs are not being met. If the Corps is to play a role in meeting the nation's present and future problems and needs major changes in the Corps program must be made by Congress.

CHAPTER 1

INTRODUCTION

Hoover Dam, the levees and floodways of the Mississippi River, the port of New York—all are life-giving engineering monuments to the water resource development agencies of the United States. No civilization in the history of man has ever evolved beyond a simple agrarian society without water resource development projects. The United States was physically founded and developed on the base of its abundant water resources. The United States Army Corps of Engineers has done more to develop the nation's water resources than all of the other federal water resource development agencies and programs combined.

That Corps projects are numerous and productive is an irrefutable fact. There are 25,000 miles of Corps-developed navigable inland waterways and some of the busiest deep water ports on the face of the earth. This navigation system transports over 2 billion tons of commerce annually. Over \$90 billion in flood damages have been prevented by Corps projects. During the 1970s, Corps reservoirs generated 1.5 trillion kilowatt-hours of hydroelectric power. Public attendance at Corps reservoirs has risen from 16 million in 1950 to nearly 500 million in 1980. By any measure, Corps projects' outputs in the traditional areas of navigation, flood control, hydroelectric power production, water supply and recreation continue to increase. Completed projects continue to be productive and often increase their

productivity in terms of the traditional outputs. New projects added to the extensive base of water resource development projects contribute to the increase in productivity.

Despite the incontrovertible evidence of increasing program outputs there is evidence that the Corps water resource development program is declining. And if this evidence of decline is not readily apparent from data compiled over the years there are certainly interests who believe that if the Corps program is not declining then it certainly should be. The Corps, as the nation's oldest and largest water resource development agency, has been widely attacked and criticized by a growing number of interests over the last thirty years. Water projects once unanimously considered essential for the survival of our nation have now become controversial and contested in the executive, legislative and judicial branches of our government at all levels and within the broader arena of public interest and opinion. What has happened?

Society has changed. National values and priorities have undergone, and continue to undergo, rapid and substantial changes. In a complex urban-industrial society such as ours, change is the only constant. That the America of 1981 is not the America of 1950 is a certainty. That the Corps water resource development program has changed is likewise a certainty. What is not so certain is how the Corps program has changed. In order to face the inevitable changes of the future with the greatest hope for forming and directing those changes to fashion the quality of life we desire, rather than to merely accommodate them, it is necessary to understand what has happened

in the past and how this has led to the present. The alternative to such an analysis is to live in a reactionary environment where we do things as they force their circumstances upon us. We must learn to recognize patterns in past values, priorities and programs and then we must learn how to use them. This study takes the first step; it searches for patterns in the evolution of the Corps water resource development program.

With respect to the Corps role as a federal water resource development agency it has already been suggested that there is decline amidst prosperity. This study has been designed to determine whether or not the Corps role in the development of the nation's water resources is increasing, decreasing, or stable. To avoid repeating the mistakes of the past is reason enough to study the past. There is a more specific and a much more salient reason for seeking an answer to this question. It is necessary to know if the Corps water resource development program is declining, because the nation's water resource problems and needs are not declining.

The nation's water resource problems today are far different from the problems faced by the fledgling Corps in 1824 and they are far from being solved. One need not look far to see evidence of the water resource problems and needs facing America today. The 1980/81 drought throughout much of the country, the water deficient areas identified by the Water Resources Council, the need for water for energy development in the West, depletion of groundwater supplies, the decay of water distribution systems in the older cities of our nation, frequent flooding of large urban areas, acid rain, degraded water quality and any number of other realities, clearly indicate the need

for water resource development has not passed. The nation faces complex water problems. Wise development, management and use of the nation's water resources are as important today as they ever were.

If the Corps' water resource development program is declining in the face of burgeoning water resource problems then decision makers and the public need to think about what the declining Corps role will be replaced with. The question first and foremost in this line of thought is, "Is the Corps role in the development of the nation's water resources declining?" If the program is, in fact, not declining, then we must ask if the program as it is currently constituted is meeting the current needs of society. If the Corps program is declining then the next question to be answered is, "Why?"

The purpose of this study is to provide a definitive answer to the primary question, i.e., "Is the Corps role in the development of the nation's water resources declining?" In 1974 Senator Mike Gravel, chairman of the Senate Subcommittee on Water Resources, said:

We must look at where we have been and what we have done.
We can then look ahead to where we are going and how we will
achieve the goals we have set.¹

This study takes a first step toward meeting the water resource needs of the present and future by looking analytically at where the Corps has been.

To determine where the Corps has been the hypothesis, that the Corps role in the development of the nation's water resources has been declining, was formulated. In the absence of definitive proof of this

¹U. S. Congress, Senate, Corps of Engineers Oversight, Hearings. Subcommittee on Water Resources (Washington: GPO, 1974), p. 2.

hypothesis, a stable or increasing role for the Corps would be expected. When the analyses to follow refer to "the Corps' role in the development of the nation's water resources" this is generally a euphemism for construction. Construction of large and small, interstate and intrastate projects has been the basis for the Corps program since it began in 1824. However, the Corps water resource program, as it has evolved, is not entirely restricted to a construction role. The Corps program will be discussed in greater detail elsewhere in this study. It should be noted at this point that the Corps program includes several functions which are more of an informational and management nature than they are construction functions. Nonetheless, an objective study of recent trends in the Corps program must be primarily a study of the Corps construction activities. This predominant element of the Corps program will be the primary focus of this study.

This study is designed to address the construction role of the Corps of Engineers in developing the nation's water resources. This study does not address the totality of water resource projects in the United States. Water quality control projects, such as waste treatment plants, though accounting for a majority of federal dollars for water project construction in recent years, are not considered as water resource development, they are more appropriately considered water resource management programs. The water resource development programs of other federal agencies such as the Bureau of Reclamation and the Soil Conservation Service are not explicitly considered in this study. Water resource development by state and local governments or private interests are not considered.

As with any study of the past, the major constraint to this study was the availability of information within the time and money constraints under which this study was conducted. Therefore, it was decided to restrict the testing of the hypothesis of decline in the Corps program to the time period from 1950 through 1980. This period was selected because a relatively long period of study was desired to give full play to the "normal" fluctuations in the economic and political fortunes of the Corps program. The major trade-off in the selection of a period of study involved the fact that selection of too short a period of study could result in the chance selection of a period of record which is not representative of longer range trends; and selection of too long a period results in serious problems in comparability of information and data. The 30-year period indicated was selected because: 1) it is relatively long, 2) the data for this period are relatively comparable, 3) it avoids the major disruptions of the depression and subsequent recovery programs and World War II, 4) all the Corps major program elements, i.e., project purposes, were well established, and 5) the most recent history is often of most interest to decision makers.

As mentioned above, if the Corps role in water resource development is declining the next question to be answered is, "Why?" This study precedes the quantitative analyses to test the hypothesis by suggesting several reasons for expecting a decline in the Corps program. Though it is obvious that causal relationships between these reasons and the expected empirical evidence of decline in the Corps program are implied and, indeed, are believed by the author to exist, no attempt is made in this study to prove such causal relationships.

In the chapter to follow, background information on the history of federal involvement in water resource development and Corps history is presented. The purpose of this chapter is to establish the historic rationale for the political evolution of the Corps program to its currently constituted position. The next chapter presents arguments to suggest that the historic rationale for federal involvement in water resource development in general and Corps involvement in particular is changing. The change suggested by the arguments presented would be such as to result in a declining federal and Corps role in water resource development under currently constituted programs. The arguments, presented without definitive proof, in this chapter are accepted by the author as causes for any observed declining trends in the Corps program. For this reason, these arguments will be returned to and heavily relied on in drawing conclusions about the significance of the study's results.

The next four chapters present quantitative analyses of data on four variables which are believed to significantly represent what has been happening with the Corps water development program. Each variable is considered in a separate chapter. The quantitative analyses presented in this report are not intended to be exhaustive of all possible analyses but are sufficient to make and/or support points salient to the hypothesis. Chapter 4 analyzes trends in congressional appropriations on the theory that dollars for construction activities are the best measure of trends in the Corps construction and other activities over time. Chapter 5 analyzes trends in the number of new starts which are both a non-monetary and an alternative monetary measure of the strength of the Corps program. Chapter 6 considers trends in the project costs authorized, the cornerstone of the Corps program. Trends

in authorization levels provide a better indication of potential future trends than do appropriations data. Chapter 7 provides an analysis of political coalitions of support and opposition to appropriation and authorization legislation by consideration of roll call voting records, partisan support and regional support. The major analytical foci of these chapters are temporal trends. Regional trends are also considered where appropriate.

Chapters 8 and 9 consist of analyses of the results of surveys of Corps leaders and members of the House and Senate Public Works Committees conducted during this study. The purpose of the surveys was to determine the attitudes of decision makers about where the Corps and federal water programs have been and where they are going. Chapter 8 presents the results of a comprehensive survey of Corps leadership. Chapter 9 presents the results of an unsuccessful survey of Congressional leaders on the subject of the Corps and water resource development.

The middle eight chapters are almost exclusively devoted to the presentation of background information, data and analyses. A summary of the major study arguments and findings make up the first section of Chapter 10. The remainder of the chapter is devoted to pulling the arguments and conclusions all together to form conclusions and to pose a set of relevant questions which result from the conclusions.

CHAPTER 2

EVOLUTION OF FEDERAL WATER RESOURCE DEVELOPMENT

The general government can alone remove these obstacles. With resources amply sufficient for every practicable improvement, it will always supply the capital wanted for any work which it may undertake as fast as the work itself can progress.

Albert Gallatin, 1808

Historic Rationale For Federal Water Resource Development Programs

Throughout our nation's long history of water resource development the only real issue, often clouded, has been the preservation and enhancement of human values. The history and future of water resource development is not of interest for the sake of the water itself, the dams that impound it or the channels that carry it. Water resource development is of interest for the people who depend on it. The assumption behind this study's analyses is that the end is preservation, attainment and enhancement of human values and the means is the conservation, i.e., the most efficient and economic use, of natural resources. The brief history of the rationale for federal involvement in water resource development which follows is presented with a view toward the human values and the means of implementing these values which prevailed at that particular point in our history. With an understanding of the background against which the Corps program developed it will be easier to understand where the Corps program is

today and how it got there. This matter will be taken up in subsequent sections of this chapter. Most importantly, however, it is hoped that such an understanding of the past and present will provide a firm basis for determining options¹ for the future.

This history begins with a brief discussion of public works as a generic concept. The American Public Works Association, in their bicentennial tome on public works in the United States, defines public works generically as:

The physical structures and facilities developed or acquired by public agencies to house governmental functions and provide water, waste disposal, power, transportation, and similar services to facilitate the achievement of common social and economic objectives.¹

Of interest to this discussion are two points made explicit by this definition. First, water resource development is clearly a "public work" as defined by the APWA. Second, the notion that human values, i.e., common social and economic objectives, are to be served is quite clear. In practice, many people think immediately of water resource development when they think of the Federal government's public works activities. This association may, in part, be due to the fact that the Federal government's involvement in internal improvements, or the building of the nation's infrastructure, began with water resource developments. In reality public works include: roads and highways, traffic controls, railroads, urban mass transportation, airways and airports, light and power, public buildings, educational facilities, public housing, and parks, to name but a few types of public works.

¹American Public Works Association, History of Public Works in the United States 1776-1976 (Chicago: American Public Works Association, 1976), p. 1.

The APWA goes on to identify five prerequisites for the development of virtually all public works facilities. These prerequisites are: 1) governmental institutions; 2) land; 3) capital; 4) labor; and 5) public support. In our 205-year history as a nation our governmental institutions have evolved into a complex network of bureaucracies and levels of government which, at times, defies description, much less understanding. Our land area expanded rapidly in our early history, but our land management problems have now turned from quantity to quality problems. Our nation's capital has expanded continuously based on our rich endowment of natural resources. Our labor force has grown from that of a meagerly supplied agrarian nation to one of the largest and most skilled on the face of the earth. Public support for human values has changed beyond recognition. Basic human values and, therefore, national priorities have begun to change so rapidly in the last century that America has no great consensus on value criteria. With the value structures of earlier centuries and lifestyles coming undone we, as a nation, have overwhelmingly pegged our values to the marketplace dollar. Though we've seen a retreat into a lot of little private ideologies or value structures, no one today has a vision of value criteria to satisfy the nation as a whole.

Because of changes in these prerequisites over time the nature of our public works projects and, therefore, our water resource development projects had been constantly changing. In fact, this change can be seen as an evolution. A process which will continue. To see what we've evolved to, this analysis begins by considering what we've evolved from and the process of that evolution.

Among many other resources the American continent offered good natural waterways and safe harbors. In our early beginnings water provided the colonies with an umbilical link to their mother country. In early America commerce was a two-way flow between the New World and the Old World. There was little commerce among the colonies. Soon after the war of independence the need, seen long before by our founding fathers, to unite the several colonies into a fledgling federation became critical. These efforts were first undertaken at the "local level." Canal construction was initiated near the close of the colonial era to unite regions within the original colonies and to bypass the mountain barriers to the west of the colonies. These local attempts at canal building reflected the intense interest in transportation of the colonial period. Most of the canals were doomed to failure, however, as canal companies and states alike faced bankruptcy as the canals proved to be unexpectedly costly to complete. The capital resources and skills of the labor force were not adequate to support the dreams of the early canal builders.

On August 7, 1789 Congress authorized construction of a lighthouse at Cape Henry, Virginia. This, the first public works project undertaken by the federal government, was built in recognition of the fact that coastal and foreign shipping was the lifeblood of the nation's economy. The first federal funds for inland waterways were appropriated on April 6, 1802 when Congress granted \$30,000 to repair and erect piers on the Delaware River after the state ceded the land to the government.

In the early days of our nation the land mass was relatively fixed, capital and labor were limited, the government was just feeling

its way and there was growing public support for uniting the states. The interest in internal improvements was so great that the Senate in 1807 directed Treasury Secretary Albert Gallatin to make a thorough investigation of waterways, canals, and roads. Apologizing for the "lateness" of his report, Gallatin in 1808 presented a foresighted summary guide to future development of a system of roads and inland water routes which would unite the states and provide access to the interior of the continent. Gallatin based his report on the grounds of economic development of the West, political unity, and national defense needs. Gallatin held these improvements were of little value unless they were all undertaken at once. As noted in the quote opening this chapter, Gallatin felt it best that the federal government undertake this development in the national interest.

Senators Henry Clay and John C. Calhoun provided the strongest support for Gallatin's concepts and in 1817 they proposed a unified "American System." The "American System" would foster economic self-sufficiency and national unity by providing a protective tariff and a strong home market. This seldom mentioned plan deserves a little consideration for its importance in setting "strategic" precedents within our governmental institutions. Once the original colonies were united by transportation routes there was little incentive for farmers in the original states to support development of waterways west of the original states. To do so would only increase competition. The "American System", however, appealed to a significant majority of eastern interests by protecting them from European imports by means of a tariff. The money so raised would be used to develop transportation

to the West. This would provide a larger market area for the infant industry and better transportation for goods flowing to and from the West. In short, the plan appealed to a sufficiently wide area of interest, industry, pioneers, commerce and some farmers, to build a coalition in Congress to pass the "Bonus Bill" in 1817 which would have established a permanent fund for internal improvements. President Madison vetoed the bill on constitutional grounds contending that the commerce clause could not be stretched to cover internal improvements.

This bit of water history trivia is of interest for several reasons. As already mentioned, the strategy developed by the Congress is of some interest. "Pork barrel", a term widely associated with modern day water resource development, is now almost universally used in a derogatory sense. However, the strategy of preserving and enhancing human values by coalitions which provide something for almost everyone was early recognized as a very effective means for obtaining an end. Water resource legislation has always been enacted in this way. "Pork barrel" politics is not new, only the perception of "pork barrel" politics as something undesirable is relatively new. Even this last point must be qualified, however, for as early as 1817 the legislative and executive branches were disagreeing on water policy, though not on the Congress' methods of majority building. President Madison felt that development of internal improvements was not a proper function of the federal government. At the time there was some controversy as to whether the federal government should provide internal improvements. There were two arguments against such actions. First, the strict constructionists, such as Madison, contended the federal

government should protect the lives, liberty and property of its citizens period. They used the Tenth and Ninth Amendments of the Constitution and last two clauses of the Fifth Amendment to justify their opposition to these actions. Second, a related but separate objection was that which President Monroe held on federal funds, i.e., they were to be used only for "purposes of common defense or of general, not local, national, not state, benefit." So, opposition to "pork barrel" legislation began early and with some familiar arguments.

During the initial development of water resources in the United States the concern was with the most fundamental human values or objectives—food, transportation, and expansion of the country. Our rivers were a principal means for uniting the original states and for westward expansion in those early years, providing a set of interstate "highways" for commerce between the original states and new areas of settlement. Human values were simple, capital and labor were limited, the government was not yet united on its proper role in internal improvements. For these reasons projects were simple and limited in scope. Navigation improvements were the sole water resource interest of the Congress.

The Federal government's modest beginnings in internal improvements were carried out by the Treasury Department. The United States in its early years had to depend exclusively on self-taught or European trained engineers. The first engineering school in the country was established at West Point, New York in 1802. In the years to follow, until 1824 when Rensselaer Polytechnic was established as the second engineering school and first such civilian school, all engineers were

graduates of West Point or European trained. On March 16, 1802 President Jefferson was authorized by Congress to establish a corps of five officers and ten cadets to serve the country as directed by the President. This was the beginning of the United States Army Corps of Engineers. There is an important fact for the future of water resource development in the history of the Corps which needs to be made explicit. For many years military engineers were the only engineers in the nation. The only American trained engineers were from the Corps through 1824. The Department of War, for some time, was the only source of native engineers in the country. After other schools were established the reputation of the Army engineers was well established. The historical facts are quite simple. By virtue of their monopoly on American engineers it was only natural that when Congress eventually sought engineering capability for waterway improvements they turned to the Corps.

In 1824 the landmark case, *Gibbons vs. Ogden*,² gave Congress power over ". . . navigation within the limits of every state in the union" based on the Supreme Court's interpretation of the Commerce Clause of the Constitution. Following this decision, in the same year, was the first Rivers and Harbors Act providing for \$75,000 of improvements to navigation on the Ohio and Mississippi Rivers. The Corps responsibility for river and harbor improvements is also traced to 1824. As land was added to the United States and new states entered the union the need to unify our expanding nation continued and grew, both in size and complexity.

²*Gibbons vs. Ogden*, 9 Wheat, 1 (U. S., 1824)

Prior to the Civil War, many projects were undertaken to survey and improve the nation's rivers and harbors. Work was often hampered by the government's failure to resolve the controversy over the appropriate role of the government in providing internal improvements. Sectional jealousies, constitutional questions, and conflicts between the legislative and executive branches slowed the development of water resources. Because of these conflicts Congress appropriated small amounts of money for water resource development at scattered locations. Support for internal improvements was only gained by adding improvements to districts of reluctant Congressmen. "Pork barrel" was based on the necessity for public works advocates to overcome the strict constructionist viewpoints that existed in Congress. Gradually, many of the Nation's leaders believed it was in the national interest to undertake certain internal improvements in the march West. It was not until Republican support for expenditures for waterways improvements after the Civil War that the states rights objections began to die down.

During the first half of the nineteenth century the government moved closer to resolving the "internal improvements" issue. Pork barrel politics continued to evolve as an effective way to fulfill and enhance the human values of the time. Capital availability increased with the growing country and both the quantity and quality of labor was increased. The land mass of the United States was expanding as the frontier was pushed further west. With this expansion came an expanding need for commerce and navigation. "Winning the West" was one of the most important objectives of the era and public support was solidly behind this expansion. In Congress and among the public a coalition

in favor of some sort of systematic program for developing the nation's water resources to achieve the goals of economic development and self-sufficiency, political unity, national defense and, perhaps, a desire for an adventure that had captured public and political support was amassing.

Public interest in and support for phases of water resource development other than navigation grew as the population moved westward. Waterways improvements which had united the country economically and politically also made the river valleys the most favored location for new population centers. Agriculture, commerce and industry all preferred the locational advantage of the river valleys. Ironically, navigation improvements which made expansion of the Western frontier possible also led to a flood problem. In 1850 Congress appropriated \$50,000 for a study of the best way to prevent inundation while allowing ships to pass along the Mississippi delta. The Swamp Acts of 1849 and 1850 turned lands over to the states to be sold with revenues used for flood control, drainage and reclamation. This was a start toward flood control. The need came with expanding land settlement, growing labor force, available capital and a public desire for flood control. It began as a purely local matter.

In 1874, the Windom Select Committee Report on Transportation Routes was submitted to the Senate. The report, concerned with stimulating economic development of the West through provision of low-cost transportation facilities—both water and rail—proposed a system of waterways development for the 34 states east of the Rockies. The committee declared the development to be in the national interest.

This report is of interest for its approach to "defining" the national interest. The Windom Report combined a network of local projects and, in essence, stated that the sum of the local parts was in the national interest. For historical completeness it should be noted that four of the nine committee members disagreed with this view. Nonetheless, a plan which would affect nearly every one of the more populous states was establishing a water resource legislation tradition which many today suggest is wasteful and harmful, regardless of how beneficial to the nation this system may once have been.

The interest in flood control heightened with a catastrophic flood on the Mississippi in 1874 which led to a Congressional report and the 1879 establishment of the Mississippi River Commission which was empowered to survey the river and prepare plans which would improve navigation and prevent floods. Flood control was addressed only insofar as it was associated with navigation improvements.

In 1878 Major John Wesley Powell issued his "Report on the Lands of the Arid Region of the United States." In it Powell proposed that land management be associated with water availability. During the 1880s private enterprise was developing the arid lands of the West by irrigation. In 1880 the newly created Geological Survey was funded to investigate redemption of arid regions of the United States by irrigation. In 1894 the extent of federal involvement in irrigation was made evident in the Carey Act where Congress authorized the ceding of public lands to the States for development by private enterprise.

Beginning in 1879 Congress passed numerous statutes authorizing the Secretary of War to lease water power to private companies or to

authorize the construction of private power dams. Nonetheless, the twentieth century closed with navigation for the purpose of uniting the expanding nation through transportation routes and commerce as the major force in water resource development. Development in the economic sense was the dominant influence in American society and culture. And so it was with water resource development. This policy of encouraging development through public works is a policy thrust on which federal water policies were established and it is a policy thrust which has continued to the present.

Despite the dominance of navigation, we begin to see the emergence of concern over other water resource development purposes. The transportation network provided by the waterways improvements of the nineteenth century resulted in the development of our rivers flood plains, the need and desire to settle the arid west, and a growing need for water power (first, mechanical, later hydroelectric). By the end of the century a growing complexity in water resource needs and in the federal response to these needs can be seen. Water resource development evolved from single purpose construction by private interests to single purpose public construction. At the close of the century the beginnings of multi-purpose concerns, e.g., navigation, flood control, and power were beginning to creep into the human value system which, in this chapter, is assumed to consist of governmental institutions and public support.

If navigation can be considered the first federal water resources effort then the second major effort began in the twentieth century with the Reclamation Act of 1902. By this act the government made use of

its proprietary powers over public lands in the West to build irrigation reservoirs to supply water for family farm settlement. This act was an extension of the developmental thrust of the previous century. Late in the nineteenth century it was becoming clear to a majority in Congress that in order for the West to be settled greater financial resources than were available locally were needed to undertake the more difficult larger projects and more technical expertise was needed in the planning, development and management of irrigated agriculture.

While the federal role in navigation works evolved gradually and painfully over time the federal role in irrigation was a far more deliberate action. All the prerequisites for a federal public works program were present in 1902. The land was available, dry and it needed to be settled for economic, social and national defense reasons. Capital and labor in the arid West were two of the ends of development so they were precluded as means. On a national scale only the federal government possessed the capital and the technical expertise to carry out such development. Public support for winning the West, for all the various reasons already mentioned and alluded to, was running strong. The governmental institutions had convinced themselves of their role in internal improvements and of the national interest in developing water resources.

Of additional interest in the history of irrigation is the basic American political sanctity for the "little man." The value of individualism, Jefferson's ideal of a nation of landowners/farmers, was built into the Reclamation Act and the Homestead Act before it. The thrust of these policies and others to follow, such as the legislated

preference that public power be sold to public bodies and rural cooperatives, was "anti-monopoly" or egalitarian. This basic American value led to a second policy thrust called the progressive thrust.³ This progressive thrust is important because it adds a value-based ideological group in favor of certain types of water resource development, i.e., those that are egalitarian or progressive in nature, to the economic development interests. The result was an expanding power base for water resource development projects. Though this point in history has been chosen to introduce this policy thrust it need not be assumed that such an interest or thrust did not preexist the Reclamation Act. Irrigation water development stemmed politically from the desire to support agricultural development as the key means to provide settlement opportunities and economic development inland.

President Theodore Roosevelt on March 14, 1907 established the Inland Waterways Commission to prepare and report a comprehensive plan for improving and controlling the nation's river systems. Roosevelt, leader of the Conservationist Movement, has become closely associated with the concept of conservation as "the wise use of resources" rather than the preservationist's view of conservation as "locking up" resources and protecting them from use. Roosevelt is credited with developing a political ideology that was dominant in water resource development, and other natural resource policy areas, into the 1960s.

³The concept of policy thrusts which is being and will be further discussed in this study has been developed by Henry P. Caulfield, Jr., first director of the Water Resources Council. For a more complete treatment of his policy thrust theory see his writings cited in the bibliography.

This ideology basically built a coalition of support embracing the development, progressive and conservation policy thrusts. Gifford Pinchot, Roosevelt's chief of the United States Forest Service, expressed the doctrine of the traditional Conservation Movement as "the greatest good, for the greatest number, for the longest time." The accompanying trend toward multipurpose planning and development was incorporated nicely into the traditions of the nineteenth century. Pork barrel politics, semi-annual omnibus bills, an expanding concept of national interest, a rapidly advancing state-of-the-art for engineering sciences, a growing base of political and public support and an intangible sense of adventure all made early twentieth century water resource policy fertile ground for the Conservationist Movement's seed. Multipurposes in the early twentieth century meant: navigation, irrigation, hydroelectric power, water power, and soon, flood control. The early established tradition of distributing water projects to all parts of the nation proved to be an adaptable and effective method for serving the human values of the period. As new water interests in, for instance, flood control or irrigation arose they were easily accommodated by the political distribution of new kinds of projects in new areas.

In 1927 the Corps of Engineers was authorized to make comprehensive multipurpose planning studies for all the major river basins of the United States. It was around the resulting "308 Reports" that strong regional political support often coalesced and led to the great river basin developments since the 1930s. This was a further adaptation of the political system.

Also in 1927 the worst flood to ever occur on the Mississippi River resulted in the 1928 Flood Control Act in which Congress adopted a project for control of the floods of the Mississippi River because of large local expenditures in the past and the failure of these works to contain the Mississippi's floods. This work was also accomplished by the Corps. Once again we see the perceived need, the available capital and expertise in federal hands, and the political and public support for action. As the magnitude of the problem grew, i.e., as more people were threatened by floods, as more property was damaged, as floods occurred more frequently and as benefits became more widespread flood control evolved from a local concern to a national interest as expressed in the Flood Control Act of 1936. Though many Congressmen who viewed improvements to navigation as fostering and encouraging the commerce of the nation as a whole saw flood control on the same rivers as "reclamation of overflow lands for the benefit of private interests," this private versus national interest controversy was also resolved in favor of the national interest, just as navigation and irrigation had been before it. The Corps of Engineers was given functional jurisdiction over the nation's flood control program.

Under President Coolidge, federal power plants were authorized deliberately for the first time to generate surplus electric power for sale in order to subsidize other features of water development. National interest in power was aroused in the 1920s and, in fact, the "308 Reports" were based on an inventory of the nation's rivers with hydropower potential which was prepared jointly by the Corps and the Federal Power Commission. The history of the federal policy in

hydroelectric power production is far too complex to be dealt with adequately in this study and will not be addressed in further detail.

The demands of World War I and post-war problems limited activities in the conservation field and federal water resource development was more or less dormant for the better part of two decades. In the early 1930s with lagging economic activity as an added incentive the federal government assumed major responsibilities for river basin development and intensive planning (e.g., 308 Reports) was conducted, providing the basis for extensive development which began in the 1930s only to be interrupted again by World War II.

During the great depression massive public works projects were initiated to stimulate business and provide jobs and to further the conservation movements goals of wise use. Perhaps economic conditions at the time had a far greater impact on the initiation of the Tennessee Valley Authority and the nation's flood control program than can ever be determined. The development thrust of economic development is certainly well served by these actions. The egalitarian goal of equalizing differences in social and economic conditions and problems between regions is also well served. Finally, in the context of the times, the wise use of resources was clearly being served by the actions of Congress as supported by the public. The political coalition supporting water resource development and the public support it achieved by serving the values of the time was formidable.

In summary of the basic evolution of water resource policy up to 1950 the most important point to be made is that the complex of existing water laws represents decades of experience in considering the

problems involved given the government institutions, land, labor, capital and public support in existence and available at any given point in time. While there are varying opinions today on the desirability of past, present and future water resource developments one must not lose historical perspective. No society has ever evolved beyond an agrarian state without substantial water resource development. None but the most jaded anti-water development advocates would deny that the accomplishments of American and Corps water resource developments have been impressive and necessary over the years. The important point to be made from this historical overview is that values change with economic, social and political conditions and population pressures. Perspectives from the comfortable affluent America of the 1980s are quite different from those of earlier days. Many political value judgments, based on perceived human needs, have been made about water resource projects which seem to have worked well. In evaluating the federal government's water resource programs one must keep a historical perspective. To evaluate the development undertaken in the first half of this century or the last century by 1980 value structures is a useless exercise for understanding the past, present, or the future. It is equally futile to attempt to evaluate the value judgments of the future with value structures of the past. Values which serve a wise and prudent purpose at one point in time change with the conditions which led to their formation. Perhaps the most important lesson of all is to learn from the past that clinging stubbornly or ignorantly to the values of the present is no way to face the challenges of the future. The needs, priorities and organization of society change continuously.

Unfortunately, it is difficult, if not impossible, to say where current changes are taking us. The challenge is to meet future needs based on interpretations of past trends all the while moving away from water resource development to accommodate the future to water resource development to control and direct the future.

Historical Background of the Corps Water Resource Development Program⁴

Established in 1802 by President Jefferson, the present Corps of Engineers was the only domestic source of trained engineers until 1824. This circumstance led to the assignment of many nonmilitary tasks of exploration, surveying, mapping, planning and construction to the Army Corps of Engineers.

In 1824 Congress established a Board of Internal Improvements to plan a national transportation system of roads, canals, and waterways. In the same year the forerunner of the Rivers and Harbors Acts was passed. Omnibus River and Harbor Acts and, later, Flood Control Acts over the years have provided authorization for the Corps water resource program. As the country grew the Corps was assigned a regular program of river and harbor improvements. Gradually such activities, and other civil functions unrelated to water development, required the establishment of many field offices with continuing responsibilities. In 1888 a nationwide system of division offices each supervising several

⁴The historical background in this section is taken largely from the 1966 Report of the Civil Works Study Board on the Civil Works Program of the Corps of Engineers.

district offices was established. This system of divisions and districts changed over time to meet the regional needs of the Corps program and is still used as the basis for administering the Corps program today.

The Corps program was directed primarily to navigation improvements until 1879 when the Mississippi River Commission was created with flood control as an added function. Flood control, however, remained incidental to navigation as an extensive system of stabilization of the river channel for navigation and protection of the Mississippi valley from floods was developed.

By the turn of the century, the Conservation Movement was capturing the national consciousness with its doctrine of wise use of resources. In 1899 comprehensive legislation for the protection and preservation of navigable waters was adopted. Under this legislation the Corps administers a system of permits and regulations for bridges and structures in or over navigable waters and enforces the prohibition against discharge of nonliquid wastes into these waters.

In 1904 the Corps was called upon to build the Panama Canal, which was completed in 1914. In 1917, flood control on the Mississippi River, which, since 1879, had only been an adjunct to navigation, was acknowledged in its own right through specific legislation. At the same time the Corps was authorized to undertake flood control work on the Sacramento River in California.

The first nationwide survey of multiple-use possibilities for development of the nation's rivers was assigned to the Corps by Section 308 of the 1927 River and Harbor Act. In the next decade the Corps prepared some 200 "308 Reports" outlining possible development for purposes of navigation, flood control, irrigation and hydroelectric

power. These studies are generally acknowledged to have provided the basis for much of the intensive multiple-purpose water planning and development during the middle two quarters of this century.

In 1930 shore protection responsibilities were added to the Corps program. Nationwide flood control activities were made the responsibility of the Corps in 1936. The 1936, 1938 and 1944 Flood Control Acts assigned the Corps the responsibilities for considering and proposing multiple-use of water resources to include hydropower, water supply, recreation, and fish and wildlife. During the 1940s the Corps was granted continuing authority to conduct studies and implement projects for clearing and snagging (1945), emergency bank protection (1946), and small flood control projects (1948). In 1955 Congress authorized the Corps to conduct hurricane protection studies and it established a permanent fund for emergency flood control. In 1958 Congress provided that storage may be provided for present and future municipal or industrial water supply in Corps or Bureau of Reclamation projects. The 1960 River and Harbor and Flood Control Act gave the Corps continuing authority over small navigation projects and it authorized flood plain information studies. The 1962 Act added continuing authority for small beach erosion projects and authorized recreational development at non-reservoir projects.

The Water Resources Planning Act of 1965 was a deliberate act by the federal government to coordinate all federal water programs through the Water Resources Council and to provide a larger role in water development for the states through the establishment of river basin commissions and planning grants to the states. The adoption of the Department of Transportation Act in 1966 was the first piece of

legislation to ever deliberately remove responsibilities or activities from the Corps program. The Wild and Scenic Rivers Act, formally recognized preservation of rivers as a valid alternative use of the nation's rivers. In 1970 the National Environmental Policy Act established a broad federal policy on environmental quality which would constrain water resource development for economic purposes. In the 1970 omnibus act Congress formally identified four water resource development objectives: regional economic development, environmental quality, well-being of the people, and national economic development.

In 1972 the Corps was authorized to conduct a national program of safety inspections of dams. The Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) created a public works grant program under the control of the Environmental Protection Agency which quickly overshadowed, in terms of funding, the Corps program. The Endangered Species Act of 1973 required the Corps and all federal agencies to conserve and preserve endangered and threatened species and their habitats. Through a series of legislative enactments the Corps permit program has been modified and/or expanded.

Following almost a century and a half of expansion in the number of purposes and authorities and the size of programs, the Corps and other federal water resource development programs have been increasingly constrained or, in the case of PL 92-500, overshadowed by environmental legislation. In summary, civil works expenditures since 1824 have totaled about \$46 billion through 1980,⁵ \$40.5 billion of which has been expended in the last 30 years.

⁵These data were obtained from the report, "Civil Works Expenditures by State and Fiscal Year" cited in the bibliography.

Appendix A provides an overview of the Corps program's processes which may assist the reader, unfamiliar with the processes by which a Corps project is authorized and constructed, in better understanding the analyses to follow in Chapters 4 through 7.

CHAPTER 3

DECLINE OF FEDERAL WATER RESOURCE DEVELOPMENT

That amazing American phenomenon, the pork barrel, emerged in complete and functioning order from the teeming Corps of Army Engineers. The theory behind it is that the harder the people scratch to pay their taxes the more money there will be for the Corps of Army Engineers to scratch out of the Treasury with the aid of Congress in order to maintain its control of that body by building, or promising to build, more or less justifiable or downright unjustifiable projects in the various states credit during the next election campaign.

Harold Ickes, Foreward to Muddy Waters, 1951

Charging a Senator or Representative with playing pork barrel politics is not necessarily offensive, particularly if he's getting results for the home folks.

Benton J. Stong, 1949

Introduction

The "New World" was seen as a land of abundant natural resources and unlimited promise. What has come to be derogatorily referred to as "pork barrel politics" is based on this simple viewpoint of America as a land of abundance. During the colonial period the natural resources of the colonies and the land west of the Appalacian Mountains seemed inexhaustible. Water, in particular, was viewed as a limitless resource. Living on the humid Atlantic seaboard, well drained by countless rivers and streams, this was a reasonable perspective for early settlers and colonialists to have. Early in the history of our nation this concept of water without limit led users of water to think of their interests in water as discrete and separable from other interests.

In water politics water use was seen as a variable sum game, i.e., water was seen as sufficiently abundant that its use by any one interest would not harm another interest. Certainly on a local scale it was recognized that upstream uses could affect downstream uses, but at the aggregate level of national water politics it was believed that everyone could be a winner in this land of limitless water resources. One of the earliest Congresses formulated the "American System" which in essence bound together a bundle of diverse interests sufficiently large to win consent and legitimation for the idea of developing the nation's navigable waters for the good of all. (See Chapter 2 for additional discussion of the American System.) Questions of constitutional authority for internal improvements, the pertinence of involvement in various water resource purposes, fiscal responsibility, the roles of public versus private agencies and other questions have, over a period of decades, been gradually resolved by the evolution of a system of distributive politics. This system gives something to everyone who wants a "piece of the action." This system sees no losers, everyone is a winner. Some prefer to call distributive politics pork barrel.¹

Federal water agencies are dealing with a value in society (water use) which is valued to some extent, but not equally, by everyone. A western farmer with a junior water right who knows he will lose his entire crop to drought if he doesn't get some water in a few days would be willing to pay a lot more for a unit of water than would a diner in

¹Theodore J. Lowi has developed the concept of distributive politics extensively in his writings. For a full discussion of his theory on distributive and other policy contexts see the references to his writings in the Bibliography to this study.

a New York restaurant be willing to pay for a unit of water. In the early history of water policy this point was equally true. In addition, water was seen as limitless. Water was so abundant that externalities which resulted from one use of water were, in general, not a problem for any other use. Because, water was so abundant, so many people and regions wanted to make some use of the water and because the costs of developing water were low, water politics developed in a distributive manner. The distributive mode of decision making is understandable and often beneficial in providing responsiveness to local conditions and preferences. The water field is very diffuse by nature. With so many actors and interests goal attainment depends on a good deal of cooperation and logrolling. To serve the local conditions and preferences of our young nation and the political values of the time, it became necessary to bind together enough diverse interests to build a majority in Congress capable of meeting the nation's water needs. Water policy in the early years was serving the private needs of the public. This was precisely what was needed for the public good.

Distributive policy arenas are inherently stable (Ingram, 1977). All interests which perceive a stake in the issue and are important to majority building receive a share of the benefits. The traditional way of building support for distributive policies is to purchase consent through explicit or implicit trading of support. The costs of such policies are so distributed that there are no clearly identifiable losers in such a situation. Something for everyone sometime is a very effective way of building coalitions and though it can lead to economic inefficiency and other inequities it does provide equity in a political sense. This is the essence of pork barrel politics.

Though "pork barrel politics" as applied primarily to water resource projects today almost universally connotes inflationary contrivances among local special interests, water agencies, and the Congress, this, at a minimum, is not historically so. Pork barrel or horse trading is one effective means for achieving political values. When one agrees with the values served pork barrel politics are good. When one disagrees with the values served pork barrel politics are bad. It is much the current vogue to classify water resource development as pork barrel meaning all the evil those words can conjure. The point is made here that water politics is politics in the distributive mode and that is pork barrel politics. Pork barrel politics can be an effective way of meeting very important human needs.

Let us briefly consider an example. There is a body of public opinion, amorphously described as the "environmental interests", which opposes any water resource development by the Corps, the Bureau of Reclamation or others on the basis that it is "pork barrel." In this instance pork barrel means a money give away for projects of questionable value. The environmentalists of this example disagree with the values served by water resource development and quite appropriately challenge these values. They see the values as pork and pork is seen as bad. Many of these same environmentalists ardently supported PL92-500, The Federal Water Pollution Control Act Amendments of 1972. The environmentalists wanted tougher water quality standards at any price. State and local governments would accept tougher standards if Federal money were available to meet those standards. Part of the result was EPA grants for construction of waste treatment plants. EPA became the sponsor for the largest public works program in the nation, \$18 billion

in the first three years—far larger than the "traditional" water development programs. This grant program was pure pork barrel politics. Ingram and McCain (1977) in discussing federal water resource management said of the EPA construction grants, "Pork barrels this large are few and far between." Who among us would say clean rivers are undesirable? It is interesting that because PL92-500 and the grants program served an accepted political value of the day that few ever refer to it as pork barrel though it has far overshadowed the Corps and Bureau pork barrel in dollar terms. Perhaps the failure to see waste treatment as pork while viewing the traditional programs as pork is a testimony to the past successes of pork barrel politics. Had earlier pork barrel legislation not largely eliminated the problems and met the needs of an earlier time so effectively those problems may today rank with water quality control in importance. Alternatively, perhaps the earlier problems, which may still exist, have simply been eclipsed by new problems—new national priorities.

The point of the above example and discussion is not to be judgmental in any way. Rather it is to make the point that distributive or pork barrel politics is a fact of life. As regions of the country pass through successive economic stages they get subsidies of various sorts, e.g., corn, cotton and tobacco subsidies, public housing, protective tariffs, water resource development. Developed areas have different priorities than undeveloped areas. Politically these subsidies can be justified on the basis of political equity. Whether it is considered good or bad depends on which side of the issue one stands. It is important, however, that pork barrel politics not be condemned generically because one person's pork is another person's bacon.

It has been hypothesized in Chapter 1 that national political supports for federal water development projects in general and, therefore, the program of the Corps, have been declining. The remainder of this chapter will present some arguments supporting the possibility of this decline. The following chapters will present the results of an attempt to measure this decline in the water resource program of the Corps of Engineers.

As noted above, distributive politics in general and water politics in particular, by nature of their "something for everyone" approach, are inherently stable. However, stress can be introduced into any distributive political arena. In general, stress occurs in one of two ways (Ingram, 1977). First, a limit may be placed on the distribution of benefits so that trade-offs among different allocations must be made. Second, there may be participants in the process who can't be satisfied by the distribution of benefits. Specific to water resources, stress to the system of political support comes from no less than nine interrelated sources.² The sources of stress include:

- 1) change in national values and priorities;
- 2) opposition of the Office of Management and Budget;
- 3) the environmental movement;
- 4) decline of the federal role in the development of the West;
- 5) needed federal development has largely been accomplished;
- 6) emergence of the national urban majority;
- 7) emergence of states as a viable alternative to federal development;
- 8) criticism by intellectuals;
- and 9) lack of political support for water resources.

Each of these sources of stress will be discussed in turn.

²Many of these stresses are discussed in the writings of Caulfield and Ingram.

Change in National Values and Priorities

Clearly, national values and priorities have changed over time. The traditions of water resource development programs are deeply rooted in the challenge of survival on the frontier, winning the West. Our social, political and economic institutions have traditionally supported the ethic of unhindered development. In this context the function of government was to facilitate and support this development, not to regulate, constrain or otherwise interfere with it. For much of our history development has proceeded with virtually no inhibitions. The frontier ethic has served well in developing our society.

As was noted in Chapter 2 , with respect to water resource development, the frontier ethic began with the fundamental needs of food, transportation, and expansion of the country. After America won its independence these needs expanded to include the needs to; make our country economically self-sufficient, unify the nation politically, develop the West, and secure our national defense. The primary federal concern, initially, was for development of rivers for navigation. With increased settlement in the river valleys, made possible by improved navigation, serious flood problems arose. By 1900 settlement of the arid and semi-arid West required water resource development for irrigation. To these needs demands for hydroelectric power, increase in water quantities, and improvements in water quality were soon added. The additional role of water projects providing employment was most popular on the frontier, in less developed areas, and during the depression years of the 1930s. In addition to advancing

settlement, securing claims to new territories, promoting agriculture, regional development, putting people to work in the 1930s and redistributing income, there was an intangible prevailing sense of adventure which arose out of the romance of expanding the frontier, winning the West, and taming nature which in itself captured the imagination of parts of this nation. There was, in addition to the tangible consequences, an intangible desire to do things because they could be done. The engineering feats and technological wonders themselves were things of marvel and a source of national pride. In this respect, water resource development in earlier years filled a need which the space program filled in the 1960s. All these values are part and parcel of the frontier ethic which gave birth to the distributive politics and policies of federal water resource programs. The depth and breadth of this frontier ethic is demonstrated, in part, in Table 1 which summarizes some of the major federal legislation and administrative action which facilitated the development ethic.

The context for water resource development programs has changed historically, socially, politically, and economically. Our once empty land is now full. All areas of the nation are populated and rural population decline is now the rule. An economy of scarcity has now become an economy of abundance. Our nation is united politically and our defense is secured. This change in circumstances has led to new needs and priorities. Today, society is more complex and more affluent. Society now is willing and able to pay for benefits which previously would have been too expensive or extravagant for a society with more fundamental needs. This has been true throughout the history of water

TABLE 1

FEDERAL LEGISLATION OR ADMINISTRATIVE ACTION FACILITATING DEVELOPMENT

Date Enacted	Name of Act	Key Provisions or Effects Related to Development
1824	Administrative Action	Corps of Engineers assigned responsibility to improve waterways
1852-1871	Railroad Land Grants	128 million acres to railroad use of which 91 million went to railroad corporations and 37 million acres went to states for benefit of the railroads
1862	Homestead Act	160 acre land grants to individuals 285,000,000 acres were patented under this act (1/3 of original public domain)
1872	1872 Mining Law	Permits unrestricted mineral exploration on all public lands and permitted complete control of all resources by a claimant
1877	Desert Land Act	Provided for sale of land at \$1.25 per acre of 640 acres to settlers who would irrigate it within three years. Ten million acres were patented under the act
1902	Reclamation Act	Further advanced the amount of land irrigated
1908	Administrative Action	Inland Water Waterways Commission advances the doctrines of the river basin unit and multiple purpose water control projects
1920	Mineral Leasing Act	Provides for leasing by the Secretary of the interior of coal, phosphate, sodium, oil and oil shale on public lands
1933	TVA Act	TVA was created

SOURCE: David W. Hendricks, et al., Environmental Design for Public Projects, (Fort Collins: Water Resources Publications, 1975), p. 8.

resource development. Simple projects were built for simple needs. Complexity was built into projects only as the need for them and the willingness to pay for them, in terms of costs incurred or benefits foregone, arose. Among the more frequently mentioned new concerns which has arisen is the concern for intangibles, particularly amenities of the environment which are available in increasingly shorter supplies. Society is now willing to pay to have environmental values preserved by foregoing the other benefits of water resource development. In an earlier era these environmental values were too expensive for the basic needs of the nation. Perhaps the biggest change is that now that the nation has secured its fundamental needs for most of its people it can afford to and, in fact, needs to turn to intangible values. This is not to say that all fundamental needs have been met. This is certainly not the case. The need for development activities requiring public support will continue, but the values and priorities will not be the same as those that faced the framers of federal water policy. Evidence of the change in national values and priorities can be seen in Table 2 which summarizes selected federal legislation regulating the development which for so long has been our heritage.

Changes in national values and priorities are discussed first because they are basic to the other stresses to federal water politics which follow. Though the case for change in national values and priorities may have been made above it remains to be proven that these changes will act so as to cause a decline in federal water resource programs in general or the Corps program specifically. That proof, in a definitive sense, is not forthcoming in this analysis. Indeed the point cannot be proven immutably. Nevertheless, in the remaining

TABLE 2
FEDERAL LEGISLATION REGULATING DEVELOPMENT

Date Enacted	Name of Act	Key Provisions
1891	Forest Reserve Act	Established forest reserves—the precursor to the National Forests
1920	Federal Water Power Act	Created Federal Power Commission and authorized it to issue licenses for navigation and power production from navigable waters
1932	Emergency Conservation Act	Provided employment on conservation and public works projects
1940	Ohio River Valley Sanitation Compact	For control and reduction of pollution in the streams of the Ohio River drainage basin
1948	Taft-Hartley Water Pollution Control Act PL80-845	Declared a pollution control policy* and provided aid to state agencies to control stream pollution
1952	Public Law 82-579	Financial provisions of PL80-845 extended to 1956
1956	Federal Water Pollution Control Act of 1956 PL84-660	Extended and strengthened 1948 law, encouraged interstate compacts and uniform state laws, financed research and technical assistance to states; grants for construction of treatment plants
1961	Federal Water Pollution	Further strengthening of act by extending federal authority to control abatement of interstate waters; further financial authorizations
1965	Water Quality Act of 1956	Water quality standards required of each state; more construction grant monies
1965	Solid Waste Disposal Act of 1965, PL89-272	
1966	Clean Water Resoration	Comprehensive basin planning, acid mine water control; control of pollution in the Great Lakes; control of sewage from vessels; control of pollution by oil

TABLE 2. FEDERAL LEGISLATION REGULATING DEVELOPMENT (Continued)

1967	Air Quality Act of 1967 PL90-148	
1969	National Environmental Policy Act PL91-190	Council on Environmental Policy established; environmental impact statement required for all projects involving Federal government; declares national policy for environmental quality enhancement
1970	Clean Air Amendments of 1970 PL91-604	Vehicle emission control; control of stationary sources
1970	Resource Recovery Act of 1970 PL91-512	Encourages materials recycle
1972	Water Quality Act of 1972	18 billion for treatment plant construction; zero discharge by 1985

*Prior to this act only three federal water pollution acts existed: (1) Rivers and Harbors Act of 1899; (2) Public Health Service Act of 1912; (3) Oil Pollution Act of 1924.

SOURCE: David W. Hendricks, et al., Environmental Design for Public Projects, (Fort Collins: Water Resources Publications, 1975), pp. 12, 13.

paragraphs of this section an argument is made that the overall effect of the changes in values and priorities will be to influence a decline in the traditional programs of the Corps and other federal agencies as they are constituted today. Further support for this argument will be found in the sections to follow.

Distributive water politics is based on the implicit assumption that water is without limit such that the separable interests in water will not interfere with other interests and there will be no losers. Historically, as interests in water grew from navigation to include flood control, hydropower, water supply, etc. the federal water program adapted to these stresses within the distributive mode. I.e., new project purposes, new project features and new kinds of projects were added to the program. The new interests were accommodated by increasing the size and varieties of distributive pie. Multipurpose projects and river basin plans with several projects were very effective ways to build majority coalitions of support by accommodating the growing diversity of interests. This has been the traditional way for federal water resource development programs to adapt to stress. Guidelines of fairness and equity, e.g., project evaluation criteria, have generally been followed by Congress. These guidelines are essential to convince localities and their representatives not getting a project that the expenditure is justifiable and that there is a chance for a project for them in the future.

Now, issues are being raised which threaten the cohesion in Congress which made water resource development possible. External effects of water projects, e.g., a declining supply of unregulated

rivers which in a simpler less developed society could be ignored in the distributive political arena can no longer be ignored. Because our technologies and our water developments are more complex their externalities are more complex and far-reaching. By the sheer magnitude of our water development the externalities have, inevitably, begun to push their way onto the national agenda. We are beginning to see the cumulative impacts of scale of our water development. Some environmental interests suspect that we are approaching, if not already beyond, a significant threshold where things will soon be out of control. Contributing to this feeling that something big is about to happen is the realization of the irreversibility of much of our development. Perhaps most important to the future of water politics is the convergence of impacts which has accompanied the cumulative development of our waters. Impacts of projects which, when taken alone, seemed acceptable, when combined with the impacts of other water development and other technologies, present new problems of increasing magnitude. An example of such a convergence is the population growth pressures along the Front Range of Colorado. This growth did not result from any one policy but certainly development of water for irrigation, water supply, flood control and hydropower contributed largely to the problem. When water resource development impacts converge with impacts of the automobile, migration from the older cities, etc. a problem of new dimensions and complexities results.

No longer can externalities be ignored. When costs can no longer be shifted elsewhere one is outside the distributive arena and into an area where there are clear winners and losers. This alone changes the

distributive politics picture because the costs of reaching a decision are beginning to rise. With higher costs of decision making and fragmented demand the distributive "something for everyone" politics of the past could be shifted into a more ambiguous regulatory politics mode. Such a shift by definition would mean a decline in existing programs.

The forces of change don't stop with a simple realization of the existence of external costs. Issues are being taken out of the traditional social and economic values of the water politics distributive arena. These issues of fiscal responsibility and environmental concerns are being taken out of the agency-committee arena and made into national issues, a level at which distributive politics won't work as effectively because the decision structure is more integrated at this level. Value conflicts, once inimical to water politics, are occurring between federal agencies (e.g., the Corps and the National Fish and Wildlife Service), between federal, state, and local governments, and between special interest groups at national, state and local levels. Many of these sources of stress in the water politics arena cannot be adapted to in the traditional manner. Environmental interests are much more difficult to accommodate in the distributive arena. Their interest in non-consumptive and instream uses of water can't be met by traditional project outputs. When no development is what they want it's difficult to purchase their support or consent in the traditional way with a project or project feature. The National Water Commission in 1973 included among its recommendations fully reimbursable costs and strict adherence to national economic development evaluations

for interbasin transfers. Increasingly stringent procedures such as these also serve to take water resource development out of the distributive arena. The future for new water purposes such as water transport systems, drought planning, etc., will depend on the number and relationships of areas with these needs. E.g., it is obvious that the northeast cannot hope to see water transport problems dealt with in the distributive arena because demand is fragmented within an integrated region. Demand is not sufficiently fragmented to support a national program unless water transport can be bundled with another purpose, new or old, and used to build a new distributive majority.

In summary it can be stated that by virtue of the changing historical context for water resource development values and priorities are changing in ways that can't be accommodated by traditional water politics. By definition this means a decline in water programs as now constituted. As a result of stress traditional water politics continue but with much less vitality and support than they once had. Once the limits of water use are recognized then a political arena of endless distribution can't be viable. The original objectives of water resource development have been met. Now it is time to turn to new problems such as M & I water supply, waste treatment, water for energy development, etc. The political base of traditional water politics is eroding with the weakening of its historical rationale. In the context of the current organization of water resource programs this can only mean an inevitable decline in the federal programs as presently constituted.

Opposition of OMB

In June of 1940 the National Resources Planning Board and the Bureau of the Budget drew up Executive Order 8455 which, among other things, required that federal construction agencies clear with the newly organized Executive Office all survey and investigation reports before they are sent to Congress, so that statements may be included in the agencies' reports as to the relationship of all proposed development to the program of the President. With respect to the Corps, this order represented

a bold attempt on the part of the President's office to break up the pattern of direct responsibility to the legislature, to require the Corps to report first to the President.³

When the Planning Board was abolished formal clearance of reports by the Bureau of the Budget was still required under Executive Order 9384. However, Congress did not appropriate funds to continue an evaluation subcommittee. The current structure of the Office of Management and Budget (OMB) was established by Executive Order 11541, July 1970, in the Executive Office of the President. The duties of OMB with regard to the Corps and other executive water agencies is similar to that of EO 8455. The mere fact that OMB is again performing a review function for water projects indicates a weakening in traditional water politics by providing the executive branch with a top level review function. OMB can forward reports to the Congress or it can withhold reports for compliance with and conformance to the President's program.

³Arthur Maas, Muddy Waters (Cambridge: Harvard University Press, 1951), p. 101.

In omnibus water development bill hearings before the House and Senate Public Works Committees during the 1970s OMB is frequently cited as a bottleneck in the water development process. Many Congressmen who appeared before the committees were dismayed to hear that unless the report for the project for which they spoke was released by OMB there would be no chance for the project's inclusion in the omnibus authorization bill. In truth, however, OMB approval serves the purposes of the fairness and equity guidelines mentioned earlier for holding down the number of projects authorized. In hearings for the 1974 Water Resource Development Act Congressman Cleveland in the 1972 House Subcommittee for Water Resources hearing for H.R.8976 mentioned OMB and environmental impact statements as just two of the many weapons "the Executive" has "to clobber" projects with. Congressman Cleveland's comments are a clear indication of the institutional position of OMB on water projects in general. The power to delay authorization may actually be stronger for OMB than the power to outright reject a project. Clearance by OMB can take up months and even years unless strong political pressure is brought to bear upon OMB to release a project report (Allee, 1972, p. 3-14). Timing of projects for consideration by Congress is very important. If a project was not ready for inclusion in the 1976 omnibus act it has already been waiting six years for the next act. The prolonged delay of project authorization may undercut its momentum and support, thus threatening its eventual authorization and construction. OMB does not, however, wield total control over the future of water projects. House Report 93-541 to accompany H.R.10203 noted that OMB was holding up the report on Water Resources in Appalachia. Congress

included several projects from this report in the 1974 omnibus authorization act without having officially received the report from the Executive Office

Overall, the position of OMB has, without regard to political party, been to oppose water resource projects for the last 25 years or so. Water resource development appropriations are theoretically a manageable part of the budget and as such they are vulnerable to OMB scissors. OMB has lacked enthusiasm for the large river basin packages which distributive politics produce. OMB has used many weapons to implement its position. Budget constraints on public works projects and diversionary tactics such as encouraging the establishment of national water commissions and accompanying these with new no start policies, suggesting infeasible cost-sharing and reimbursement schemes, and insisting upon politically untenable evaluation procedures are some of the more recent tactics of OMB (Caulfield, 1975).

OMB is now a well established and powerful professional staff-arm of the President. In its present institutional role OMB has undoubtedly had a negative effect on the growth of the traditional water programs. OMB in this context can be considered a source of stress in the distributive politics arena of water policy which is diabolically opposed to the traditional methods of adaptation within the distributive mode. More projects or new project features will not purchase the consent of OMB. In fact, less water resource development is the only way to gain the consent of OMB. The importance of OMB in the future of the Corps' or any agency's role in water development will depend on the balance of power between the various water committees in the Congress,

Congress as a whole, and OMB and the Executive Office. If Congress has the will and ability to fight OMB's position, OMB's impact can be minimized. With an increasing number of sources of stress on water politics as presently constituted working to weaken the political base for water projects within the Congress it is difficult to imagine circumstances resulting in a weakening of OMB's position. As a result, there is some indication that OMB's position against water development will in the long run, and undoubtedly with some minor setbacks, be strengthened.

Environmental Movement

Probably no single factor is given more "credit" for successfully challenging the traditional federal water programs than the environmental movement. Though this section is devoted to some discussion of the role of the environmental movement in the decline of water politics it begins with a caveat. The role of the environmental movement in the decline of water resource development programs should not be over-emphasized. The environmental movement is an important and the most visible factor in the perceived decline but it is just one of many interrelated factors.

Concern for the environment did not suddenly burst upon us in the 1960s as a result of a major catastrophe, sudden revolution or major social unrest. Concern over unbridled resource exploitation first became persistent and viable with Theodore Roosevelt and Gifford Pinchot who led the development of the conservation doctrine of "wise use" of resources at the turn of the century. It was only a more

widespread understanding of some of the impacts of the larger problems which entered the public consciousness in the 1960s. Regardless of the origins of the environmental movement the rise in political legitimacy of such issues as protection of our national parks and monuments from water resource development, wild and scenic rivers as an alternative use of rivers, rights to clean water and clean air, and the need for environmental impact analyses has forcefully and successfully challenged the traditional water programs by thwarting the distributive politics of water policy. The environmentalists succeeded in taking environmental issues out of the committee hearings and into the national limelight. Echo Park Dam, the Santa Barbara oilspill, the snaildarter, Tennessee-Tombigbee, and others drew national recognition as environmentalists successfully brought these issues to national attention. With the passage of the National Environmental Policy Act in 1970 the way was cleared for court challenges of federal water projects everywhere. Many of these challenges have been successful in gaining modifications to objectionable projects or in delaying construction of projects by tying them up in court while opposition grows and support wanes. During the 1974 Corps of Engineers Oversight hearings before the Senate Subcommittee on Water Resources the Corps testified to having 33 NEPA lawsuits pending which included such well known projects as the Cross Florida Barge Canal, Tennessee-Tombigbee and Tocks Island Reservoir. "Ecology" and "environment" have become national symbols with broad public consensus in their support. Just as growth and development were once symbols of American goals, enhancement of the quality of life through preservation of the natural environment currently expresses a broad public aspiration.

Recent trends in the Water Resource Council's Principles and Standards for Planning Water and Related Land Resources toward greater consideration of environmental quality have also served to take some of the flexibility, once very important to water politics, out of the distributive arena. The effect of these more stringent guidelines is to curtail the choices available to the water committees of Congress. This obviously will lead to a long term decline in the Corps and other programs.

President Carter's controversial "Hit List" further attests to the strength and legitimacy of the environmental movement. Clearly, the effect of the "Hit List" evaluations was to decrease the Federal role in water resource development. That the Corps was not hit as hard by the list as the Bureau of Reclamation may be an accident of chance or it may attest to the extent to which the Corps has been able, as an agency, to adapt itself to and accommodate the environmental movement. The growing federal and Corps emphasis on nonstructural flood control and water conservation are examples of attempts to adapt to the stress of new values by adding new missions and new constituencies. This adaptation when conducted within the confines of the distributive politics arena is necessarily limited in scope. The values of some environmental interests cannot be served within the distributive arena for the value conflicts between environmental and development interests often result in zero sum games which go beyond the distributive arena. As the scope and cumulative results of federal water resource development programs grew this increased the implications for the external effects of these programs for a broader base of

interests. The environmental interests became part of this broader base and forced the agencies and Congress to focus on some of the systemic consequences which water politics in an earlier era was able to ignore. The environmental interests, on the strength of their political legitimacy gained over the past 30 years, have become junior partners in federal water politics. Perhaps as environmental interests, in and out of Congress, strengthen their role and succeed in having water policy perceived as part of a broad environmental concern water policy will take on aspects of regulatory policy. This would mean further decline in the political base of traditional water politics as generalized rules established through the process of overt conflict with bargaining replace the mutual accommodation, noninterference and local initiatives of distributive politics.

That the environmental movement is but one of the factors eroding the political base for traditional water programs makes for some interesting speculation. One can argue that had the environmental movement been the only force opposing traditional water programs the firm political support of decades gone by may have blown the environmental movement out of the water. At the very least, environmentalists would have been forced to compromise with federal water development far more than they have (Caulfield, 1975). The environmental movement has contributed to the loss of vitality in the traditional water programs but it does not explain it.

Decline of the Federal Role in the Development of the West

As is pointed out in the historical overview of Chapter 2 the United States was developed from East to West. The origins of the water resource programs of the Corps stem largely from the concern for opening and integrating the region from the Atlantic coast west to the Mississippi River. Water programs of the Corps were expanded and the Bureau of Reclamation was created to open and settle the arid and semi-arid West. Part of the frontier ethic, these programs were politically rooted in the desire to expand and settle the frontier by supporting agriculture. The progressive thrust interest of supporting yeoman farmers and ranchers was supported by Democrats and Republicans alike. In addition to the frontier or development ethic there was a pragmatic side to the federal role in developing western water. The general failure of non-federal efforts to improve navigable waterways during the Canal Era, 1817-1838, attested to the limited capabilities of the non-federal interests of the time. The great difficulty and not infrequent failure encountered in non-federal irrigation development in the West threatened to repeat the failures of the Canal Era. Federal involvement in planning, constructing, operating and maintaining both navigation projects, following the Canal Era, and irrigation projects at the turn of the century was justified at the time on the basis of the Federal government's superior financial capability and its near monopoly on the engineering and scientific talent of the age (Caulfield, 1975).

Now, we see the job of opening the West to agriculture and subsequent settlement is complete. During the 1960s and 1970s migration

to the arid and semi-arid western states took place at such a rapid rate that many regions have become concerned with overpopulation. Strategies to halt, limit or otherwise control growth are serious local concerns along Colorado's Front Range and parts of Arizona and California. The spectre of massive, nearly instantaneous, population increases due to development of western energy resources in Colorado, Montana and Wyoming and the MX missile system in Utah and Nevada will only serve to heighten the overpopulation of the West.⁴ What this all means is that the historical objective of settling the West has been achieved. The West is won. The job is done. What now is the rationale for continuing development of water in the West? With problems of overdevelopment and concern for growing population pressures becoming more of an issue the western Congressional delegation is no longer unequivocally dedicated to federally-promoted development of the West whether by missiles, energy or water. The political enthusiasm that accompanied the great national sense of adventure has waned.

Through our history as a nation there have been great differences in economic and social conditions and problems between states and regions. These differences have been largely equalized by numerous federal policies, chief among them—water development. Differences remain but they bring new and different problems. A political base of support founded on regional differences which no longer exist is bound to decline or to reformulate around the new problems and objectives.

⁴Overpopulation, as used here, is a relative concept. Certainly the regional population densities do not rival those of the northeast but the carrying capacity of the regions is limited, largely by water. Additionally, localized problems of overdevelopment are already serious.

Though the West has long been considered the stronghold of the Bureau of Reclamation the Corps has been very active in the Pacific Coast States. The regional analysis of the Corps program in Chapter provides detail on this subject. The only logical conclusion based on the fact that the West, in large part, is as developed as the East is that the Corps' and other federal water programs as presently constituted must decline in the future relative to levels of past activity.

Needed Federal Development Largely Accomplished

Very closely related to the argument that the federal role in the development of the West is declining is the idea that necessary federal development of water resources has largely been accomplished. This is a concept which has been touched on in some of the previous discussions of stress in the traditional water politics arena. The basis for the "something for everyone" approach of distributive water politics has in large part been the deep rooted belief that water in the United States is without limit. The traditional water politics has, heretofore, effectively failed to acknowledge by its actions that water supplies are limited. Externalities which once could be ignored due to the relative abundance of water now, with greater demands being placed on supplies, are causing value conflicts which can no longer be ignored. The simple fact is that when water supplies become short value conflicts become sharper. The result is that a limit is placed on the benefits which can be distributed. This means an end to traditional distributive water politics. "Something for everyone" is no longer possible. Trade-offs among different allocation alternatives must be made.

The basic assumption of endless distribution is called into question. Bargains have to be made and the traditionally distributive political support base is further eroded and becomes more regulated by value conflicts and the resulting trade-offs.

It is quite possible that many public leaders and the general public perceive the statement that the federal job in water development has largely been accomplished to be fact. The very real need for water resource development throughout our history is undeniable. Water development is largely responsible for making our country what it is today. There were good, solid, compelling reasons for the water development which has been undertaken in our country. Yet, similar types of development are inveighed against from many quarters as wasteful pork barrel. That many current water resource projects are considered wasteful pork barrel may be the highest tribute which can be paid to the success of past developments. That many current projects are considered wasteful pork barrel may also be a clear signal that the federal job is largely done. It is definitely a signal that the nation's needs and priorities are changing.

If one credits the expertise of the federal water agencies at all it is reasonable to assume that the highest priorities and the greatest needs were generally met first. The "best" projects were built first. As a result the best project sites have already been taken. The Columbia, Colorado, Mississippi, Missouri, Ohio, Tennessee, and perhaps other rivers have been, more or less, fully developed. Though these rivers and others are not fully regulated in the sense that some engineers in the past dreamed of, they are essentially fully developed

in the sense that the most economically efficient sites have been developed, the greatest social and political needs met. Certainly the large scale projects born in the "308 Reports" and elsewhere are complete or under construction. The large projects which remain on paper may never be built because of the eroding need for their outputs, eroding bases of political support, increasing strength of value conflicts and new interests to be served, or other reasons.

The traditional water programs with their traditional project purposes and traditional water politics have met the basic historic needs of the country. A recurrent theme in this study is the changing values, needs and objectives of the country. The point needs to be made here as well. With regard to the traditional program of the Corps and other Federal agencies the job is essentially completed. A decline in the Corps and other federal programs as presently constituted is inevitable in this context.

Emergence of the National Urban Majority

Deep in the history of the Corps and other federal water programs is the sanctity of agriculture. It can be argued that the United States was built on agriculture and the petroleum based mechanized agriculture of today supports the great diversity in our economy which makes life so rewarding for so many people. With the sanctity of agriculture as one of the primary driving forces behind the frontier ethic it is natural that federal water programs developed with something of a rural emphasis. The individual farmer or rancher—the "little man"—was a main beneficiary of the navigation which got his goods to the

markets and his supplies from them. He benefitted from the levees that kept his land free from floods, the irrigation water which made his dry soil burst with crops, the power which served his farm, and the water supply that fed and washed his community. These were the needs of the time. Populating our wilderness and rural areas was the main work of our first 150 years as a nation. Priorities change.

During this century the relative importance of agriculture in the economic, social, and political institutions of the United States has declined as the rural population has declined. During the 1960s and 1970s there was massive migration of rural populations to urban areas. As a result, a national urban majority now dominates the economy, society and politics of this nation in both numbers and power. Agriculture and other rural resource development needs are foreign to this new majority. As we moved from an agricultural society to an urban industrial society we faced new water needs, objectives and priorities.

Public works and infrastructure needs for the urban majority are vastly different from those of the once rural majority. Urban problems of health, housing, transportation, energy, welfare, redevelopment, safety, and pollution are primary concerns of the urban majority, not irrigation, navigation, flood control and hydropower. This is not to deny the numerous and serious water needs and problems of the urban areas, they do exist. The fact is that traditional federal water development programs do not address these needs. This point was made as recently as March 5, 1981 by Senator Moynihan on the floor of the Senate where he spoke for major reform of the traditional programs of the Corps, Bureau of Reclamation, and the Soil Conservation Service.

Our current program also suffers from its failure to include the entire Nation. From legislation borne out of an interest to develop hitherto undeveloped regions of our continent we in the older regions now find ourselves victims of our own tradition. We are told our water needs do not mesh with the national purpose. In the period from 1950 to 1976 the Northeast received slightly more than 6 percent of the cumulative national water resource funds spent by the Corps of Engineers and the former Bureau of Reclamation . . .

Meanwhile two-thirds of the continent away and thirteen years earlier Congressman Aspinall was quoted in the Grand Junction Sentinel (Colorado) on July 16, 1968 as saying:

I cannot recall a time when the future for water resource development—insofar as federal dollars are concerned was ever bleaker The urban areas don't even know about the meaning and value of such projects.

The urban majority is a fact. The comments of Senator Moynihan indicate that urban water interests lie in areas other than traditional water development. Even earlier, Congressman Aspinall recognized this problem. It is a certainty that the urban support for water resource programs will not grow stronger under the presently constituted program.

The federal response to urban problems has been grants-in-aid, block grants and revenue sharing. Grantsmanship is now the dominant fiscal mode of federal-state-local relations. Direct public services such as those of the Corps and the Bureau of Reclamation are not a strong part of the urban majority's political kin. Multi-purpose projects, and comprehensive river basin plans are foreign concepts to most of the urban public. Deteriorating water quality, decaying water transport systems, lack of water based recreation and uncertain water supplies are common urban water problems. Urban needs and traditional programs are worlds apart.

The emergence of a national urban majority with water needs which go unmet by the traditional rural based federal water programs is an anachronism which must be faced. Mayor Edward I. Koch of New York City expressed this point while discussing his city's ability to its water supply needs in the July, 1981 issue of "Geo."

Can we build the third city tunnel by ourselves? . . . Probably not. Will we get federal money? How do I know? - We're still fighting the old formulas that give most of the money for water projects to the South and arid West. In New York State, we get four dollars and change from Washington—per person—to take care of our water problems. In Arizona or New Mexico, I can't remember where the hell it is, they get fifty-one dollars per person. They have these multiple purpose projects out there . . . so they make out like bandits . . . If I could figure out a way to put canoeists down there (in the tunnel), maybe our problem would be solved.

With the urban majority being translated into urban majorities in Congress it can be expected that Congress will find new priorities for public works moneys. That the Corps and other federal water programs as presently constituted will decline as a result of the growing urban majority seems inevitable. The needs of the urban majority are not primarily in the area of water development. The water development needs of much of the urban majority are not met by traditional federal programs. The urban majority represents a new interest whose consent cannot be purchased by the distributive arena, it does not serve their needs as it now operates. This is yet another stress on water politics which must be met sooner or later.

States a Viable Alternative

As noted in Chapter 2 the Corps was originally given authority over the nation's waterways as a historical necessity. The Military

Academy at West Point was the only American school training engineers through the first quarter of the nineteenth century and the Army had a virtual monopoly on American engineers. The engineering expertise in the United States rested solely with the federal government during the formative years of American water policy. The professional reputation of the Corps of Engineers in service to the nation through civil works functions was such that the authority of the Corps was gradually increased even though alternative sources of competent engineers began to increase. With the development of additional project purposes and new agencies to deal with these projects the cumulative effect was to increase the concentration of water resource expertise within the federal government. Even as late as the 1930s the sole opportunity for hydrologists or water resource planners was with the federal government with some limited opportunities in a few states and universities. There was essentially no role for consultants at that time (Koelzer, 1965).

In addition to the concentration of engineering, scientific and planning expertise the federal government's ability to finance the capital-intensive water projects was an important factor in the evolution of the federal role in water resource development. The bankruptcy of many state-backed canal construction projects during the Canal Era gave early indications of state, local and private inability to undertake large scale waterway improvements. As a result of the experience of some states during the Canal Era many states forbade the issuance of any bonds pledged on the full faith and credit of the state. This further served to limit the financial resources available for water

resource development. When the arid lands of the West were opened to settlers early attempts to provide irrigation works met with mixed success. There were many projects which folded due to insufficient financial backing or technical failure. Those projects which were operational were usually built on the basis of a farmer's common sense with the necessary short run benefits in mind. Irrigation projects of the size and quality necessary were simply beyond the reach of nonfederal interests at that time. The federal role in water development grew because they had the professional expertise and the money.

Today things are different. Expertise in water resource fields is no longer restricted to the federal government. State and local water resource agencies abound. Their professional staffs have become increasingly aware of their prerogatives and responsibilities. Private enterprise, in the form of engineering, planning and other professional consultant services, has entered the water resource field in a big way. In addition, means of finance are no longer confined to the federal government. States like California and Texas have demonstrated the ability of states to undertake major water projects. State and local governments in the Northeast financed massive water supply systems. The federal experience has proven the ability of projects to generate revenues sufficient to pay costs. State or local revenue bonds can be used to finance projects.

Once again we see the historical rationale for traditional water politics fading. These changes result in two important points for consideration. First, due to the relatively late arrival of the state

and local water resource agencies there is often only one agency which has responsibility for considering all aspects of problems associated with water resources at the state or local level. This consolidated handling of water issues when held in juxtaposition to the fragmented basis on which the numerous federal agencies consider development is vastly preferred by many public and political interests. Second, there has been a reversal in roles for assumption of primary responsibility for meeting water resource needs. The state or local agency or interest is now controlling the course of investigations by the federal government instead of the reverse situation which persisted for decades. As a result, the states role in traditional water politics has grown into a force to be reckoned with.

The states wield a significant amount of control over the destiny of the traditional federal programs in terms of their ability to direct projects studied and constructed by federal agencies and their competitive position as an alternative to federal action. These points become all the more important when considered against the rising tide of the "back-to-the-states" movement which swept Ronald Reagan into the Presidency in 1980. Early indications are that this movement is serious and will have its day. With the above advances in the states' professional and financial capabilities in the field of water resources in mind it would seem logical to expect advances in the states programs to cause a shadow effect decline in the Corps and other federal programs. The increasing capability of the states coupled with the interest in shifting as much responsibility as possible back to the states seem to add up to future pressures for the decentralizing of

some or all of the federal water program activities. Senate Bill 621, "National Water Resources Policy and Development Act of 1981," is one manifestation of such pressure currently at the national level.

Criticism by Intellectuals

A relatively recent source of stress on the distributive politics of water policy is what is called here, for lack of a more accurate term, the criticism of traditional federal water programs by intellectuals. This stress arises from two interacting phenomenon. First, as has been pointed out in numerous instances, the externalities or impacts of water projects on those other than direct beneficiaries are being spread across a broader interest base as the finiteness of water resources is realized and brings value conflicts into sharper focus. These externalities have aroused groups of interests which can't be satisfied in traditional ways. Their concerns are outside the arena of distributive water politics. Second, the state-of-the-art in physical and social sciences relating to water resource issues has made rapid advances in fact and theory in recent decades. The result has been a higher quality of knowledge available to large quantities of more diversified interests.

Criticism comes from academia, political leaders, special interest groups, the media, and private citizens. Resource economists who believe beneficiaries should bear the full costs of water development decry the transfer of any financial responsibility to the Treasury. Hydrologists and engineers criticize overdesign of projects and overdevelopment of rivers based on political rather than physical

factors. Environmentalists protest the destruction of natural environmental features by water projects. Students of public administration inveigh against the overlap, duplicity, and inefficiency of the multitudinous federal water agencies. To get applause today one need only stand before a crowd and rail the Corps or Bureau for their pork barrel projects. To do so is easier than facing the hard issues which face the federal programs and their future role and it denies the sound historical reasons for the programs to have developed the way they did. It is easy to cry, "Pork!" and deny the existing and future needs for water resource development.

Right or wrong the criticisms will continue and that is as it should be. To the extent traditional water politics is unable to accommodate these criticisms⁵ and the decision makers of the nation adopt the critics' views the effect on federal programs will be to contribute to their decline.

Lack of Political Support

Perhaps more than an individual source of stress the lack of political support for water resource projects may be the cumulative result of the aforementioned interrelated sources of stress. Nonetheless, a few points have not been made with regard to the potential depth and breadth of this lack of support. These points will be made here.

⁵ Many of these criticisms have been and are being addressed by the promulgation of more stringent and standardized evaluation procedures, e.g., the policy reforms of President Carter directly address many of the economic and environmental criticisms raised in recent years.

Traditional water politics have been characterized by mutual accommodation of localized interests on specific projects, the shifting of the burden of costs (including externalities) to taxpayers generally in amounts so small as to not be too controversial, flexible rules of participation constrained by some understandings of fairness and equity with principal decisions being made by the committees and ratified by the Congress. To this point eight sources of stress which have been introduced into the water politics arena have been discussed. On paper the arguments made here support the conclusion that political support for federal water resource development programs in general and the Corps program specifically is declining. The political base is eroding with the weakening of the historical rationale which increases with the passage of time.

While water development was once the key to the American growth ethic, other means of achieving this aim are available to the more diversified interests of contemporary American society. There are solar and fossil and nuclear fuel alternatives to hydropower. Construction interests can look to the interstate system, public housing, military installations, etc. as alternatives to water projects. Urban areas have numerous alternatives to water development to spur growth and commercial activity. Possibilities for recreation exist apart from the slackwater reservoirs of water projects.

An additional indication of the eroding political support for the Corps and other programs is the decline of the water development lobby groups. Arthur Maas in his book, Muddy Waters, devotes considerable discussion to the role of "group interests" or lobby groups in

traditional water politics. Among the pro-development groups he discusses are the Atlantic Deeper Waterways Association, the Ohio Valley Conservation and Flood Control Congress, the National Reclamation Association, the National Rivers and Harbors Congress, the National Water Conservation Conference, and others. The most powerful water development lobby in the nation's history is undoubtedly the National Rivers and Harbors Congress. Its membership consisted of state and local officials, industry, trade organizations, contractors, the entire United States Congress held honorary membership and the Corps of Engineers were ex officio members (Maas, 1951, p. 45, 46). In 1949 the president of the NRHC was Senator John McClellan of Arkansas who was a member of the Public Works Committee and the subcommittee of the Appropriations Committee which handled Corps funds. Many members of Congress were office holders or active members of the NRHC. The NRHC Projects Committee met annually for a few days preceding the NRHC annual conference. At its meeting the Committee would hold hearings on each project seeking the recommendation of the NRHC. The Committee would classify each project in one of several orders of priority being careful to maintain a fair and equitable distribution of projects throughout the country. The Committee's recommendations were presented to the NRHC for formal adoption and presentation to Congress. Congressmen and even the Corps often appeared before the Projects Committee along with local interests to support and describe projects.

From the perspective of water politics in 1981, five years since the last omnibus water resource development act, the political support represented by groups like the NRHC seem little more than a distant

nightmare or dream come true (depending on one's perspective). Where is that support now? Who is looking after the nation's water development interests the way the NRHC and others did? The answers are, it's gone and no one. Considering the intensely unified and supported base for water development in juxtaposition to the 1981 base of support one can clearly see the erosion in support and perhaps could even measure it by the dwindling numbers and muscle of the few remaining lobby groups.⁶ The decline in support for the Corps program is, perhaps, at no time more obvious than when one considers that the intensity of support once offered by numerous pro-development groups has given way to an increasing number of interests who oppose water development in general.

Gone or going from the political scene are the giants of water development who built their careers in this arena. With the gradual changes in the makeup of the Congress over time the old hands may have used up all the credit they built up in the water resource field over the years. New legislators just aren't building up the accounts in water resources anymore. There are no legislators like Senator Kerr, who sponsored over 30 water projects for his state of Oklahoma, entering the water field anymore. The enthusiasm just isn't there anymore. Despite the aggressive moves toward new missions for the Corps in the Northeast Water Supply Study and in the 1970 start on five regional waste water studies, these new missions have died on the political vine for lack of a viable political base.

⁶The NRHC continues in existence as the Water Resources Congress, a mere shadow of its predecessor. Today, the few remaining lobby groups are far less active than their predecessors.

From reading the literature and public documents one gets the feeling that a sense of adventure or excitement accompanied the water programs of years gone by. As has been previously mentioned, expanding the frontier, winning the West and taming nature created a national sense of adventure earlier in this century. There seemed to exist a political excitement about the technological accomplishments of earlier years, a sense that Congress and the nation were involved in doing something great, something of which they were proud. Despite the more or less perfunctory support which a few water bills have received on the floors of Congress in recent years, few would argue that either Congress or the nation is excited about or proud of water development. The point here is, hopefully, clear; there is not the support for the Corps there once was.

Related to the concept that the greatness of the water development program has passed is the fact that there does not seem to be any political enthusiasm for new directions in water programs. One explanation may be that the need for any type of water development is simply not recognized. If this were the case the problem would be failure to inform the public and its leaders. When rain is a common occurrence and rivers, lakes, and oceans a common sight it's not easy to convince someone that water is an important issue when they face gas lines, \$2 gallons of milk, meltdowns, and a one in four chance of dying of cancer. The deep rooted belief of water without limit still survives in an environment where too many important issues vie for our leaders' attention. A second explanation could be that the old distributive method of handling water problems cannot adapt itself to

encompass and address the nation's new needs and priorities. Whatever the explanation one does not see the political coalitions of support for issues such as replacing and renovating the decrepit water transport systems of our major cities, large interbasin transfers, water conservation, desalinization, saltwater intrusion of aquifers, water for energy, etc.

Summary

Many individuals and groups in our society are questioning the values which have generally governed many of our nation's policies, including its water policies. Doubts are being raised about continued development and continued pursuit of an increasing GNP. There is deep dissatisfaction with both the public and private decision making frameworks through which society makes its political, social and economic decisions. It is not yet clear what values, if any, will replace those under attack. New frameworks for decision making do not appear to be in the offing. We can, however, be certain that the need for water development activities requiring public support will continue. These needs will not be restricted to the traditional needs of deeper channels, irrigation water, flood free bottom lands, etc. They will be the needs of a new era in American history.

The current state of federal water resource programs and policies represent decades of experience in considering problems and needs which the people of those decades faced. Without these decades of soul-searching, debate, piecemeal legislation and change we could not find ourselves in our current position where we have the opportunity

to use water resource development and management to choose our future rather than to adapt to it. Water politics and policy based on past trends and practices are not meeting current needs and priorities. This is not a phenomenon of the 1980s. Congressman Aspinall on July 16, 1968 said:

The tight budgeting situation, opposition from conservation groups, and the heavy urban complexion of the country combine to make for lean pickings for water resource projects.⁷

Senator Domenici on March 5, 1981 speaking about the national approach to water resource development told the Senate in Congress:

The scope of the program continues to shrink; spending on construction projects of the Corps of Engineers is half of what it was a decade and a half ago in real dollars

How we develop a rational program which commands the confidence of the public, a program that meets the needs of this country and the growing water shortages, may be the major resource issue of the 1980s.

On that same day Senator Moynihan recounted recent national experience in water resources.

It is a chaotic and idiosyncratic system of economic and resource development, producing a random array of benefits more responsive to the vagaries of seniority in the U.S. Congress than anything else.

These few selected quotes indicate that at least some members of Congress share the view that the federal role and, therefore, the Corps role in water resource development is declining. The political phenomenon which the stresses presented here may be producing could well be the death rattle of pork barrel water politics as we know it. Before one cheers or sheds a tear it is important to bear in mind that pork barrel water politics have served this nation exceedingly well in the

⁷ Grand Junction Sentinel (Colorado).

past in terms of achieving the objectives of the time. Today, the pork barrel system is under stress from many directions. If pork barrel distributive politics can adapt to the serious challenges presented here in the future there is no doubt in this writer's mind that the nation's new objectives in water development will also be met. Pork barrel will always have its critics. However, if, as is more likely the case, pork barrel distributive politics cannot survive the challenges of the present and the future, there must be change in federal water politics and federal water policy.

The preceding lengthy discussion has made an argument for believing that the federal role in water resource development in general is in a state of decline. The remainder of this study will seek to definitively determine whether or not the Corps of Engineers water resource program has been declining over the period 1950 through 1980 as the foregoing arguments would suggest.

CHAPTER 4

ANALYSIS OF APPROPRIATIONS DATA

Perhaps the best measure of the political fortunes of the Corps' program, or any other governmental program for that matter, is the dollars that are appropriated to it by the Congress. It is clear that the Corps' role in the planning, construction, operation and maintenance of water resource projects is directly related to the amounts of money available to perform these functions. Appendix A discusses the manner in which Corps projects are funded. This chapter consists of a quantitative analysis, to determine whether, in fact, appropriations are declining. Appendix B presents a chronological look at the appropriations acts affecting the Corps during the period of study.

Appropriations made by Congress for Corps programs are, in recent years, part of a public works appropriations act which includes funds for several programs in addition to the Corps'. The appropriations data analyzed and discussed in this chapter are Corps appropriations only.

The diversity of project purposes within the Corps program and the diversity of project types produced by the Corps program are easily reduced to the common denominator of dollars. The money appropriated to the Corps by Congress is a clear indication of the political value judgments being made with regard to the Corps role in water resource development. If the Corps role in water development was seen as politically unnecessary or undesirable the simple solution would be to

appropriate no funds. If the Corps role was seen as being of paramount political importance funds for the construction of all projects would be appropriated. The reality of the Corps role in water development lies somewhere on a continuum between these two extremes. It is reasonable to expect that the Corps position on that continuum has and will change over time. The purpose of this chapter is to try to determine any significant or systematic patterns of change over time.

Current Dollars Analysis

Table 3 presents a summary of Corps appropriations data for the period 1950 through 1979. It is obvious from this table that Corps appropriations have risen rapidly in absolute terms in every category of construction activity and "other work", which includes operation and maintenance, planning investigations and miscellaneous activities. In the 155-year period from 1824 through 1979, 86 percent of the \$43.9 billion appropriated for Corps activities was appropriated during the 30-year period from 1950 through 1979. Total appropriations over this 30-year period have ranged from a low of \$427 million in 1954 to a high of \$2,790 million in 1979 (neglecting the 15 month fiscal year 1976), this represents a six-fold increase in the level of appropriations. Total appropriations grew at an average rate of 6.0 percent annually over the 30-year period.¹ This increase has been steady though not constant, having shown declines in nine years. The lowest five-year average of \$532 million occurred from 1952 to 1956, years

¹The compound annual growth rates presented here and elsewhere in this study have been estimated by means of a time series regression analysis using a semilog transformation. This analysis is described in Appendix C. Regression results referenced throughout this study are presented in Appendix D.

TABLE 3
CORPS APPROPRIATIONS HIGHLIGHTS FOR FISCAL YEARS 1824-1979
(\$ MILLIONS)

FISCAL YEAR	NAVIGATION	FLOOD CONTROL -TOTAL	FLOOD CONTROL -MISSISSIPPI ¹	MULTIPLE-PURPOSE	BEACH EROSION CONTROL	TOTAL CONSTRUCTION	OTHER WORK ²	TOTAL APPROPRIATIONS	CONSTRUCTION FUNDS AS % OF TOTAL
1824-									
1950	1,956	1,663	640	768	0	4,387	1,737	6,124	72
1950	60	231	52	240	-	531	110	641	83
1951	48	173	47	296	-	517	102	619	84
1952	47	151	46	278	1	477	140	617	77
1953	31	148	45	272	-	451	111	562	80
1954	25	82	37	208	-	315	112	427	74
1955	42	91	31	204	-	337	107	444	76
1956	88	143	37	211	3	445	167	612	73
1957	135	212	47	157	1	505	134	639	79
1958	141	226	44	126	-	493	146	639	77
1959	190	278	52	190	1	659	157	816	81
1960	209	286	52	215	1	711	162	873	81
1961	211	286	55	258	1	756	180	936	81
1962	204	325	55	237	1	767	208	975	79
1963	204	353	53	266	2	825	221	1,046	79
1964	216	387	54	259	1	863	234	1,097	79
1965	274	453	52	266	3	996	258	1,254	79
1966	306	419	57	323	3	1,051	279	1,330	79
1967	280	419	58	323	2	1,024	269	1,293	79
1968	275	424	59	324	2	1,025	280	1,305	79
1969	210	408	41	304	1	932	314	1,246	75
1970	190	340	50	247	5	791	366	1,157	68
1971	185	419	53	297	1	902	408	1,310	69
1972	212	469	53	390	4	1,075	514	1,589	68
1973	264	631	77	379	3	1,277	675	1,952	65
1974	193	650	212	288	3	1,134	636	1,770	64
1975	221	580	122	287	10	1,098	659	1,757	63
1976 ³	358	1,004	158	479	10	1,851	992	2,843	65
1977	261	859	173	464	16	1,600	887	2,487	64
1978	357	895	188	455	12	1,719	1,070	2,789	62
1979	395	802	158	358	12	1,567	1,223	2,790	56
1950-									
1979	5,850	12,144	2,096	8,601	99	26,694	11,121	37,815	71
TOTAL	7,806	13,807	2,736	9,369	99	31,081	12,858	43,939	71

¹Flood control on the Mississippi River and tributaries, this is included in total flood control.

²Operation and maintenance, surveys, administration, and miscellaneous.

³Covers period from 1 July 1975 through 30 September 1976.

SOURCE: Annual Reports of the Chief of Engineers.

where appropriations were affected by concern over the Korean conflict. The highest five-year average of \$2,533 million occurred during 1975 through 1979 when appropriations were affected by concern over inflation and President Carter's hit list. Five-year moving averages have been computed to dampen the effects of annual fluctuations.

Appropriations for all new construction work have ranged from a 1954 low of \$315 million to a high of \$1,719 million in 1978. Eighty-six percent of the \$31.1 billion appropriated for construction since 1824 has been appropriated during the period 1950 through 1979. The steady increase in total construction funds has fluctuated through declines in 12 years while the relative importance of construction funding to the Corps program as a percent of total appropriations has declined over the 30-year period. The 1970s have been a period of relative decline in the importance of the Corps construction program as construction funds averaged 64 percent of total Corps funds over this period compared to an average of about 79 percent during the first 20 years of this period. Without intending to necessarily imply a cause and effect relationship it is interesting to note that the impacts of "environmental legislation " such as the Wild and Scenic Rivers Act of 1968 and the National Environmental Policy Act of 1970 would first begin to show up in the 1970s. These impacts, and those of subsequent policy developments, for example, the promulgation of the Principles and Standards, could have had a double effect. First, laws and guidelines may have acted to curtail the number of projects constructed, a point made in Chapter 2. Second, these laws and guidelines caused an increase in the cost of survey investigations for construction projects and in environmental studies for the administration of the Corps permit programs.

Nevertheless, it is interesting to note that the 30-year average of construction funds as a percent of total funds is 71 percent. This compares favorably to the average of 72 percent for the 125-year period preceding the last 30 years. Without more detailed data on the earlier years one can only speculate on the significance of this fact and there are two basic directions in which one can speculate. This favorable comparison may simply be a chance occurrence. It is possible that the yearly average prior to 1949 had a smaller standard deviation and stuck closely to the average of 72 percent while the next 30 years fluctuated through a period of relatively intense construction activity followed by a shift in relative activity to other areas of the Corps program which by chance averages out to 71 percent. The alternative is that cyclical or chance fluctuations in the relative importance of construction activities are the rule rather than the exception. If this is true there may be no significance to the relative declines in construction activity during the 1970s.

Lest the foregoing paragraph confuse the issue here it bears repeating that only the relative importance of construction, as measured by the percent of total funds appropriated for construction, is declining during the Seventies. In absolute terms the construction program was growing rapidly. Over the 30-year period new construction appropriations grew at a compound annual rate of 4.9 percent.

Breaking total construction down into its component parts of navigation, flood control, multiple-purpose projects including power, and beach erosion control absolute growth is persistent in all categories. Navigation construction appropriations experience an eight-fold increase from the 1954 low of \$25 million to the 1979 peak of

\$395 million. Growing at an annual rate of 7.2 percent over the 30-year period 75 percent of all navigation construction funds were appropriated during this time. Flood control experienced a ten-fold increase from \$82 million in 1954 to \$895 million in 1978. Growing at an annual rate of 6.8 percent, 88 percent of all flood control construction funds were appropriated during this 30-year period. Flood control construction was subdivided to allow separate consideration of construction on the Mississippi River and its tributaries, the cornerstone of flood control for the Corps. Here a seven-fold increase from \$31 million in 1955 to \$212 million in 1974 is achieved. About 77 percent of all such construction funds were appropriated from 1950 through 1979. Flood control was the largest construction activity during the period of study with \$12.1 billion appropriated, accounting for almost half of all construction appropriations. Appropriations for construction of multiple-purpose projects including power grew at an annual rate of 3.3 percent and ranged from a low of \$126 million in 1958 to a high of \$464 million in 1977. About 92 percent of all funds appropriated for this purpose was appropriated during this period. Beach erosion control, as a Corps construction purpose was born during the period of study.

Appropriations for other work, i.e., operation and maintenance, survey investigations, administration and miscellaneous, purposes underwent a twelve-fold increase from a 1951 low of \$102 million to a 1979 peak of \$1,223 million. Appropriations for these non-construction activities grew at an annual rate of 8.7 percent with 87 percent of the total of \$12.9 billion funds appropriated for this work being appropriated during the period 1950 through 1979.

A subcategory of "other work" of particular interest is the money appropriated for general investigations. General investigations consist of three subcategories: surveys, by far the largest of the three categories, collection and study of basic data, and research and development. This category is of interest because the surveys conducted in this category form the basis for future construction works. Therefore, funding for general investigations may be a useful indicator of the potential for future construction insofar as these surveys identify projects that are economically, environmentally, technically, socially and politically feasible. With a period of record from FY 1954 through FY 1980 appropriations for general investigations increased about fifty-fold from a 1954 low of \$3 million to a 1980 peak of \$142 million. During the period of record funds for general investigations increased at an annual rate of 13.9 percent.

This phenomenal growth in funds appropriated for general investigations on the surface may seem to suggest that continued project construction in the future will be supported by the pool of feasible projects which inevitably will result from such a large program of general investigations. Before succumbing to this interpretation a few matters must be considered. First, the funds appropriated for general investigations, shown in Table 4, are used for three purposes. One of these, the collection and study of basic data includes the Corps flood plain investigation reports program which has increased substantially during the latter third of the period of study. Neither these reports nor the research and development function will directly lead to future construction projects. In addition, an unknown amount of the survey funds is used to do resurveys of existing reports which

TABLE 4
 GENERAL INVESTIGATION APPROPRIATIONS FOR FISCAL YEARS 1954-1980
 (\$THOUSANDS)

FISCAL YEAR	AMOUNT	FISCAL YEAR	AMOUNT	FISCAL YEAR	AMOUNT
1954	\$2,868	1963	\$17,870	1972	\$50,714
1955	2,908	1964	19,115	1973	57,805
1956	6,040	1965	22,194	1974	56,142
1957	9,322	1966	25,465	1975	65,284
1958	10,780	1967	32,450	1976	83,946*
1959	10,189	1968	34,445	1977	71,920
1960	10,481	1969	30,015	1978	107,046
1961	12,023	1970	41,191	1979	137,978
1962	15,877	1971	39,024	1980	142,145

*Covers period from 1 July 1975 through 30 September 1976.

SOURCE: Public Works Appropriations Acts.

were earlier found to be infeasible or were not completed for other reasons. As mentioned in Appendix A many authorizations are simply restudies. This practice of taking an existing study off the shelf, dusting it off and updating it offers limited promise for new construction projects. If the project was infeasible at an earlier time there may be as many or more changes increasing its infeasibility as there have been changes to increase its feasibility. The bottom line is that an unknown amount of general investigation funds is actually utilized to study potentially new projects but this amount is certainly far less than the total amount of general investigation funds. This fact limits the inferences that can be made from the GI funding levels. One cannot look at these data and assume the Corps is identifying a growing pool of potential construction projects. However, given the absolute magnitudes of increase in GI funds it is clear and significant that planning to identify feasible projects for the future is not declining. Though it is probably safe to infer an increase in the Corps planning activities, doing so based on the data presented here cannot be quantitatively supported.

Based on the above analysis of Corps appropriations during the period 1950 through 1979 it is quite clear that all aspects of the Corps program have been growing in absolute terms. Current dollar appropriations data do not support the hypothesis that the Corps role in water resource development is declining. Table 5 summarizes the positive growth aspects of the data considered in the preceding paragraphs.

TABLE 5
SUMMARY OF CORPS APPROPRIATIONS GROWTH 1950-1979

APPROPRIATIONS ITEM	AVERAGE ANNUAL GROWTH RATE ¹	PERCENT OF TOTAL FUNDS APPROPRIATED 1950-1979
Navigation	7.2%	75
Flood Control	6.8%	88
Multiple Purpose	3.3%	92
Beach Erosion Control ²	-	100
Total Construction	4.9%	86
Other Work	8.7%	87
Total Appropriation	6.0%	86

¹For a proper interpretation of these growth rates see Appendix A.

²Not statistically significant.

Though absolute growth is being experienced in every category these data need closer scrutiny. Cumulative total appropriations to the Corps through 1949, a period of 125 years, equal \$6.1 billion. In just ten years this total had doubled to \$12.1 billion. Eleven years later the total doubled again to \$24.7 billion. By 1981 there will be another doubling. Though current dollar data suggest an increasing role in water development as measured by appropriations the eleven year doubling period and common sense suggest that inflation may be a confounding variable in the analysis of the Corps program. The effects of inflation are controlled for in the following section.

Constant Dollars Analysis

Table 6 presents a summary of constant dollar appropriations for total appropriations, construction appropriations and non-construction

TABLE 6
 CONSTANT DOLLAR CORPS APPROPRIATIONS FOR FISCAL YEARS 1950-1979
 (MILLIONS OF 1980 DOLLARS)

FISCAL YEAR	TOTAL CONSTRUCTION	OTHER WORK	TOTAL APPROPRIATIONS
1950	\$3,479	\$ 721	\$4,200
1951	3,176	627	3,802
1952	2,777	815	3,592
1953	2,496	614	3,110
1954	1,661	590	2,251
1955	1,694	538	2,232
1956	2,131	800	2,931
1957	2,309	613	2,922
1958	2,151	637	2,788
1959	2,742	653	3,395
1960	2,838	646	3,484
1961	2,927	697	3,624
1962	2,887	783	3,670
1963	3,011	807	3,817
1964	3,040	824	3,864
1965	3,380	875	4,255
1966	3,419	908	4,329
1967	3,172	833	4,005
1968	2,981	814	3,795
1969	2,489	839	3,328
1970	1,930	893	2,822
1971	1,969	891	2,859
1972	2,087	998	3,086
1973	2,266	1,198	3,464
1974	1,875	1,051	2,926
1975	1,680	1,008	2,688
1976	1,997	1,070	3,067
1977	2,010	1,114	3,124
1978	2,004	1,248	3,252
1979	1,689	1,318	3,007
TOTAL	74,267	25,423	99,689

or other work appropriations in 1980 dollars. All constant dollar values used in this study are 1980 dollar values. The Engineering News Record Construction Cost Index was used to convert the values of Table 3 to constant dollars after averaging the annual indices to reflect the fiscal year price levels.

Constant dollar appropriations for construction range from a low of \$1.7 billion in 1975 to a peak of \$3.5 billion in 1950. Considering that the 1979 construction appropriation is also \$1.7 billion construction appropriations when controlled for inflation show a trend opposite to the current dollar increases examined in the previous section. The lowest five-year average for this period occurred from 1975 through 1979 when construction appropriations averaged \$1.9 billion. The highest average of \$3.2 billion occurred from 1963 through 1967. This maximum average followed President Kennedy's vow to end the no new starts policy of the Eisenhower era which followed the distractions of the Korean conflict. It is hypothesized, without proof, that the occurrence of the minimum average in the five most recent years is a result of the convergence of the stresses to water development politics discussed in detail in Chapter 3.

Real construction appropriations have declined at an average annual rate of 1.1 percent over the period of study. Though definitive determination of the cause(s) of the trend in the Corps' construction program is beyond the scope of this study some effort was made to insure that construction funds did not simply follow the general condition of the economy. To test the hypothesis that Corps

construction funds are a function of economic conditions several specific hypotheses, summarized in Table 7, were tested.

Unemployment was the first independent variable tested, on the theory that Corps construction funds were handled as a fiscal tool to stimulate employment, an argument made by some congressmen. GNP and national income were used to test the theory that funding was related to the general state of economic activity. Budget outlays were used to test the hypothesis that construction funds were directly related to overall federal government activity. GPDI, public and total construction were tested as independent variables on the basis of the theory that investment in water resources is directly related to the economic, political and other factors which determine levels of other types of investment in general and construction in particular. As can be seen from the table all the monetary variables show a reasonable, strong and statistically significant relationship to the dependent variable of construction appropriations when all variables are measured in current dollars. Numerous modifications to and combinations of the variables were tested with no significant improvement in the relationships.

When the regression variables were converted to constant dollars to control for the effect of inflation five of the equations resulted in coefficients of unexpected sign. The predictive value of the time series data for all the equations was extremely poor as all the relationships tested prove to be either nonsensical or weak.

The most feasible explanation is that the strong correlation between construction funding and the other variables measured in current

TABLE 7

REGRESSION RESULTS

Dependent Variable: Current Dollar Corps Construction Appropriation¹ (\$ millions)

			Additional Construction Funds Per Change in Independent Variable
Regression 1:	156.0 + .1776 Unemployment (1000s of people) (1.1) ² (5.4)	R ² = .51	\$0.2 million/1000 unemployed persons
Regression 2:	332.1 + .6216 Gross National Product (\$ billions) (6.8) (13.3)	R ² = .86	\$.0006/\$1 GNP
Regression 3:	325.7 + .7745 National Income (\$ billions) (6.9) (13.4)	R ² = .87	\$.0008/\$1 national income
Regression 4:	388.1 + .0028 Budget Outlays ((\$ thousands) (8.1) (12.5)	R ² = .85	\$.03/\$1 budget outlays
Regression 5:	343.3 + 3.9319 Gross Private Domestic Investment (7.2) (13.4) (\$ billions)	R ² = .86	\$.004/\$1 GPDI
Regression 6:	161.1 + 30.1876 Total Public Construction (2.6) (13.0) (\$ billions)	R ² = .86	\$.03/\$1 public construction
Regression 7:	278.1 + 6.7852 Total All Construction (\$ billions) (5.2) (13.0)	R ² = .86	\$.007/\$1 total construction

∞

¹All monetary variables are current dollar values.²T-statistics given in parenthesis, n = 30 for all regressions (1950-1979).

TABLE 7 (continued)

REGRESSION RESULTS

Dependent Variable: Real Dollar Corps Construction Appropriations (\$ millions)³

Regression 1:	3300.4 - .2030 Unemployment (1000s of people (12.7 (-3.4)	$R^2 = .29$
Regression 2:	3305.0 - .4943 Gross National Product (\$ billions) (9.4) (-2.5)	$R^2 = .18$
Regression 3:	3226.7 - 127.953 National Income (\$ billions) (9.2) (-2.2)	$R^2 = .15$
Regression 4:	3232.0 - .0023 Budget Outlays (\$ thousands) (11.3) (-2.8)	$R^2 = .22$
Regression 5:	3137.4 - 2.5416 Gross Private Domestic Investment (\$billions) (8.8) (-1.9)	$R^2 = .12$
Regression 6:	6.8 + 28.1258 Total Public Construction (\$ billions) (.9) (2.5)	$R^2 = .18$
Regression 7:	5.6 + 8.3142 Total All Construction (\$ billions) (.3) (1.1)	$R^2 = .04$

³All monetary variables are constant 1980 dollar values.

dollars is based on the commonality of inflation. The fact that all constant dollar relationships are insignificant provides strong evidence that levels of Corps construction funds are not determined by economic factors. This would support the arguments of Chapter 3 which assert that political values and distributive politics have historically determined the level of funding.

The breakdown of total construction appropriations into its component parts mirrors the overall trend in each of the project purposes. Table 8 presents a summary of the real average annual growth of Corps appropriations.

TABLE 8
SUMMARY OF REAL APPROPRIATIONS GROWTH 1950-1979

APPROPRIATIONS ITEM	REAL AVERAGE ANNUAL GROWTH RATE ¹
Navigation ²	-
Flood Control ²	-
Multiple Purpose	-3.7%
Beach Erosion Control ²	-
Total Construction	-1.1%
Other Work	2.4%
Total Appropriations ²	-

¹For a proper interpretation of these growth rates see Appendix C.

²Not statistically significant, some results presented in Appendix D.

Negative growth rates of the magnitude from 0.1 percent to 1.0 percent were estimated for the components not reported above. Though a negative trend in the component data not reported can be inferred the fluctuations are such as to mask any statistically significant trends. What

is of interest is the strong and significant decline in multiple-purpose project construction. This trend is strong enough to override the ambiguity of the other project purpose trends and to tip the overall construction program into a statistically significant negative trend. At a minimum the data show that the multiple purpose dam era is declining and suggest that construction for other purposes, while apparently declining, is not yet in any statistically significant trend.

The inescapable conclusion of this analysis of constant dollar construction funding for the Corps water development program is one of significant real decline in the Corps' construction program over the last 30 years. Explanations for this decline are suggested by the stresses discussed in Chapter 3, the cause(s) for this decline has (have) not been proven.

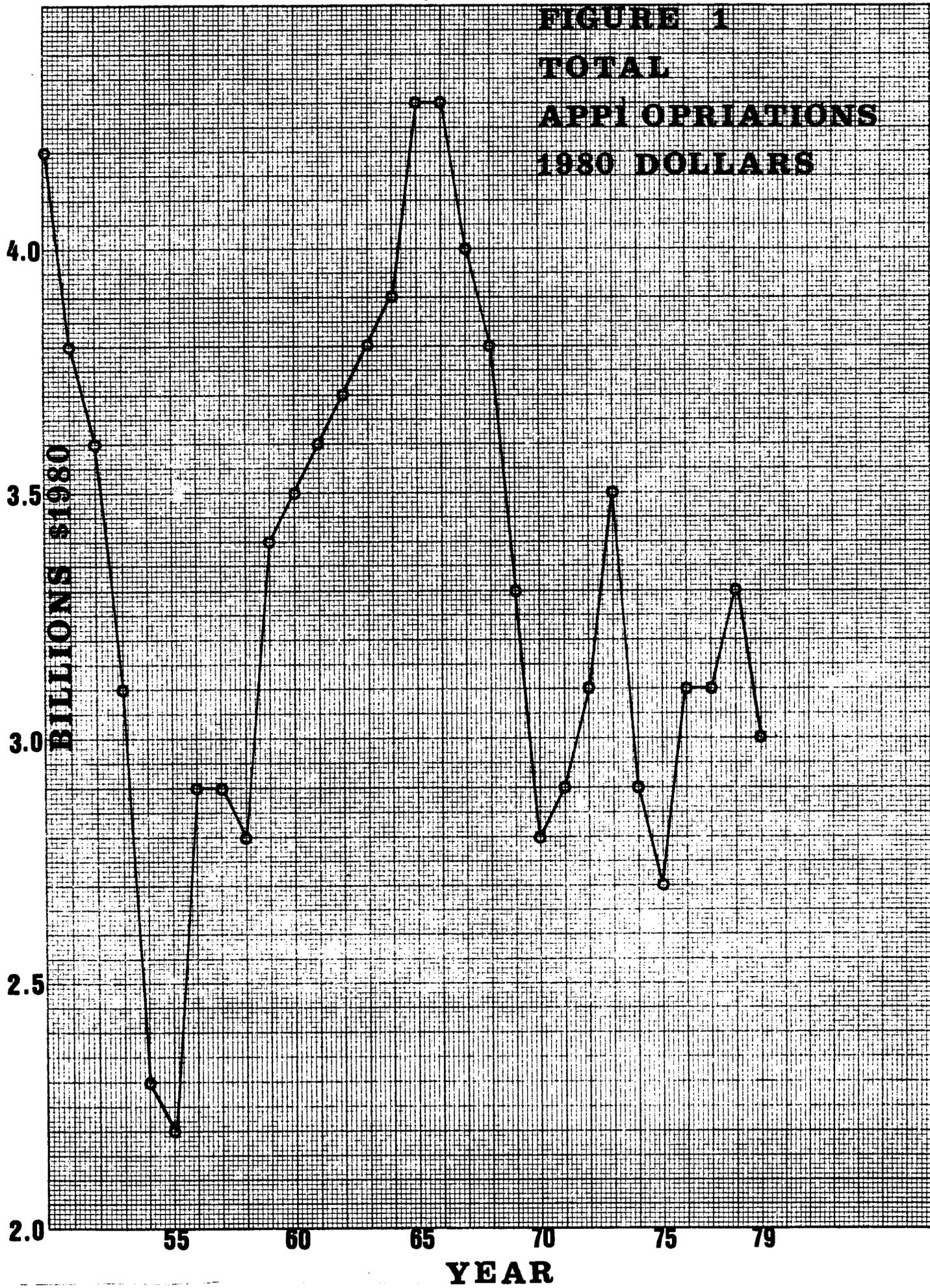
Constant dollar appropriations for the Corps non-construction work have about doubled over the period of study. Ranging from a low of \$0.5 billion in 1955 to a peak of \$1.3 billion in 1979, constant dollar appropriations for this work have grown at an average annual rate of 2.4 percent. The lowest five year average of \$0.6 billion occurred during the Eisenhower years from 1957 through 1961. The highest average of \$1.2 billion occurred in the most recent five years from 1975 through 1979.

Operation and maintenance funds, the major component of non-construction activities and the Corps budget, have risen from under \$0.1 billion in 1957 to \$0.8 billion in 1979. This increase in O & M funds is readily explained by inflation and the fact that as projects become older and new projects are completed the need for O & M funds

increases. This phenomenon of growing O & M requirements in part explains the relative decline in the role of construction funds discussed in the previous section. Coupled with the increase in constant dollar general investigation funds from a low of \$15 million in 1954 to \$142 million in 1979, an average annual growth of 6.9 percent annually, real non-construction activities have been rising at a time when real construction activities have been falling.

With construction funding declining and other funds increasing total funding reflects the ambiguity that might be expected by combining an increasing trend with a decreasing trend. The 1955 low of \$2.2 billion is approached again in the middle seventies. The 1966 peak of \$4.3 billion, during the Johnson years, leads to a five-year average high of \$4.1 billion which corresponds exactly with the five-year maximum for construction funds, 1963 through 1967. The five-year low average from 1954 through 1958 overlaps the low average for other work. Almost 100 billion 1980 dollars were appropriated during this 30-year period. Figure 1 illustrates the cyclical nature of constant dollar total appropriations. It is of interest that despite the cyclical nature of these appropriations the peaks of the cycles are declining significantly.

Strict number crunching yields a statistically insignificant average annual decline of 0.1 percent in total appropriations. The reader is invited to draw his own conclusions based on the data in Table 6, Figure 1, and Appendix D. Nevertheless, the lack of any significant trend in total appropriations can be understood by considering its two major components with opposite trends. In addition, the lack of a trend in total appropriations may be significant



to the extent that it points out the absence of any clear policy or direction on the part of Congress for the Corps program. A strong increase in real appropriations would indicate strong support and commitment by Congress for the Corps program. A strong decline in real appropriations would indicate the opposite. The lack of any discernible trend is perhaps most telling for the recent position of Congress on the Corps program. It is possible that, as with the data in Figure 1, sometimes Congressional support is up, sometimes it's down. The following section will round out consideration of total Corps appropriations data.

Relative Analyses of Appropriations

The preceding sections have considered the absolute trends of Corps appropriations measured in both current and constant dollars. There are other trends which provide some insight into what has been happening to the Corps program in recent years. These are relative trends. Beginning with the most inclusive measure of American value choices as measured in the market place, gross national product, we find the ratio of Corps total appropriations to GNP has fallen from about 0.2 percent to about 0.1 percent over the period 1950 through 1979. This indicates a decrease that is not suggested by the data previously presented. It is obvious that the overall importance of the Corps program as part of the GNP, though minimal to begin with, has declined sharply in the last 30 years. The Corps civil works appropriations may be the most controversial tenth of a percent in the economy. Relative to general economic activity the Corps water resource development program over the last 30 years has been cut in half.

Over the period of study a 1 percent increase in current dollar GNP has been accompanied by a 1.4 percent increase in current dollar budget outlays and a 0.5 percent increase in current dollar appropriations to the Corps. This relatively inelastic "demand" for the Corps program is another indication of relative decline.

Corps appropriations as a percent of federal budget outlays have fallen from 1.5 percent to 0.6 percent. This declining share of the budget indicates that the Corps program is occupying a relatively less important role in the total mix of goods and services provided by the federal government than it once did, another indication of relative decline.

When population increases over the last 30 years are considered real appropriations per capita for both total and construction appropriations are declining. Construction funds per capita have fallen by two-thirds from \$23 in 1950 to \$8 in 1979. Per capita total appropriations have been halved to \$13. Real per capita appropriations for other work have risen over the same period. On a national per capita basis, the Corps construction and overall programs have declined drastically. Table 9 summarizes the data referenced above.

Regional Analysis of Corps Appropriations

The results of the foregoing analyses, to this point, have indicated an absolute decline in real appropriations for the Corps construction program, a probable absolute decline in the overall program, and a relative decline in the construction and overall program by several measures. The remaining task of this chapter will be to examine the Corps total appropriations from a regional perspective.

TABLE 9
 RELATIVE ANALYSES OF CORPS APPROPRIATIONS 1950-1979
 (\$ MILLIONS)

	1950	1960	1970	1979
Construction appropriations current \$s	\$531	\$711	\$791	\$1,567
Other appropriations current \$s	110	162	366	1,223
Total appropriations current \$s	641	873	1,157	2,790
Construction appropriations 1980 \$s	\$3,479	\$2,838	\$1,930	\$1,689
Other appropriations 1980 \$s	721	646	893	1,318
Total appropriations 1980 \$s	4,200	3,484	2,822	3,007
Population estimate (millions)	152.3	180.7	204.9	225.0
Real construction appropriations per capita	\$22.84	\$15.71	\$9.42	\$7.51
Real other appropriations per capita	4.74	3.58	4.36	5.86
Real total appropriations per capita	27.58	19.29	13.78	13.37
Gross national product current \$s	\$286,200	\$506,000	\$982,400	\$2,368,500
Budget outlays current \$s	\$42,597	\$92,223	\$196,588	\$493,673
Total appropriations as % of GNP	0.22	0.17	0.12	0.12
Total appropriations as % of B.O.	1.50	0.95	0.59	0.57

SOURCE: Economic Report of the President January, 1980.
 Statistical Abstract of the United States, 1979.

Table 10 presents a summary of total Corps expenditures on construction and maintenance for the four major geographic regions of the country and nine subregions for the decades indicated. Map 1 shows the relative distribution of expenditures by state. During the last 31 years about 45 percent of all expenditures were made in the South with about one-fourth each in the North Central and Western Regions. The North East received less than 8 percent of all expenditures. Over the period the South's percentage share of expenditures increased while all other regional shares decreased.

Breaking the regions down into subregions the West South Central states of Arkansas, Louisiana, Oklahoma and Texas received 21.1 percent of total expenditures for construction and maintenance making the lower Mississippi basin the heartland of the Corps program. Conversely, New England and the Middle Atlantic states with almost three times the population of this "heartland" receive less than eight percent of Corps funds. To test the hypothesis that the distribution of construction dollars was related to need, a regional analysis of how the percentage of total construction and maintenance expenditures were distributed relative to population and surface area was done. This was done on the assumption that the need for water resource development is in some way related to the number of people and/or the area requiring water. The data are summarized in Table 11. Among the subregions only the North Central seems to have received expenditures proportional to its population and area. The South received expenditures disproportionately large for its population and area. The West received an expenditures share larger than its population share but smaller than its proportionate area. The North East received a share disproportionately smaller than its

TABLE 10
 REGIONAL ANALYSIS OF CORPS EXPENDITURES 1950-1980
 (\$ THOUSANDS)

REGION ¹	1950s	1960s	1970s ²	1950-1980	% of Total 1950-1980
North East	\$ 504,936	\$ 902,732	\$1,721,468	\$3,129,136	7.9
North Central	1,765,381	2,668,105	5,043,786	9,441,272	23.8
South	2,272,575	4,933,167	10,524,288	17,730,030	44.7
West	1,641,935	2,436,055	5,326,416	9,404,406	23.7
TOTAL	6,184,827	10,940,059	22,615,958	39,704,844	
<u>SUBREGION¹</u>					
New England	\$ 164,292	\$ 263,764	\$ 421,296	\$ 849,352	2.1
Middle Atlantic	340,644	638,968	1,300,172	2,279,784	5.7
East North Central	530,609	1,220,493	2,421,990	4,137,092	10.4
West North Central	1,234,772	1,447,612	2,621,796	5,304,180	13.4
South Atlantic	644,936	1,120,640	2,747,228	4,512,804	11.4
East South Central	631,679	1,161,566	3,042,603	4,835,848	12.2
West South Central	995,960	2,650,961	4,734,457	8,381,378	21.1
Mountain	126,832	437,727	1,212,888	1,777,447	4.5
Pacific	1,515,103	1,998,328	4,113,528	7,626,959	19.2

¹The states included in these areas are listed in Appendix F.

²Includes 1980.

SOURCE: Department of the Army, Chief of Engineers, Civil Works Expenditures by State and Fiscal Year.

MAP 1: REGIONAL DISTRIBUTION OF CORPS CONSTRUCTION AND MAINTENANCE EXPENDITURES, 1950-1980.

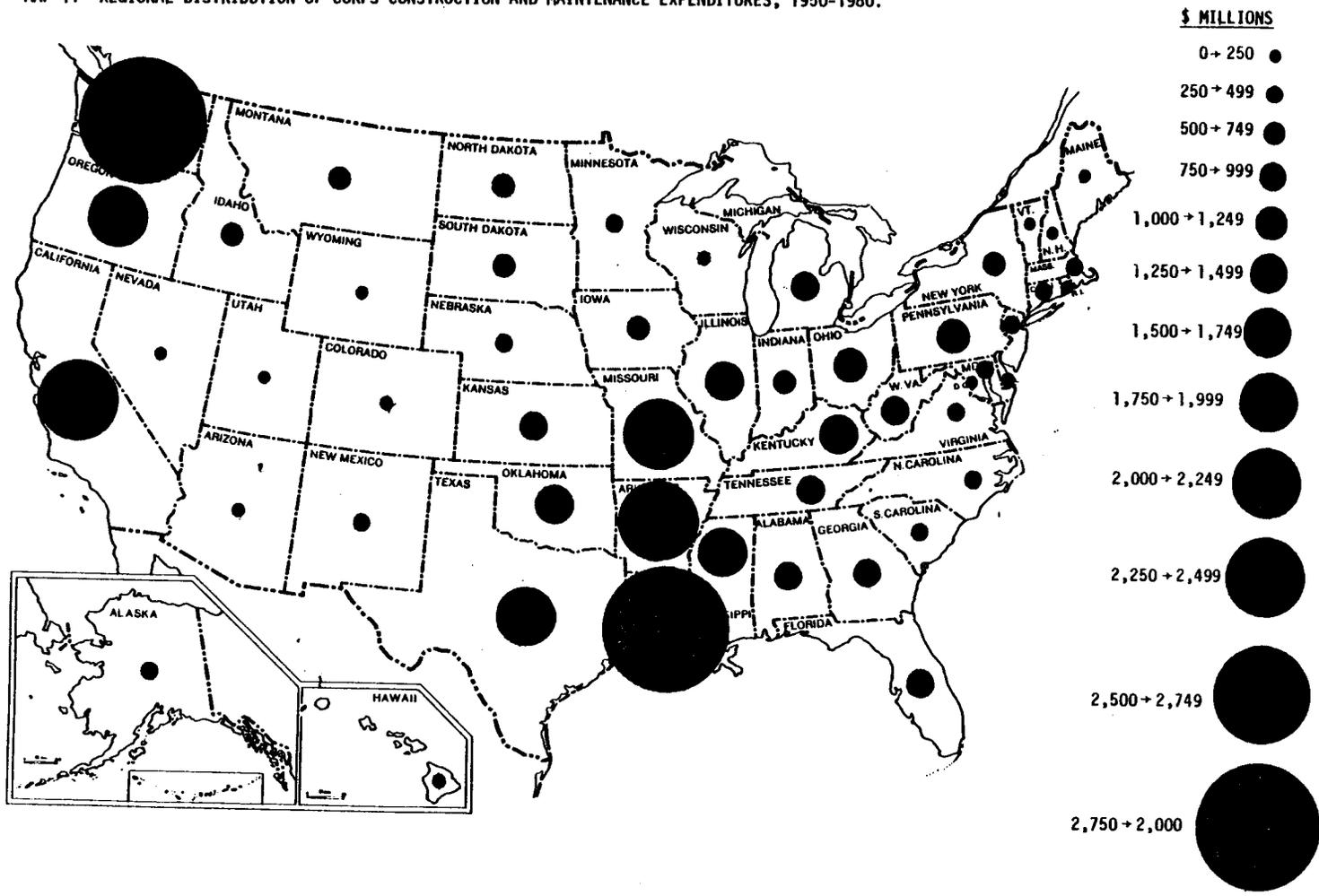


TABLE 11

RELATIVE DISTRIBUTION OF CORPS EXPENDITURES, POPULATION AND SURFACE AREA

REGION	PERCENT OF	PERCENT OF		PERCENT OF
	TOTAL EXPENDITURES 1950-1980	U.S. POPULATION 1950	1980	U.S. SURFACE AREA
North East	7.9	26.1	21.7	4.7
North Central	23.8	29.4	26.0	21.2
South	44.7	31.2	33.3	24.9
West	23.7	13.3	19.1	49.3
<u>SUBREGION</u>				
New England	2.1	6.2	5.5	1.8
Middle Atlantic	5.7	19.9	16.2	2.8
East North Central	10.4	20.1	18.4	6.9
West North Central	13.4	9.3	7.6	14.3
South Atlantic	11.4	14.0	16.3	7.7
East South Central	12.2	7.6	6.5	5.0
West South Central	21.1	9.6	10.5	12.1
Mountain	4.5	3.4	5.0	23.9
Pacific (less Alaska)	16.8	9.9	13.9	9.1
Alaska	2.5	0.1	0.2	16.3

population but larger than its area. It seems that regional expenditures are not directly related to population or area. This absence of a clear regional distribution of funds based on a population or area based need would lend credence to the theory that Corps expenditures, based on a known historic rationale, were made on the basis of distributive politics.

To test the possibility of the regional distribution of expenditures being related to population and/or area Spearman rank correlation coefficients were computed for expenditures and the three variables; 1950 and 1980 populations and surface area, listed in Table 11. By assigning ranks one through ten to the subregions for each of the four variables listed the strength of the correlation of ranks for the various pairs of variables can be computed. The Spearman rank correlation coefficients between expenditures and 1950 population, 1980 population and area are .41, .43, and .16—all statistically insignificant values. This means there is no systematic pattern in the distribution of expenditures explained by population or area. It is clear that Corps expenditures for construction and maintenance are distributed on some basis other than population and area.

Table 12 presents Corps cumulative expenditures data for construction and maintenance as of the years listed. Prior to 1950 the regional distribution of cumulative Corps expenditures was concentrated in the South with \$2.4 billion and the North Central region with \$1.5 billion. The North East edged out the West for third position, each with \$0.8 billion. During the 30-year period of study the most significant regional trend was the rising amount of Corps expenditures in the West which rose to third position with \$10.2 billion, in a virtual tie with the \$10.9 billion cumulative expenditures in the North Central Region.

TABLE 12
 CUMULATIVE CONSTRUCTION AND MAINTENANCE EXPENDITURES

REGION ¹	COMULATIVE EXPENDITURES THROUGH			
	1949	1959	1969	1980
North East	\$ 797,399	\$1,302,335	\$2,205,067	\$3,926,535
North Central	1,453,207	3,182,588	5,850,693	10,894,479
South	2,393,902	4,666,477	9,599,644	20,123,932
West	789,428	2,431,363	4,867,418	10,193,834
TOTAL	5,433,936	11,582,763	22,522,822	45,138,780
<u>SUBREGION¹</u>				
New England	\$ 178,716	\$ 343,008	\$ 606,772	\$1,028,068
Middle Atlantic	618,683	959,327	1,598,295	2,898,467
East North Central	809,992	1,304,601	2,525,094	4,947,084
West North Central	643,215	1,877,987	3,325,599	5,947,395
South Atlantic	629,425	1,274,361	2,395,001	5,142,229
East South Central	645,305	1,276,984	2,438,550	5,481,153
West South Central	1,119,172	2,115,132	4,766,093	9,500,550
Mountain	187,811	314,643	752,370	1,965,258
Pacific	601,617	2,116,720	4,115,048	8,228,576

¹The states included in these areas are listed in Appendix F.

SOURCE: Department of the Army, Chief of Engineers, Civil Works Expenditures by State and Fiscal Year.

The South had received \$20.1 billion in cumulative expenditures, almost equal to the total expenditures in the West and North Central regions. The North East is alone in the last position with \$3.9 billion in cumulative expenditures. From this table it can be seen that during the 1950s extensive development of the Pacific subregion's water took place. Development in California and the Columbia River basin accounted for this increase. The Pacific subregion jumped from seventh (of nine) in cumulative expenditures through 1949 to first through 1959 with \$1.5 billion in expenditures in one decade. The West North Central and East South Central also experienced expenditures over \$1 billion during the Fifties.

The story of Corps expenditures from 1950 through 1980 was the development of the West coast as a new area of water development and the continued strength of the Corps program in the Central and South Atlantic subregions. There has been a marked absence of Corps development activity in the Mountain states, due in large part to the Bureau of Reclamation's stronghold in these states, and in New England and the Middle Atlantic due to the rural nature of the Corps program. A previous stronghold of Corps activity, the East North Central subregion, dropped from second in 1950 to sixth in 1980 in cumulative expenditures.

Table 13 provides a final perspective on the regional pattern of expenditures by illustrating the wide disparity in per capita expenditures for water development.

During the 1950s per capita development was highest in the West due to development in the Pacific Northwest. In the next two decades per capita development was highest in the South followed by the West, North Central and North East regions. During the 1970s the South

TABLE 13
PER CAPITA EXPENDITURES FOR CONSTRUCTION AND MAINTENANCE¹

REGION	1950s	1960s	1970s ²
North East	\$12.00	\$ 19.27	\$ 35.07
North Central	36.75	49.32	87.37
South	44.49	83.78	152.37
West	68.07	77.51	136.63
United States	37.41	57.20	105.26
<u>SUBREGION</u>			
New England	\$16.58	\$ 23.60	\$ 34.83
Middle Atlantic	10.59	17.91	35.15
East North Central	15.93	31.92	59.13
West North Central	83.84	91.30	156.51
South Atlantic	27.35	39.57	81.26
East South Central	53.70	93.48	221.55
West South Central	63.26	146.17	219.88
Mountain	2.13	57.84	123.45
Pacific	83.45	83.75	141.07

¹To get per capita expenditures, expenditures for the decade were divided by the estimated average population obtained by averaging the census count from the two end years.

²Includes 1980 expenditures

received per capita expenditures of \$152, four and a half times larger than the North East's per capita expenditures of \$35. At the subregional level the top three recipients of Corps expenditures during the 1950s were the West North Central, Pacific and West South Central. During the 1960s the top three recipients were the West South Central, East South Central, and West North Central; during the 1970s they were the East South Central, West South Central, and West North Central. With the exception of the Pacific states in the 1950s Corps per capita expenditures have been greatest in the Central states along the Mississippi, Missouri and Ohio Rivers. Generally, the New England and Middle Atlantic states have benefited least in terms of per capita expenditures. It is interesting to note that in the 1950s the Mountain states were virtually ignored by the Corps.

Consistent with the previous discussion of "need", the South remains the primary beneficiary of Corps expenditures. The East South Central and Mountain subregions have made impressive gains in relative rank among all subregions while the West North Central and Pacific subregions have lost ground in terms of their relative rank from decade to decade. While one may be tempted to infer the Corps regional program emphasis shifts as rapidly as the per capita expenditures data this is not true. It has previously been established that there is no direct link between expenditures and population. The per capita analysis does tend to support the historic Southern and rural bias of the Corps program.

The significance of this regional analysis of the Corps construction and maintenance program lies in the fact that the Corps does have traditional regional strongholds for its programs and made an extensive move into the West coast states in the fifties. There are clearly

regions of the country which have been favored by the Corps program. Chapters 2 and 3 indirectly go into some of the historic rationale for this favoritism. The question of importance is, what will become of the Corps program when its traditional regions become fully developed within the technical, economic, environmental, social and political feasibility criteria of the future? There seems to be little evidence to suggest that the Corps, given the current makeup of its water development program, will be able to make inroads into other regions the way it did into the West coast. The Corps program does not serve the needs of the New England, Middle Atlantic and Mountain subregions. The inevitable result hinted at by this regional analysis is that the fortunes of the Corps total program will follow the fortunes of the Corps program in its traditional stronghold regions, all other things equal. Under its current program it seems reasonable to expect the the Corps national program will go the way of the Corps program in the South and along the Mississippi River.

CHAPTER 5

ANALYSIS OF NEW CONSTRUCTION STARTS

Omnibus authorization bills enacted by Congress provide a pool of potential projects from which the Congress can choose new projects for construction. This "choice" is made through separate legislation providing funds for constructing previously authorized projects. This two-step process lends itself to the identification of an interesting measure of the status of the Corps program. In the annual public works appropriations act there are normally a number of projects which receive construction funds for the first time. These projects are called new starts or new construction starts. Some new starts may be included in the President's budget, others which are not may be funded by Congress. The future of the Corps program obviously depends on the number of new starts. If the number of new starts is declining there will be less construction in the future and vice versa.

There is an additional dimension of new starts which is of some interest. This dimension is the estimated total federal cost of the project being initiated, the long term costs of the annual appropriations bills, which have been consistently criticized by water and inflation opponents through the years. The analysis of new start data is thwarted by the fact that reliable new start data is difficult to obtain. The analysis of source documents can be tedious and time consuming and when completed it may be a better indication of what

Congress wanted than what actually happened. Though not a significant factor in overall activity levels there can be adjustments, as discussed in Appendix A, made by the Chief of Engineers after an appropriation act or circumstances affecting the construction of a project can also change. For these and other reasons the new start data analyzed in this chapter are based on data for projects initiated since 1960 obtained from the Office of the Chief of Engineers, current as of 6 May 1981.¹

Table 14 presents a summary of new start data by year. The number of new starts range from a "hit list" low of zero in 1978 to a peak of 65 in 1963, following Kennedy's abrogation of Eisenhower's no new start policy (which wasn't successful). The estimated total cost of the new starts to the federal government range from the same 1978 low of zero to a peak of \$4.5 billion in 1971. During the 22-year period from 1960 through 1981 over \$30 billion in new construction work was initiated. No statistically significant trends in the new start data could be determined though there is clearly a decline in the number of projects initiated. Even without controlling cost estimates for inflation total costs associated with new starts for the six most recent years have been below the current dollar annual average for the 22-year period. This trend simply mirrors the decline in new starts which have been below the annual average for the last ten years.

¹To illustrate the difficulty of obtaining reliable new start data, revised new start data dated 29 May 1981 was obtained from the Chief of Engineers Office too late to incorporate into this study. Though the changes were minor they would have an effect on the number of new starts. The nature of the change was generally to revise the year in which a project was started. As a result there may be minor discrepancies in a few annual totals.

TABLE 14
 SUMMARY NEW START DATA 1960-1981
 (\$ Millions)

YEAR	NUMBER OF PROJECTS INITIATED	ESTIMATED TOTAL FEDERAL COST	AVERAGE COST PER NEW START
1960	42	\$ 561.4	\$13.4
1961	50	673.6	13.5
1962	52	735.4	14.1
1963	65	2,455.1	37.8
1964	54	866.9	16.1
1965	56	2,268.0	40.5
1966	56	2,297.5	41.0
1967	56	2,391.9	42.7
1968	35	362.2	10.3
1969	8	105.5	13.2
1970	42	1,652.1	39.3
1971	47	4,520.9	96.2
1972	24	655.0	27.3
1973	31	3,439.8	111.0
1974	21	1,979.1	94.2
1975	29	2,410.9	83.1
1976	21	979.7	46.7
1977	24	1,070.2	44.6
1978	0	0	0
1979	29	1,013.0	34.9
1980	18	607.6	33.8
1981	1	284.0	284.0
TOTAL	761	30,207.0	
ANNUAL AVERAGE	34.6	1,373.0	39.7

SOURCE: U. S. Army Corps of Engineers, Office of the Chief of Engineers.

An analysis of constant dollar trends in the costs of new starts, though desirable, was not feasible. The price levels which formed the basis for the individual cost estimates of each project cannot be known for the aggregated data. In aggregating the total cost estimates it is not unusual to combine estimates with different base price levels. For this reason a constant dollar analysis is not presented in detail. The difficulty in estimating constant dollar costs notwithstanding a rough comparison of the constant dollar values of the Seventies was made with the early Sixties values on the assumption that all price levels were current as of the year initiated. This comparison yielded a five-year low average of \$660 million (1980 dollars) from 1977 through 1981, a value which is less than 20 percent of the estimated constant dollar average for the twenty-two years. This estimated low average is one-tenth of the five-year high average of \$6,920 million. With the previous caveat on the validity of any constant dollar analysis in mind the orders of magnitude in the differences in values obtained by this rough comparison certainly support the conclusion that over the period from 1960 through 1981 the Corps water resource development role as measured by the number of new starts and their associated costs has declined.

The weakness of this analysis is that with the limited period of record it is not clear if either the high number of new starts during the Sixties or the low number during the Seventies are aberrations. To clarify this point a review of appropriations acts and supporting documents indicated that the number of new starts prior to 1960 generally ran much higher than those of the 1970s. This would tend to support the evidence of decline in the Corps construction program.

A regional analysis of the new start data is presented in Table 15. There is a significant amount of overlap between the expenditure dollars in the regional analysis of Chapter 4 and the new start costs of this chapter. However, there is one important difference in that an unspecified amount of the new start dollars have yet to be expended, i.e., they can be considered future or long term costs. This difference can give indications of future trends in Corps activities. For example, Table 15 like Table 12 indicates that the Southern region is the stronghold of the Corps program and the North East is the area of least activity. As with expenditures the North Central and West regions are virtually identical in the amount of new start federal costs.

TABLE 15
REGIONAL DISTRIBUTION OF NEW STARTS

REGION	FEDERAL COST OF NEW STARTS ¹	PERCENT OF TOTAL
North East	\$ 2,195,091,000	7.3
North Central	7,106,752,000	23.6
South	13,706,054,000	45.6
West	7,057,141,000	23.5
<u>SUBREGION</u>		
New England	\$ 383,556,000	1.3
Middle Atlantic	1,811,535,000	6.0
East North Central	4,047,709,000	13.5
West North Central	3,059,043,000	10.2
South Atlantic	3,265,623,000	10.9
East South Central	3,777,097,000	12.6
West South Central	6,663,334,000	22.2
Mountain	2,010,450,000	6.7
Pacific	5,046,691,000	16.8

¹Cumulative current dollars.

SOURCE: U. S. Army Corps of Engineers, Office of the Chief of Engineers.

CHAPTER 6

ANALYSIS OF PROJECT AUTHORIZATIONS

Appropriations bills and the construction projects they finance are generally dependent upon prior authorization of a project. Omnibus authorization acts provide a pool of projects for potential construction. Omnibus appropriations acts determine which projects from this pool are actually constructed. Nonetheless, the authorization acts are the heart of the Corps program. An unauthorized project may occasionally receive construction funds but this is a rare exception restricted to smaller projects relatively free of controversy. The fact is that if the Congress does not authorize Corps projects there will be no construction program.

While Congress' failure to enact an omnibus authorization bill since 1976 may have halted the supply of newly authorized projects to the Corps potential construction pool, the Corps role in the development of water resources is not at this time threatened by a lack of authorized feasible projects. However, the continued authorization of new projects is a measure of the political vitality of the Corps program. If the stresses discussed in Chapter 3 have any validity in fact it can be expected that new project authorizations in real terms have been declining in the recent past and/or will be declining in the near future.

The purpose of this chapter is to analyze the trends in omnibus authorization acts over the period from 1950-1980. This is done by a quantitative analysis of the authorization acts and a discussion of the deauthorization process and its relevance to the future of the Corps program. Appendix E presents a chronological summary of each of the omnibus acts during this period.

Quantitative Analysis of Omnibus Authorizations

As can be noted from the history of the omnibus acts summarized in Appendix E, omnibus acts often authorize funding for more purposes than project authorizations including river basin monetary authorizations and, in recent years, continuing authority funding and special studies. The following analyses of authorization acts will be limited to a consideration of the amount of money authorized for Corps projects. This figure will differ from the total authorization of some bills. There are some difficulties attendant to the analysis of authorization levels. First, the method by which the number of projects and amounts of money involved are estimated is not as simple as one might expect. The bills are often ambiguous as to the amount which is being authorized particularly when projects are authorized without the benefit of a report and a cost estimate. A second and related problem is that some authorizations are based on reports from years before so costs of projects included in an omnibus bill often reflect numerous price levels aggregated into one conglomerate figure of nebulous meaning. These facts

constrain both the current and constant dollar comparisons of the acts. Despite these limitations a quantitative analysis makes an important point, brought out in the paragraphs to follow.

To simply consider the authorization levels of the acts of the last 30 years would ignore the significant fact that an omnibus bill has not been enacted since 1976. In order to take recent authorization inactions into account, authorization totals are considered by Congress rather than by individual acts. Table 16 summarizes the total authorizations by Congress from 1950 through 1980. The Democratic administrations of Presidents Kennedy and Johnson (87th - 90th Congresses) were clearly the most generous in terms of water resource development authorizations, accounting for more than half the dollar authorizations of the 16 Congresses analyzed. A casual review of the appropriations data indicates a peak in authorizations in the 1960s followed by a general decline in the level of authorizations. The decline becomes more pronounced when constant dollar values are considered. The constant dollar average authorization for each Congress during this time period is about \$3.1 billion. The last Congress to exceed the average authorization level was in 1968 when the 90th Congress authorized projects costing \$3.5 billion in constant dollars. The absence of an "average" congressional authorization since that time is irrefutable evidence of a decline in the Corps role in water resource development as measured by project authorizations. The declining monetary level of authorizations is a clear indication that the Corps program is slowing down either physically, politically

TABLE 16
CORPS PROJECT AUTHORIZATIONS BY CONGRESS, 1950-1980

CONGRESS	CURRENT DOLLAR AUTHORIZATIONS	1980 DOLLAR AUTHORIZATIONS ¹
81st	\$1,483,593,325	\$9,720,000,000
82nd	0	0
83rd	1,072,353,814	5,650,000,000
84th	0	0
85th	747,930,500	3,260,000,000
86th	649,654,000	2,590,000,000
87th	2,256,518,000	8,490,000,000
88th	116,847,000	4,260,000,000
89th	2,654,860,000	8,910,000,000
90th	1,200,894,000	3,490,000,000
91st	596,215,000	1,450,000,000
92nd	0	0
93rd	551,393,900	910,000,000
94th	742,300,000	1,000,000,000
95th	0	0
96th	0	0
TOTAL	\$12,072,569,539	\$49,730,000,000
AVERAGE	\$754,535,596	\$3,100,000,000

¹Values are estimated assuming all project cost estimate price levels to be equal to the price level of the year in which the authorizing legislation was enacted. This assumption will tend to understand the constant dollar values for all Congresses. The greatest understatements will occur in bills passed during the time of greatest inflation rates. While these estimates are not intended to even be precise estimates of project costs, their relative orders of magnitude are considered reasonable enough for trend analysis.

or both. The decline is unmistakable regardless of its genesis. Possible reasons for this decline are suggested in general terms in Chapter 3.

Deauthorizations

It is evident throughout the legislative history of authorization acts over the last 30 years that a concern over the growing backlog of authorized but unconstructed projects has increased. In 1974 this concern became politically viable enough to result in legislation which created the project deauthorization review program. Following is a succinct description of this program provided in the Corps' Digest of Water Resources Policies and Authorities, p. 6-7.

Section 12 of PL 93-251 as amended by Section 157, PL 94-587, requires that the Congress annually be provided a list of unconstructed Corps of Engineers projects which no longer are considered appropriate for continued authorization. Congressional criteria for consideration for deauthorization action are that the project has been authorized for a period of at least eight years without any Congressional appropriations within the last eight years. Prior to the submission of the list to Congress, the Secretary of the Army, acting through the Chief of Engineers, shall obtain the views of interested Federal departments, agencies, and instrumentalities, and of the Governors of affected states. The concerned members of Congress must also be notified. This list is delivered to both houses of Congress simultaneously while in session. A project on the list becomes deauthorized after 90 calendar days of continuous session unless one of the Committees on Public Works adopts a resolution stating that such project shall continue as an authorized project.

The concern over the backlog of projects and the desire to deauthorize some of these projects stem from several areas. To some the backlog of projects represents unrealistic demands on the financial resources of the government and they are looked upon as an inflationary pork barrel margin of safety. More commonly and, perhaps, more legitimately, with the passage of time and changes in conditions and needs some of the unconstructed

projects become unneeded, unwanted, and/or unjustified. An authorized unconstructed project can interfere with local planning, local real estate markets, and economic development.

The standardized deauthorization process has grown into one that everyone could love.¹ Locals loved it because it reduced an embarrassingly large backlog of projects. The Corps loved it because Congress wanted it. Environmentalists loved it because it meant that many fewer projects to worry about.

On June 4, 1974 Lt. General William C. Gribble testifying at the Senate Subcommittee on Water Resources Corps of Engineers Oversight Hearings responded to a question from Senator Buckley on the numbers of projects under construction, in the active backlog, deferred and inactive. Lt. General Gribble provided the breakdown shown in Table 17 Immediately following passage of the 1974 Act which instituted a deauthorization program there were 618 deferred and inactive projects with associated federal costs at various price levels estimated to total about \$5.1 billion.

Since the institution of the deauthorization program the Secretary of the Army has annually presented a report to the Public Works Committees containing a list of projects recommended for deauthorization. This report contains the reason(s) for deauthorization, relevant comments of others on the list of projects proposed for deauthorization and the most current project information sheet for each project. In the first such report 430 projects from a total

¹Charles Yoe, "A Political Analysis of the Water Resources Development and River Basin Monetary Authorization Act of 1974." (Unpublished), pp. 48, 49.

TABLE 17
 SUMMARY—AUTHORIZED PROJECTS
 (\$MILLIONS)

ITEM	NUMBER OF PROJECTS	TOTAL ESTIMATED FEDERAL COST
Active Not Started	332	\$11,683.9
Active Underway	281	17,354.3
MR & T ¹ Underway	1	4,432.6
Deferred Projects	144	1,503.0
Inactive Projects	474	3,640.0

¹Mississippi River and Tributaries

SOURCE: Corps of Engineers Oversight, Hearings Before the Subcommittee on Water Resources of the Committee on Public Works United States Senate, Ninety-Third Congress, Second Session, p. 39.

of 800 eligible for deauthorization² as of 31 December 1974 were reviewed. Of this amount 332 projects were recommended for deauthorization. The projects deauthorized ranged from the Ochlocknee River project in Georgia and Florida authorized in 1833 with an estimated federal cost of \$20,000 at 1881 price levels to the Knights Valley Lake project in California authorized in 1966 with an estimated federal cost of \$303 million at 1973 price levels. The current dollar estimated costs of the projects recommended for deauthorization was \$1.6 billion at price levels ranging from 1881 to 1973. A constant dollar estimate of costs would not be worth the effort necessary to compute it. However, the constant dollar estimate of costs could conservatively be estimated as two or three times the current dollar estimate. As of the completion of the sixth annual report to Congress in 1981 there have been a total of 439 projects deauthorized at an estimated cost of \$4.42 billion at various price levels.³

The implications of the Congress' deauthorization program for the Corps program are obvious. The deauthorization process, borne out of changing values and needs, has the solitary purpose of decreasing the pool of authorized projects from which the Congress can choose projects to fund for construction. Clearly the intention and result of this program is to decrease the Corps role in water resource development. Though it can be argued that this decrease is symbolic

²The discrepancy between this figure and that reported by Lt. General Gribbel is presumably explained by the refinement of data in the first annual report.

³These figures were obtained from the Office of the Chief of Engineers and are current as of 15 July 1981.

insofar as neither the Congress or the Corps entertained serious thoughts of constructing any of these projects; the point remains that decisions are being made that certain projects will not be built. Precluding the development of \$4.42 billion in projects is a significant decision, symbolic or not. Considered alone the deauthorization process is prima facie evidence of a long term decline in the Corps program. When considered in light of the absence of new authorizations to be added to the pool of potential projects this decline is more obvious. Taken to the logical, however unlikely, conclusion the deauthorization program coupled with the lack of additional authorizations and the completion of projects underway and projects to be initiated over the next several years will result in the elimination of any backlog, active or inactive. This, of course, would be the definitive end of the Corps' development program. Whatever the future of the Corps program it is a certainty that this scenario will not describe its future. Nonetheless, the deauthorization process is evidence of one dimension of decline in the Corps water resource development role.

CHAPTER 7

ANALYSIS OF CONGRESSIONAL COALITIONS OF SUPPORT

The discussion on coalitions of support for the Corps program begins with simple arithmetic and common sense. Suppose there is a Corps project with a benefit cost ratio greater than one. If the Congressional district in which the project is to be located pays about 1/435 of the total cost of the federal costs of the project while retaining all of the benefits, then the benefit-cost ratio to the district will be greater than 400 to 1. Now let us assume that local support for the project is concentrated and organized while opposition to the project is dispersed. Barring a strong ideological conflict the congressman could not afford to oppose or remain neutral on a project of such great benefit to his district. But, 434 remaining districts face a benefit-cost ratio of zero. Logically, if a bill calling only for the construction of this project is introduced, it would not pass since all the districts must pay and only one will benefit. Consequently, the congressman of the benefiting district has an incentive to ally himself with other congressmen with similar projects in at least a majority of the districts to insure that he will get his project in return for supporting the others in an omnibus bill. Such is the substance of coalition building.

In practice it is not necessary to find projects in 218 separate districts to insure passage of a bill. Often an entire state's

delegation will bipartisanly support a water project in one of its districts.¹ If the desired project is not too controversial congressmen from states with no projects in the bill may be willing to support the omnibus bill in the expectation of reciprocated support for future projects in his district or in exchange for support on an unrelated piece of legislation. In practice it may take many fewer projects than 218 to build a majority among Congressmen. Assuming the entire state's delegation would support a bill with a single project in that state then a coalition in the House could be built around a bill containing nine projects, one each in California, Florida, Illinois, Michigan, New Jersey, New York, Ohio, Pennsylvania and Texas. The Senate is, of course, another matter but the basic point on majority building holds. To sustain such legislation from year to year the existing coalition must return in tact each year or it can dissolve after the benefits are received and reformulate for each new piece of legislation.

The important point in these contrived examples is that enough people have to "see" the benefit to them, either now or in the future, to support such legislation. There is no requirement that all 435 districts receive a project, it is sufficient to have a bloc of votes, based on shared ideology, needs, or anything else capable of sustaining the program. In America's agrarian past rural interests were capable of such support. In the more recent past economic development interests were united with conservationist and progressive interests²

¹John A. Ferejohn, Pork Barrel Politics (Stanford: Stanford University Press, 1974), pp. 61-68.

²See the writings of Henry Caulfield for a discussion of these interests.

in support of water resource development. It is argued extensively in Chapter 3 that these old coalitions are falling apart for numerous reasons. The purpose of the remainder of this chapter is to take a quantitative look at the regional support for water resource development in the Congress by analyzing roll-call votes for omnibus appropriations and authorization acts during the period from 1950 through 1980.

Appropriations Coalitions

Congressional Quarterly Almanacs for the years 1950 through 1980 provided the basis for information on congressional votes on the annual appropriations legislation. In many years all votes on such legislation were voice votes and cannot, therefore, be analyzed. In other years there may have been roll-call votes on one or more versions of a bill in a single body of Congress. In some instances there was a roll-call vote on an early version of a bill but a voice vote on the final version. The point is that roll-call votes on final versions of appropriations legislation were rare, occurring ten times in the House and twice in the Senate over a thirty-year period. In order to provide a more substantive data base for the analysis of coalitions of political support in the bodies of Congress each roll-call vote recorded was analyzed except when more than one vote was taken by a body of Congress in the same year. In these cases the latest vote taken was analyzed, the others were deleted from the data base.

The analyses to follow are largely based on votes on legislation similar but not identical to the final appropriations acts. Consideration of House coalitions for House versions of a bill may in some cases

not be identical to the House coalition of support for the final bill. They are a valid basis for considering where the support for the House version is coming from. More often than not final versions of a bill differ from earlier versions by nuance rather than by significant changes. It is assumed in this chapter that coalitions of support for preliminary versions of a law are, if not identical to coalitions of support for final versions, at a minimum very good proxy measures for the final coalition of support.

Senate Support

During the period from 1950 through 1980 roll call votes for appropriations acts were recorded in 20 different years. These votes are summarized by party in Table 18. The most striking trend evident in these data is the extremely high degree of support for appropriations bills within the Senate with 93 percent of all votes cast, cast in favor of the bill. This support is essentially bipartisan with Democrats casting 95 percent and Republicans 90 percent of their respective votes cast in favor of the bill. Two-digit opposition only occurred in three years; 1951, 1959, and 1974. One or no votes of opposition occurred in four years. By comparing the average vote for the 20 different years to the data it appeared that the support for this legislation has been growing in recent years.

Tables 19 and 20 present a somewhat different look at the data presented above. Table 19 indicates that total support for appropriations bills has been essentially constant comparing the last decade with the previous two. There has been an insignificant decline in

TABLE 18
 SUMMARY OF SENATE ROLL CALL VOTES
 ON PUBLIC WORKS APPROPRIATIONS LEGISLATION

YEAR	DEMOCRATS		REPUBLICANS		TOTAL	
	YES	NO	YES	NO	YES	NO
1951	36	4	23	6	59	10
1957	42	1	43	0	85	1
1959 ¹	60	2	12	21	72	23
1960	55	0	31	0	86	0
1962	44	2	20	6	64	8
1966	44	2	17	2	61	4
1967	56	1	26	2	82	3
1968	44	1	23	2	67	3
1969	50	1	36	1	86	2
1970	35	1	27	0	62	1
1971	41	2	31	0	72	2
1972	40	2	33	1	73	3
1973	46	2	36	1	82	3
1974	50	6	28	11	78	17
1975	52	2	29	3	81	5
1976	60	1	34	0	94	1
1977	52	2	33	1	85	3
1978 ¹	54	5	32	4	86	9
1979	54	3	36	3	90	6
1980	49	6	34	3	83	9
TOTAL	964	46	584	67	1,548	113
AVERAGE	48.2	2.3	29.2	3.4	77.4	5.7

¹Final version vote.

SOURCE: Congressional Quarterly Almanacs

TABLE 19

ANALYSIS OF TOTAL SENATE VOTES CAST, BY PERIOD

PERIOD	<u>PERCENT OF TOTAL VOTES CAST</u>	
	YES	NO
1951-1970	92.9	7.1
1971-1980	93.4	6.6
1951-1980	93.2	6.8

PERIOD	<u>PERCENT OF DEMOCRAT VOTES CAST</u>	
	YES	NO
1951-1970	96.9	3.1
1971-1980	94.1	5.9
1951-1980	95.4	4.6

PERIOD	<u>PERCENT OF REPUBLICAN VOTES CAST</u>	
	YES	NO
1951-1970	86.6	13.4
1971-1980	92.4	7.6
1951-1980	89.7	10.3

Democratic support from 97 to 94 percent accompanied by a relatively larger percentage increase in Republican support from 87 to 92 percent in the last decade. These percentage changes when converted to absolute numbers of votes are insignificant. The message of this table is that among members of the Senate who vote on appropriations bills support has been bipartisan, high and relatively steady over time.

What of those Senators who don't vote? Table 20 presents an analysis of the vote taking them into account. As can be seen the relative support for appropriations legislation falls by 10 to 15 percentage points when votes "for" are considered as a percent of all possible votes rather than just votes cast. Support still runs extremely high in the Senate when considered in this fashion. It is interesting to note that in the last decade the percent of Senators abstaining from such legislation had declined from 21 to 12 percent, i.e., the participation rate in voting on appropriations legislation is increasing. Most of these "new votes" are being cast in favor of the omnibus bills.

Partisan voting patterns were aggregated and analyzed according to the party of the Administration at the time the vote was cast. Partisan support is essentially unchanged (fluctuations less than 1 percent) regardless of the party of the Administration, i.e., Democrats and Republicans tend to cast 82 and 74 percent, respectively, of all possible votes for public works appropriations legislation regardless of the President's party affiliation.

The data presented thus far suggest that Senate support for appropriations bills is neither changing over time nor partisan by nature. Table 21 presents a summary of Senate voting patterns by region. The regions are defined in Appendix F. In terms of absolute

TABLE 20
ANALYSIS OF TOTAL SENATE VOTES POSSIBLE, BY PERIOD

PERIOD	<u>PERCENT OF TOTAL VOTES POSSIBLE</u>		
	YES	NO	ABSTAIN
1951-1970	73.4	5.6	21.0
1971-1980	82.4	5.8	11.8
1951-1980	78.0	5.7	16.3

PERIOD	<u>PERCENT OF DEMOCRAT VOTES POSSIBLE</u>		
	YES	NO	ABSTAIN
1951-1970	77.5	2.5	20.0
1971-1980	83.3	5.4	8.3
1951-1980	81.8	3.9	14.3

PERIOD	<u>PERCENT OF REPUBLICAN VOTES POSSIBLE</u>		
	YES	NO	ABSTAIN
1951-1970	67.2	10.4	22.4
1971-1980	80.3	6.7	13.0
1951-1980	74.0	8.5	17.5

TABLE 21
 REGIONAL ANALYSIS OF SENATE VOTES ON APPROPRIATIONS LEGISLATION,
 1950-1980

REGION	TOTAL VOTES		PERCENT OF VOTES CAST		PERCENT OF POSSIBLE VOTES		
	YES	NO	YES	NO	YES	NO	ABSTAIN
North East	275	23	92.3	7.7	76.4	6.4	17.2
North Central	346	38	90.1	9.9	72.1	7.9	20.0
South	505	45	91.8	8.2	78.9	7.0	14.1
West	422	9	97.9	2.1	82.4	1.8	15.8
<u>SUBREGION</u>							
New England	182	16	91.9	8.1	75.8	6.7	17.5
Middle Atlantic	93	7	93.0	7.0	77.5	5.8	16.7
East North Central	130	30	81.3	18.7	65.0	15.0	20.0
West North Central	216	8	96.4	3.6	77.1	2.9	20.0
South Atlantic	242	41	85.5	14.5	75.6	12.8	11.6
East South Central	127	2	98.4	1.6	79.4	1.3	19.3
West South Central	136	2	98.6	1.4	85.0	1.3	13.7
Mountain	263	8	97.0	3.0	82.2	2.5	15.3
Pacific	159	1	99.4	0.6	79.5	0.5	20.0

numbers of votes the South has accounted for one-third of the total yes votes analyzed followed by the West, North Central and North East. However, in terms of votes cast, all regions strongly support the appropriations bills. The greatest support in terms of yes votes as a percent of votes cast and votes possible comes from the West.

At the subregion level there is more variability. Absolute support is, surprisingly, strongest in the Mountain states where Corps expenditures have been lowest. The South Central and Pacific states have a record of over 98 percent of all votes cast, cast in favor of the bill. Only one opposing vote has been cast in the Pacific states in 20 years of roll call records. In terms of participation rates (votes cast out of maximum possible number of votes), most positive support comes from the West South Central subregion. The most opposition comes from the East North Central and South Atlantic subregions. There are 15 states which did not cast a single vote of opposition in these 20 votes. Rates of abstention from voting are high in many subregions. Only the South Atlantic and West South Central subregions have abstention rates below 15 percent. There is no statistically significant correlation between Corps expenditures for construction and maintenance and any of the voting measures on the regional or subregional level which can be discerned through regression analysis or Spearman rank correlation coefficients.

House Support

Roll call votes for appropriations bills were recorded in 20 different years during the period under study. Table 22 summarizes these votes. As with the Senate votes the first trend which stands out

TABLE 22
 SUMMARY OF HOUSE ROLL CALL VOTES ON APPROPRIATIONS LEGISLATION
 1950-1981

YEAR	DEMOCRATS		REPUBLICANS		TOTAL	
	YES	NO	YES	NO	YES	NO
1955 ¹	203	14	113	78	316	92
1958	199	2	163	16	362	18
1959 ¹	260	5	20	116	280	121
1960	257	2	131	16	388	18
1961	243	1	135	30	378	31
1963 ¹	215	1	115	46	330	47
1964	220	0	139	11	361	11
1966	252	4	103	21	355	25
1967	223	2	153	24	376	26
1969	225	1	172	2	397	3
1971 ¹	218	4	159	5	377	9
1972	197	12	150	5	347	17
1973 ¹	205	5	168	4	373	9
1974 ¹	212	3	164	15	376	18
1975 ¹	231	10	108	21	339	31
1976 ¹	256	4	125	11	381	15
1977 ¹	210	37	108	24	318	16
1978 ¹	208	48	111	23	319	71
1979	225	22	134	7	359	29
1980	178	66	95	51	273	117
TOTAL	4,439	243	2,566	526	7,005	769
AVERAGE	222.0	12.2	128.3	26.3	350.3	38.5

SOURCE: Congressional Quarterly Almanacs.

is the high degree of support for this legislation. On the average, these bills have been passed by a huge 9 to 1 majority vote with 90 percent of all votes cast being in favor of the bills. There is more of a partisan split in voting in the House than in the Senate with Democrats voting in favor of the bill in 95 percent of the votes cast compared to Republican support in 83 percent of the votes cast. This partisan trend can be largely explained by party loyalty to the President when bills have been vetoed or when new policies are pursued by the President as was done during the Carter years. Because Democratic presidents have been more favorable to public works appropriations Democratic support has been higher in the House than Republican support. Despite this minor partisan split, support remains overwhelming for these bills in both parties.

Table 23 indicates that total support for these bills as measured by yes votes as a percent of total votes cast is relatively constant over time. Democratic support has eroded by about the same percent (8) that Republican support has increased (11) in the last decade relative to the previous two decades. Democrat votes, once nearly unanimous in favor of this legislation with about 1 percent no votes, are showing a shift to more opposition to these bills with 9 percent no votes during the 1970s. Republican opposition has fallen from about 22 percent during the Fifties and Sixties to 11 percent during the Seventies.

In Table 24 abstentions by Representatives are added to the analysis. Abstentions among Democrats have risen a percent from about 11 percent to 12 percent in the last decade. At the same time Republican abstentions have risen by 3 percent from about 8 percent to 11 percent. This trend is contrary to the declining abstentions in the

TABLE 23
ANALYSIS OF TOTAL HOUSE VOTES CAST BY PERIOD

PERIOD	PERCENT OF TOTAL VOTES CAST	
	YES	NO
1955-1969	89.9	10.1
1971-1980	90.3	9.7
1955-1980	90.1	9.9

PERIOD	PERCENT OF DEMOCRAT VOTES CAST	
	YES	NO
1955-1969	98.6	1.4
1971-1980	91.0	9.0
1955-1980	94.8	5.2

PERIOD	PERCENT OF REPUBLICAN VOTES CAST	
	YES	NO
1955-1969	77.6	22.4
1971-1980	88.8	11.2
1955-1980	83.0	17.0

TABLE 24
ANALYSIS OF TOTAL HOUSE VOTES POSSIBLE, BY PERIOD

PERIOD	<u>PERCENT OF TOTAL VOTES POSSIBLE</u>		
	YES	NO	ABSTAIN
1955-1969	81.2	9.1	9.7
1971-1980	79.6	8.6	11.8
1955-1980	80.4	8.8	10.8
	<u>PERCENT OF DEMOCRAT VOTES POSSIBLE</u>		
1955-1969	88.1	1.2	10.7
1971-1980	80.3	7.9	11.8
1955-1980	84.1	4.6	11.3
	<u>PERCENT OF REPUBLICAN VOTES POSSIBLE</u>		
1955-1969	71.7	20.7	7.6
1971-1980	79.2	9.9	10.9
1955-1980	75.4	15.5	9.1

Senate. The abstention rates tend to lower the percent of yes votes about 10 percent when comparing yes votes as a percent of votes cast to yes votes as a percent of votes possible while leaving percentages of no votes relatively less affected.

Based on these data it can be concluded that support for appropriations bills in the House has remained constant over time while a recent slight decline in Democratic support has been offset by a slight increase in support by Republicans. Democratic support for these bills during Republican administrations runs 96.5 percent compared to 92.4 percent during Democratic administrations. Republican support during Democratic administrations runs 84.7 percent compared to 81.9 percent during Republican administrations. The difference in the levels of support are not significant in terms of total votes or trends.

A regional analysis of the votes is presented in Table 25. Absolute support is strongest in the South followed by the North Central, North East and Western regions. Relative measures of support are still led by the South but are followed by the West, North East and North Central regions. On a subregion level it is interesting to note that the most absolute support has come from the East North Central states which provide the least relative support indicating that support for this legislation has been strong if not widespread. Relative and absolute opposition is strongest from these states. In eight states the House delegations have never cast a no vote in any of the 20 votes analyzed.

Conclusions

The slimmest margin of passage of any appropriations bill in the Senate has been 49 votes, the maximum has been 93 votes. In the House

TABLE 25
 REGIONAL ANALYSIS OF HOUSE VOTES ON APPROPRIATIONS LEGISLATION,
 1950-1980

REGION	TOTAL VOTES		PERCENT OF VOTES CAST		PERCENT OF POSSIBLE VOTES		
	YES	NO	YES	NO	YES	NO	ABSTAIN
North East	1,682	263	86.5	13.5	77.8	12.2	10.0
North Central	1,928	325	85.6	14.4	77.5	13.1	9.4
South	2,254	110	95.4	4.6	85.3	4.2	10.5
West	1,158	75	93.9	6.1	83.8	5.4	10.8
<u>SUBREGION</u>							
New England	405	62	86.7	13.3	78.6	12.0	9.4
Middle Atlantic	1,277	201	86.4	13.6	77.5	12.2	10.3
East North Central	1,319	261	83.5	16.5	75.9	15.0	9.1
West North Central	609	64	90.5	9.5	81.3	8.5	10.2
South Atlantic	1,053	70	93.8	6.2	83.5	5.6	10.9
East South Central	514	8	98.5	1.5	88.8	1.4	9.8
West South Central	687	32	95.5	4.5	85.6	4.0	10.4
Mountain	308	14	95.7	4.3	87.8	4.0	8.2
Pacific	850	61	93.3	6.7	82.4	5.9	11.7

the smallest margin has been 156 votes, the largest 394. The overwhelming conclusion of the above analyses is that, with minor variations, without regard to time, party, or region everyone loves to vote for an omnibus appropriations bill. This would certainly tend to contradict the arguments made in Chapter 3 which in essence state that coalitions of political support for the Corps program are eroding with the weakening of the historic rationale for the Corps' program. The data presented above are certainly clear in indicating that there has been no erosion of support for omnibus appropriations bills. Therein lies a problem. All of the 40 votes analyzed were for omnibus authorization bills. Not one can be clearly interpreted as an indication of political support for or opposition to Corps programs. These bills included Corps funds, Bureau of Reclamation funds, Atomic Energy Commission funds, etc. as indicated in Appendix B. A vote for or against an omnibus bill cannot be interpreted as a vote for or against the Corps program. Most of these bills contain a public works project of some type for every state in the union. Data presented in this chapter will support far more detailed analyses and complex conclusions about public works appropriations legislation. These analyses are not done and these conclusions go undrawn because, in light of this fundamental weakness, they neither support nor refute the hypothesis of this study.

Though an examination of the public record indicates that, on the whole, water projects have been the most controversial element of these bills, the Corps has not been the only agency with controversial water projects. Bureau of Reclamation and TVA projects have also been subjects of controversy. No clear conclusions on any trends in congressional coalitions of support can be drawn from the analyses

above. It is clear, however, that Corps projects are not found so objectionable that opposition to Corps projects threatens possible support for other measures in these bills. The sheer magnitude of support for these bills would seem to indicate general acquiescence, if not agreement, with the purposes of these bills. Considering this support in the context of the analysis of appropriations data presented earlier, an argument can be made, however weakly, that congressional support is solid for a public works appropriations bill containing a declining constant dollar construction program for the Corps. Such a speculative argument assumes an awareness of trends which is too much to expect.

Despite this critical weakness, votes on omnibus appropriations bills are the best proxy measures of coalitions of support for the Corps role in water resource development that are available. To the extent that these votes are a reasonable proxy measurement of support for the Corps program a few points need to be made about the voting patterns. First, there are many political strategies for a yes vote. The most obvious is outright support for a program. Another is a straight-forward trade of supporting votes for different pieces of legislation. A yes vote may signify a lack of any strong opposition to the programs. A yes vote may be cast by an opponent when the measure is clearly won and the momentum is clearly with the proponents. Secondly, in the face of such apparent popularity an abstention may be interpreted, in addition to a lack of opportunity to vote, as a means of expressing a degree of opposition to a popular program without alienating the program's supporters. Abstentions when considered above still only lowered the levels of support from near unanimous to extremely high.

A yes vote for an omnibus bill is not necessarily an indication of ideological support for the Corps and vice versa for a no vote. As long as Corps appropriations are part of a public works bill we can never know the depth of support or opposition to the Corps program specifically. Though the general lack of serious debate and noteworthy attacks on Corps appropriation levels and specific projects may be interpreted as tacit support, an analysis of votes can neither prove nor disprove the hypothesis that political support for federal water resource development is eroding.

What is clear is that nearly everyone loves to support a public works bill and the Corps has over the years been the most controversial element of this bill. Perhaps the omnibus appropriations vehicle is the most valuable ally that proponents of federal water development and the Corps program now have.

Authorizations Coalitions

Omnibus water resource development authorization acts are of more interest to this study than omnibus appropriations acts because they deal strictly with water resource development and policy. Though policies promulgated by these acts may have wider application, the development provided for by the acts is almost exclusively within the domain of the Corps of Engineers. The ambiguity accompanying coalitions of support for the appropriations acts is absent from the authorizations acts. Once again, however, the analyses will be severely constrained; this time by the limits of the available data.

The analyses to follow can best be presented by considering several hypotheses. Chapter 6 has indicated that the Corps role in federal

water resource development as measured by the authorization contents of omnibus acts is declining. However, the task of this chapter is to determine whether or not political coalitions of support for this legislation give evidence of a decline. If the Corps program's political fortunes are not in a state of decline then we can expect to see high levels of absolute and relative support for omnibus legislation, bipartisan support, and strong support for the program in the rural areas of the nation.

Senate Support

During the period from 1950 through 1980 roll call votes on omnibus authorization bills are available in seven different years. Only two of these votes were on the final version of the legislation. The last vote cast in each of the years has been analyzed as a proxy measure of Senate support for such legislation. Table 26 summarizes the results of these votes. The average margin of victory in the Senate has been by 60 votes. This is a clear indication of the high degree of support for such legislation within the Senate. Only once, in 1950, did a bill fail to get an absolute majority of the Senate. An average of almost 90 percent of all votes cast have favored omnibus legislation.

There has been a high degree of bipartisan support for this legislation. However, among those Senators voting, Democratic support has been more favorable (95 percent) than Republican support (81 percent). Republican support has been very strong except for 1950 and 1963 when less than half the Republican votes cast were favorable to the omnibus legislation. While these percentages are an impressive

TABLE 26
 SUMMARY OF SENATE ROLL CALL VOTES ON AUTHORIZATIONS LEGISLATION,
 1950-1980

YEAR	TOTAL VOTES					
	DEMOCRATS		REPUBLICANS		TOTAL	
	YES	NO	YES	NO	YES	NO
1950 ¹	28	6	16	18	44	24
1954	36	2	40	0	77	2
1958	41	0	34	1	75	1
1960	47	1	23	4	70	5
1963	48	5	11	14	59	19
1974 ¹	46	2	32	5	78	7
1976	48	1	30	2	78	3
TOTAL	294	17	186	44	480	61
AVERAGE	38.6	2.9	30.0	5.9	68.6	8.7

PERCENT OF TOTAL VOTES CAST						
1950.	82.4	17.6	47.1	52.9	64.7	35.3
1954	94.7	5.3	100.0	0.0	97.5	2.5
1958	100.0	0.0	97.1	2.9	98.7	1.3
1960	97.9	2.1	85.2	14.8	93.3	6.7
1963	90.6	9.4	44.0	56.0	75.6	24.4
1974	95.8	4.2	86.5	13.5	91.8	8.2
1976	98.0	2.0	93.8	6.2	96.3	3.7
AVERAGE	94.5	5.5	80.9	19.1	88.7	11.3

YEAR	PERCENT OF POSSIBLE VOTES								
	DEMOCRATS			REPUBLICANS			TOTAL		
	YES	NO	ABSTAIN	YES	NO	ABSTAIN	YES	NO	ABSTAIN
1950	51.9	11.1	37.0	38.1	42.9	19.0	45.8	25.0	29.2
1954	76.6	4.3	19.1	83.3	0	16.7	80.2	2.1	17.7
1958	83.7	0.0	16.3	72.3	2.1	25.6	78.1	1.0	20.9
1960	73.4	1.6	25.0	67.6	11.8	79.4	70.0	5.0	25.0
1963	71.6	7.5	20.9	33.3	42.4	24.3	59.0	19.0	22.0
1974	82.1	3.6	14.3	76.2	11.9	11.9	78.0	7.0	15.0
1976	80.0	1.7	18.3	81.1	5.4	13.5	78.0	3.0	19.0
AVERAGE	74.1	4.3	21.6	65.7	15.5	18.8	69.8	8.9	21.3

¹Final version vote.

SOURCE: Congressional Quarterly Almanacs

display of support for authorization legislation they are somewhat misleading because on an average only about 80 percent of the Senate has voted on the omnibus bills. When these abstentions are taken into account support is somewhat weakened. By considering the number of yes votes out of all votes possible a favorable participation rate can be obtained. This number is of more interest than yes votes as a percent of all votes cast because it is more easily related to an absolute number of votes and it indicates the relative extent to which congressmen are forced or choose not to participate in votes for this type of legislation. By this measure, total bipartisan support falls from 89 to 70 percent while Democratic and Republican support falls from 95 and 81 percent to 74 and 66 percent, respectively. By almost equal proportions Democrats and Republicans have abstained from authorization votes. However, participation rates are higher for the two 1970s votes at which time opposition was lower than average. Absolute and relative support for omnibus bills in the Seventies has been about 10 votes or 10 percent higher than the average for the period of study.

It is of some interest to note that if the Senate votes of 1950 and 1963, when there was substantial Republican opposition, are disregarded the Senate's record of support for omnibus bills is without significant variations. In 1950 there was intense debate over the handling of water resource development in the Columbia River Basin. President Truman favored establishment of a Columbia Valley Authority as his first choice and a working agreement between the Corps and the Department of Interior as his second choice. Congress opted for business as usual rejecting both plans. Major opposition came from urban states in the North East, North Central and South who apparently

avored the valley authority concept. In 1963 debate had been raging around the issue of public power in several projects which were opposed by private interests. Republicans supported the private interests. This record suggests that when an ideological concept of sufficient importance is involved some Senators will buck omnibus bills. The alternative suggestion, i.e., that if ideologies aren't at stake Senators will support the bill, is of more interest in explaining the substantial margins of victory.

Based on the data in Table 26 and the supporting public record it is concluded that strong Senate support for omnibus development bills, in absolute and relative terms, is only withheld when strong ideological conflicts are focused in some provision of a bill. More general notions of "pork barrel," etc. do not generate much opposition. There is no evidence of decline in overall political support for the Corps within the Senate.

Table 27 presents a regional analysis of the seven Senate votes analyzed. Absolute support, measured by the number of votes, is strong in every geographic area. Absolute support is strongest in the South and West, the areas which have received the bulk of Corps projects. The split of the vote is overwhelmingly favorable with a slightly lower majority from the North East, as could be expected. It is of some interest to note that Western Senators have abstained from voting in one out of every three possible votes. Whether this reflects the strong role of the Bureau of Reclamation in the West or a relatively high level of water development which might be reflected in a decreased interest in additional Corps authorizations or some other factor is

TABLE 27
 REGIONAL ANALYSIS OF SENATE VOTES ON AUTHORIZATIONS LEGISLATION,
 1950-1980

REGION	TOTAL VOTES		PERCENT OF VOTES CAST		PERCENT OF POSSIBLE VOTES		
	YES	NO	YES	NO	YES	NO	ABSTAIN
North East	84	18	82.4	17.6	66.7	14.3	19.0
North Central	112	15	88.2	11.8	66.7	8.9	24.4
South	162	19	89.5	10.5	72.3	8.5	19.2
West	127	10	92.4	7.6	61.6	5.1	33.3
<u>SUBREGION</u>							
New England	58	12	82.9	17.1	69.0	14.3	16.7
Middle Atlantic	26	6	81.3	18.7	61.9	14.3	23.8
East North Central	39	12	76.5	23.5	55.7	17.1	27.2
West North Central	73	3	96.1	3.9	75.3	3.1	21.6
South Atlantic	78	17	82.1	17.9	69.6	15.2	15.2
East South Central	42	1	97.7	2.3	75.0	1.8	23.2
West South Central	42	1	97.7	2.3	75.0	1.8	23.2
Mountain	76	9	89.4	10.6	67.9	8.0	24.1
Pacific	46	1	97.9	2.1	53.5	1.2	45.3

unknown. There is also a high abstention rate in the North Central region (one vote of every four possible).

At the subregion level "yes" votes as a percent of total votes indicates that support for authorization bills is nearly unanimous in several areas and very high in all others. However, when the number of favorable votes is considered as a percent of the total number of votes possible, support weakens. In the Pacific states support falls from 98 percent to 54 percent when abstentions are considered. In the Pacific states Senators have abstained from voting 45 percent of the time. That this is so in the subregion which obtained \$7.6 billion (second only to the West South Central states \$8.4 billion) in construction and maintenance expenditures from 1950 through 1980 is perplexing. Proportionate support falls over 20 points in nearly every subregion when abstaining votes are considered.

Though consideration of abstaining votes tends to cast the overwhelming Senate support in a somewhat softer light it is important to point out that the Corps program as represented by authorization legislation receives virtually no opposition in the West North Central, South Central, and Pacific states. Though West Virginia is the only state to have cast a maximum 14 favorable votes for the 7 bills, 22 other states did not cast a single vote of opposition. It is primarily the urban industrial states which voice their opposition to the Corps program as measured in this way. Map 2 presents a summary distribution of opposition to omnibus authorizations, i.e., the map shows the distribution of "no" votes as a percent of the total number of votes possible. As can be seen, opposition comes largely from the North East, Atlantic coast, Midwest and the Colorado River basin. The lower

Mississippi River basin and the Ohio, Missouri and Columbia River basins represent areas where authorization bills have been unopposed in the Senate.

Though partisan politics have been important when ideological issues are at stake and there is an identifiable regional trend in the relatively minor opposition to omnibus bills an analysis of Senate voting trends gives no indication that political coalitions of support are eroding.

House Support

House roll call votes on four different omnibus authorization bills are available for the period 1950 through 1980. These votes are summarized in Table 28. The margin of passage for these bills ranged from 82 votes in 1965 to 370 votes in 1974. As with the Senate, almost 90 percent of all votes cast have been in favor of the omnibus bills. Bipartisan support for this legislation is obvious, though Democrats have provided more support, 94 percent, than have Republicans, 80 percent. The 1965 vote stands out as something of a misfit because of two major controversies in that bill. First, four public power projects were opposed largely by Republicans who aligned themselves with the private power industry, the coal industry and the Chamber of Commerce of the United States. The second controversy was over the small project authorizations provision of the act which gave the public works committees authority to approve projects which cost less than \$10 million without full congressional approval and the President's signature. President Johnson affected some Democratic opposition to the bill on the basis of his opposition to this provision. Neglecting this vote, which involved ideological issues unrelated to the overall

TABLE 28
SUMMARY OF HOUSE ROLL CALL VOTES ON AUTHORIZATIONS LEGISLATION,
1950-1980

YEAR	<u>TOTAL VOTES</u>					
	<u>DEMOCRATS</u>		<u>REPUBLICANS</u>		<u>TOTAL</u>	
	YES	NO	YES	NO	YES	NO
1958	209	3	165	14	374	17
1965 ¹	200	49	21	90	221	139
1966	172	0	89	0	261	0
1974 ¹	209	0	165	4	374	4
TOTAL	790	52	440	108	1,230	160
AVERAGE	197.5	13	110	27	307.5	40

YEAR	<u>PERCENT OF TOTAL VOTES CAST</u>					
	DEMOCRATS YES	DEMOCRATS NO	REPUBLICANS YES	REPUBLICANS NO	TOTAL YES	TOTAL NO
1958	98.6	1.4	92.2	7.8	95.7	4.3
1965	80.3	19.7	18.9	81.1	61.4	38.6
1966	100.0	0.0	100.0	0.0	100.0	0.0
1974	100.0	0.0	97.6	2.4	98.9	1.1
AVERAGE	93.8	6.2	80.3	19.7	88.5	11.5

YEAR	<u>PERCENT OF POSSIBLE VOTES</u>								
	<u>DEMOCRATS</u>			<u>REPUBLICANS</u>			<u>TOTAL</u>		
	YES	NO	ABSTAIN	YES	NO	ABSTAIN	YES	NO	ABSTAIN
1958	89.7	1.3	9.0	82.5	7.0	10.5	86.0	3.9	10.1
1965	67.8	16.6	15.6	15.0	64.3	20.7	50.8	32.0	17.2
1966	58.3	0.0	41.7	63.6	0.0	36.4	60.0	0.0	40.0
1974	87.4	0.0	12.6	85.9	2.1	12.0	86.0	0.9	13.1
AVERAGE	74.4	4.9	20.7	65.5	16.1	18.4	70.7	9.2	20.1

¹ Final version vote

SOURCE: Congressional Quarterly Almanacs.

concepts of the Corps program, support in the House is strong and bipartisan. It is interesting to note that the divisive vote on the 1965 bill was followed by a healing unanimous bipartisan vote in favor of a 1966 omnibus bill.

Once again, however, consideration of abstentions cast this overwhelming support in another light. The vote on the House version of the 1966 Act was unanimous in support. However, only 60 percent of the House voted. If each abstaining vote were a vote in opposition the margin of victory would have been much closer. This illustrates the potential significance of a low voter participation rate. It is also very interesting to note that participating support proportions in the House are nearly identical to those in the Senate, as are opposition proportions. On average, House Democrats have supported omnibus bills in 74 percent of their total number of possible votes, compared to 66 percent for Republicans. Overall support drops from 89 percent when abstentions are disregarded to 71 percent when they are considered. This lends credence to the supposition that the relatively greater support from democrats has some significance. Overall voting patterns follow party lines in both bodies of Congress. As with the Senate there seems a potential for increased opposition to omnibus bills when ideological issues are at state. Nevertheless support remains high among both parties and over time.

Table 29 presents a regional analysis of the House votes. Absolute support is very strong from the first three regions listed with the West providing about half as many votes despite the fact that relative support is strongest in the West. This simply reflects the distribution of population and Congressional districts. Abstention rates are

TABLE 29
 REGIONAL ANALYSIS OF HOUSE VOTES ON AUTHORIZATIONS LEGISLATION,
 1950-1980

REGION	TOTAL VOTES		PERCENT OF VOTES CAST		PERCENT OF POSSIBLE VOTES		
	YES	NO	YES	NO	YES	NO	ABSTAIN
North East	315	43	88.0	12.0	71.8	9.8	18.4
North Central	343	57	85.8	14.2	68.2	11.3	20.5
South	381	49	88.6	11.4	71.3	9.2	19.5
West	191	11	94.6	5.4	72.6	4.2	23.2
<u>SUBREGION</u>							
New England	78	13	85.7	14.3	75.7	12.6	11.7
Middle Atlantic	237	30	88.8	11.2	70.5	8.9	20.6
East North Central	236	45	84.0	16.0	67.2	12.8	20.0
West North Central	107	12	89.9	10.1	70.4	7.9	21.7
South Atlantic	173	29	85.6	14.4	69.5	11.6	18.9
East South Central	83	14	85.6	14.4	69.7	11.8	18.5
West South Central	125	6	95.4	4.6	75.3	3.6	21.1
Mountain	49	2	96.1	3.9	73.1	3.0	13.9
Pacific	142	9	94.0	6.0	72.4	4.6	23.0

approximately one out of every five possible votes in each region. At the subregion level support and opposition vary by degrees from area to area but support remains high overall. It comes as something of a surprise that support as a percent of all possible votes is highest in the New England states where opposition to Corps projects has been notorious at times. The abstention rate here is about half the overall average, perhaps indicating that Corps projects are more emotional issues here than elsewhere. Map 3 presents a summary of opposition to these four bills by state. There are 18 states which did not cast a single vote of opposition to the four omnibus bills. The majority of these states are in the Western region of the United States. The distribution of relative opposition is concentrated in the population centers east of the Mississippi River. Unlike the regional distribution of Senate opposition, relative House opposition is not so easily described. Chapter 3 would suggest that opposition may predominate in urban areas. Proof of this assertion remains a subject for further study.

Conclusions

The above analyses indicate high levels of absolute and relative support for omnibus authorization bills in both the House and Senate. Though Democrats tend to vote in favor of these bills more often than do Republicans this legislation clearly has bipartisan support in the House and Senate whenever the bills are free from ideological controversy. All areas of the nation strongly support these bills in the House and Senate. Voted opposition is minimal, but that which does exist is concentrated in the North East, Atlantic Coast, and Midwest states in the Senate and east of the Mississippi River in the House. There is no indication that support is waning or that opposition

is gaining. With a few noted exceptions there is little variation in the votes. On a percentage basis there is a remarkable similarity of coalitions of support between overall trends in House and Senate votes across party lines. On the basis of these facts there is no observable evidence in roll call votes on omnibus authorization bills suggesting that the Corps' political coalitions of support in the Congress are eroding.

While the data indicate some trends in the distribution of a minimal amount of opposition there is no observable evidence which suggests that the dissatisfaction of the urban majority is being expressed in terms of opposition to the authorization of additional projects. There are many possible reasons for this, some of which were discussed previously as reasons for a "yes" vote. Of interest are the facts that ideological issues can galvanize opposition and that significant numbers of congressmen abstain from voting.

With the changing needs and values facing the nation and its water resources new ideological issues are appearing all the time. Ideologies based on welfare economics theory, ecological sciences and environmental interests are but a few of the better known examples. These are ideological issues in water resources development which have the potential to weaken the political coalitions which exist. President Carter's administration did not produce an omnibus authorization act. Perhaps the fact that President Carter focussed debate on some new ideological issues was in some part responsible for preventing a political coalition of sufficient clout from coming together with a bill and pushing it through the Congress.

Also of interest to the future of the Corps' coalitions of support are the abilities of the new needs and values of the nation to "create" issues, ideological or otherwise, which can motivate the abstaining voters to swing into the pro or con column. To the extent that abstentions represent soft opposition to a bill and to the extent that new issues can swing these voters into the voting opposition column, coalitions of support for the Corps become more tenuous. If opposition becomes larger or more vocal it is possible that yes votes cast for lack of a reason to oppose the bill and/or because the outcome was already decided may in the future be cast as no votes. Proof of such speculation is beyond the scope of this study.

The analyses indicate no measurable decline in support. Political theories offer no end of rationales supporting or undercutting these trends. The result is that few minds are likely to be changed by these analyses and further study is needed to explain why political support continues so strongly while the Corps construction program is declining.

CHAPTER 8

SURVEY OF CORPS LEADERSHIP

Many of the quantitative analyses presented in this study indicate that the Corps of Engineers role in water resource development is declining. An, as yet, unexplored important aspect of this apparent decline is the extent to which it is recognized by those individuals who have the primary authority to direct and administer the Corps water resource development program. If the necessity for Congressional and Corps leaders to understand the status of the Corps program is not obvious, consideration of the alternative should make it so. In short, if Congress and/or the Corps are attempting to conduct business as usual, based on the previously discussed historical rationales of the Corps program, the current needs and values of society are going unmet and the Corps program cannot survive. If the fact that the Corps water resource development program is declining is generally recognized there is a chance that the reasons for the decline can be understood and the program modified to meet the needs and values of society.

In an attempt to determine the extent to which Congressional and Corps leaders in the water resource development field perceive the decline in the Corps program hypothesized by this study, surveys of Congressional and Corps leaders were conducted. In the remainder of this chapter the Corps survey instrument and techniques and survey

results will be discussed. The following chapter will address the survey of Congressional leadership.

The Survey

During the late spring and early summer of 1981 a Corps leadership survey was conducted. The survey instrument was a questionnaire circulated by mail. Copies of the questionnaire and the accompanying cover letters and raw response data are contained in Appendix G.

The questionnaire was drafted before the quantitative analyses were conducted. From the beginning the information sought from the Corps leadership was quite simple. Prior to the quantitative analysis it was suspected that the Corps water resource development program was closely tied to the "big dam" era of the middle of this century. An attempt was made to determine whether or not Corps leaders believed the "big dam" era was over. This was the purpose of Question 1. The major intention of the survey was to have Corps leaders answer the question, "Is the Corps role in water resource development declining?" Question 2 was designed to answer this question on a purpose by purpose basis. By asking the respondent to indicate what he/she felt had happened over the past 20 years it is possible to obtain an absolute estimate of the trend. By asking what is expected to happen during the next 20 years it is possible to obtain an estimate of the expected trend relative to the respondents' opinion about past trends. Question 3 was framed to determine what the respondent felt were the most important water resource problems facing the nation and who should be primarily responsible for solving

these problems. The fourth question was designed to get at the basic question of decline from several different angles with the respondent's normative perspective. By asking what is happening followed by asking what should be happening it is possible to get a sense of the Corps leaders' normative opinions about the Corps program. Question 5 provided a respondent with an opportunity to indicate the intensity with which he/she agreed or disagreed with value based statements regarding the overall Federal role in water resource development in general and the Corps role in particular. Question 5E gets at the heart of the questionnaire's intended purpose. Questions 6 through 10 are self-explanatory. A space was provided for comments.

The questionnaire was reviewed by several instructors at Colorado State University and was tested on a small number of people largely unfamiliar with water resource programs and policies. Hindsight being what it inevitably is several weaknesses were found in the survey instrument. Questions 2B and 2C, though they did not present a problem for respondents, should have specified that it referred to "potential" support for multiple-purpose reservoirs. Questions 4C and 4D should have specified constant or current dollars, a deficiency which proves troublesome in interpreting the results of these questions. The questionnaire was designed in hope that the Corps district and division engineers would be the respondents. Because these engineers are very knowledgeable in the field of water resources and the Corps program it was consciously decided to limit the answers to more or less black and white choices. This yes or no approach proved troublesome for some respondents who felt the answer was neither black nor white.

An initial mailing of the questionnaire was made on 7 May, 1981 to the 11 division and 36 district engineers of the Corps. By 12 June, 1981 35 responses had been received. A second mailing was made and 10 additional responses were received. The response rate of 96 percent is considered excellent. The anonymity guaranteed to respondents in no way limits the utility or validity of the survey results.

Survey Results

As noted above the survey was designed for and addressed to the Corps district and division engineers, the highest Corps authority in each of the district and division offices. It is estimated on the basis of cover letters and educated guessing that over half the respondents were district or division engineers. Of the remainder most were civilian chiefs of engineering or planning units within the respondent engineer district or division. An important point relating to the validity of the responses is that most district and division engineers (DE) answered the questionnaire personally. Where this was not done responsibility for the response was delegated to the senior civilian employees, who usually have even more experience in the specific office than the DE. The respondents had an average of more than twenty years experience in the field. It seems reasonable to conclude that the respondents were well qualified to answer the questionnaire.

The number of responses to each question varies. Some respondents declined to answer certain questions often citing lack of knowledge in that area as a reason. Some responses were incomplete and were

eliminated for that reason. The survey results are summarized in the following paragraphs.

Table 30 summarizes the respondents views on the question of the need for multiple-purpose reservoirs now, in the next twenty years, and in the more distant future. The results indicate that the respondents believe the need for reservoirs will decrease in the future. About two-thirds of the respondents feel there is either no need or no support for reservoirs now. About half feel there will be either no need or no support for reservoirs in the future. Interestingly, more respondents believe there will be an increase in the number of needed and supported multiple-purpose projects in the future. This optimism in the face of the fact that the multiple-purpose project element of the Corps construction program has declined more rapidly in real dollar terms over the past thirty years than any other element of the Corps program is somewhat puzzling. A possible explanation is that the respondents aren't aware of this trend or they may be expecting a rebound in this element of the program for unspecified reasons. Perhaps a more plausible explanation lies in the fact that respondents answered with respect to perceived regional conditions while the data previously analyzed is national in scope. Finally, a declining program element, such as multiple-purpose projects, is not inconsistent with more projects, it simply implies relatively fewer real dollars in projects.

TABLE 30
NEED FOR MULTIPLE-PURPOSE RESERVOIRS

Time Frame	Percent			Number of Responses ¹
	No Need	Need w/o Support	Need w/ Support	
Now	24.4	33.3	33.3	45
Next 20 years	25.6	20.9	46.5	43
Distant future	39.0	12.2	29.3	41

¹ Some responses did not fit neatly into the three categories presented so percents do not sum to 100.

The responses to Question 2, which asks respondents to indicate how the Corps role in water resource development is perceived to have changed over the last 20 years and how it is expected to change over the next 20 years on a project by project basis, are summarized in Table 31. In the first two sets of three columns in Table 31, "decrease" refers to the percent of all respondents who circled 1 or 2, "stable" refers to responses of 3, and "increase" refers to responses of 4 or 5. These answers simply report the percents which responded in certain ways about the past and the future. The final set of three columns is a relative response. "Decrease" refers to the percent of respondents who circled a lower number indicating their future expectations than they circled for their past perceptions. This response is relative in that a purpose scored a 5 in the past but scored a 4 for the future would be considered a decrease even though both numbers indicate an absolute increase. Conversely "increase" refers to relative increases. "Stable" means the respondent circled the same number on both entries.

TABLE 31
SUMMARY OF CORPS RESPONSE TO QUESTION 2

PROJECT PURPOSE	STATUS OVER PAST 20 YEARS			STATUS OVER NEXT 20 YEARS			FUTURE TREND RELATIVE TO PAST TREND			NUMBER OF RESPONDENTS
	D	S	I	D	S	I	D	S	I	
A. Flood hazard mitigation	32.6	34.9	32.6	60.5	27.9	11.6	51.2	39.5	9.3	43
B. Inland navigation	13.6	56.8	29.5	40.9	40.9	18.2	50.0	31.8	18.2	44
C. Deep water parts	21.4	40.5	38.1	26.2	21.4	52.4	26.2	33.3	40.5	42
D. Small harbor navigation	16.7	45.2	38.1	50.0	26.2	23.8	54.8	21.4	23.8	42
E. Hydropower	27.2	36.4	36.4	9.1	9.1	81.8	11.4	29.5	59.1	44
F. Water supply	17.8	60.0	22.2	2.2	13.3	84.4	2.2	17.8	80.0	45
G. Water quality	15.9	34.1	50.0	13.6	40.9	45.5	31.8	38.6	29.5	44
H. Recreation	2.2	28.9	68.9	62.2	26.7	11.1	77.8	17.8	4.4	45
I. Beach erosion	5.0	62.5	32.5	42.5	50.0	7.5	52.5	40.0	7.5	40
J. Hurricane protection	20.0	57.5	22.5	40.0	50.0	10.0	42.5	47.5	10.0	40
K. Fish and wildlife	2.2	15.6	82.2	13.3	55.6	31.1	68.9	22.2	8.9	45
L. Streambank erosion	13.3	48.9	37.8	15.6	55.6	28.9	35.6	44.4	20.0	45
M. Water conservation	25.6	25.6	48.8	4.7	11.6	83.7	9.3	39.5	51.2	43

KEY: D = Decrease, S = Stable, I = Increase.

Over the past twenty years the most respondents, 33 percent, believe that the Corps flood control program has decreased followed by hydropower, 27.2 percent. These are two staples of the Corps multiple-purpose reservoir program and flood control is often regarded as the keystone of the Corps program. This perception of decline could be explained by "the best sites are built" argument of Chapter 3. The most respondents, 82, 69, and 50 percents, believe fish and wildlife, recreation, and water quality, respectively, have increased. This consensus supports the environmental movement and changing values arguments of Chapter 3. About a third of the respondents feel the Corps traditional programs of flood control, navigation and hydropower have increased in the last twenty years. A majority of respondents feel these traditional programs have remained stable. While one cannot conclude from these data that Corps leaders believe the program is declining one can certainly conclude that a minority of Corps leaders believe traditional Corps programs are increasing.

Of more interest are the respondents expectations for the future. Only about 10 percent of the respondents believe such traditional construction programs as flood control, beach erosion and hurricane protection will increase. Inland navigation, the Corps original baliwick, is expected to increase by only 18 percent of the respondents. A large majority expects flood control to decrease and about 40 percent expect inland navigation, beach erosion and hurricane protection to decrease. Interestingly, water supply is tapped by the most respondents as an area of increasing activity for the Corps, as is water conservation and hydropower. It is interesting to consider that significant changes in the Corps program would become necessary to enable the Corps to

become as active in these areas as it has been in flood control. These purposes have never been considered cornerstone purposes of the Corps program.

Respondents indicate that they anticipate a relative de-emphasis on the three environmental concerns which were believed to have increased over the last 20 years. Table 32 presents another way of comparing past perceptions with future expectations on the basis of averaging the response "scores." Declines are expected in 9 of 13 project purposes.

When the relative changes in the Corps program purposes, recorded in the final set of three columns in Table 31, are considered the pessimism about future decreases in traditional programs is exacerbated and optimism about increases in other program purposes is somewhat dampened. One is hard pressed to draw generalized conclusions from these responses. Each purpose was considered separately by the respondent and so it can only be considered separately. While the temptation to say that the fact that 60 percent of all respondents expect a decline in flood control or declines are expected in 9 of 13 project purposes indicates an expectation of an overall decline in the Corps program there is no objective basis for this because a respondent may expect that an increase in water supply activity could more than offset any decrease in other activities. The only valid conclusion to be drawn is that there is some sense of pessimism about the future of traditional project purposes such as flood control and navigation, which are expected to decline, simultaneously accompanied by a sense of optimism about increasing activity in other project purposes.

In Question 3 the 45 respondents identified 21 different problems ranging from water supply to inadequate funding of water programs as

TABLE 32

COMPARISON OF PROJECT PURPOSE SCORES: PAST AND FUTURE

PROJECT PURPOSE	AVERAGE SCORE		NATURE OF CHANGE
	Past 20 Years	Next 20 Years	
A. Flood hazard mitigation	3.2	2.4	Decrease
B. Inland navigation	3.2	2.7	Decrease
C. Deep water ports	3.2	3.3	Increase
D. Small harbor navigation	3.3	2.7	Decrease
E. Hydropower	3.1	3.9	Increase
F. Water supply	3.0	4.3	Increase
G. Water quality	3.5	3.4	Decrease
H. Recreation	3.9	2.4	Decrease
I. Beach erosion	3.3	2.6	Decrease
J. Hurricane protection	3.0	2.6	Decrease
K. Fish and wildlife	4.0	3.2	Decrease
L. Streambank erosion	3.3	3.2	Decrease
M. Water conservation	3.3	4.0	Increase

among the three most important water resource problems in the country. Respondents were also asked to indicate who should be primarily responsible for handling the problem. In order to rank the problems in terms of some consensus of opinion three points were assigned every time a problem was listed as most important, two points for second most important and one point for third most important. Where more than one problem was listed at a time the points were evenly divided. Based on this point system, all problems receiving a "first place vote" are summarized in Table 33. When the response indicated the problem listed should be "primarily" handled by more than one entity this has been interpreted as meaning shared responsibilities in handling the problem.

TABLE 33
THE MOST IMPORTANT WATER RESOURCE PROBLEMS IN U. S.

Problem	Score	Number of First Place Votes
Water supply	100.5	27.5
Flood hazard mitigation	34.5	6
Navigation	34.0	1
Water quality	28.5	2.5
Hydropower	25.0	1
Water conservation	17.5	4.5
Allocation of water supplies	4.0	1
Hazardous waste disposal	3.0	1

The most striking aspect of these results is the clear consensus among Corps leaders that water supply problems are the most important

water resource problems in the country. A water supply problem was mentioned by 38 respondents. Of these respondents 12 felt the federal government alone should be primarily responsible for handling these problems. An additional 15 felt the federal government should share handling this problem with state and local governments. Eleven respondents indicated the state and/or local governments should be primarily responsible for this problem. Interbasin transfers and water for energy development were mentioned as specific water supply problems. Five respondents coupled water supply with water quality.

Flood hazard mitigation is nearly indistinguishable from navigation on total points but it is second only to water supply in first place votes. Of the 19 respondents who mentioned this traditional area of Corps involvement as a problem only eight felt it was to be handled primarily by the federal government. Four more respondents felt the federal role should be shared with state and local governments. Interestingly, seven respondents felt primary responsibility should rest with local and state governments only. One response indicated the federal role should be restricted to interstate projects. Another called flood control a land management problem. The extent to which the primary role in handling flood problems was delegated to or shared with local and state governments was somewhat surprising in that one might have expected Corps leaders to see their responsibility in an area with which the Corps is so closely identified to be greater in terms of primary responsibility. This may indicate a feeling that other government levels should be more involved in preventing and solving this problem.

In sharp contrast to the Corps leaders views on responsibility for flood control each of the 23 respondents who mentioned navigation as a problem indicated the federal government should handle this problem. All but two respondents felt the federal government alone had primary responsibility. The greatest consensus of opinion on the handling of any problem was found in this area. Two respondents felt that "extra deep" ports were a concern while one mentioned user fees and another outdated structures as specific aspects of the navigation problem.

With regard to water quality five of the sixteen respondents to mention it felt the problem was primarily a federal responsibility, with five more feeling the federal government should share the responsibility. Six responses listed only state or local governments as primarily responsible. Because this problem has in the past been handled primarily on a state and local level it is of some interest that ten respondents believe the federal role should be larger.

Half of the 16 respondents who mentioned hydropower believed the federal government should have primary responsibility. Five more felt the responsibility should be shared, usually with private interests. The remainder felt primary responsibility lay at a non-federal level.

Water conservation received the third highest total of first place votes. Three of the seven respondents believed in a primarily federal responsibility to solve this problem. Two felt the state had this responsibility, one affected individuals and the seventh felt it was primarily a state/local problem.

Of interest in considering the respondents views on these six top problems is that, with the exception of navigation, Corps leaders as a group do not see the federal government as being primarily responsible

for the solution to these problems. In the traditional area of flood control there is a belief that state and local governments should have a larger role than they may have had in the past. There is some indication that some respondents believe the federal role in water conservation, quality and supply problems should be greater. Additional problem areas identified by respondents included the need for a national water resource policy, control of storm water runoff, irrigation, acid rain, groundwater pollution, recreation, fish and wildlife, degradation of watersheds and inadequate state and local institutions for implementing water projects.

In general, the response to Question 4, which asked the respondents what they thought was happening and what they thought should be happening in various aspects of the Corps' nationwide program, indicates that Corps leaders do not think things are going as they should be going. Table 34 summarizes the responses. While 75 percent of the respondents believe the Corps role as a construction agency is decreasing (a belief borne out by facts presented in Chapter 4) only 7 percent believe this role should be decreasing. The third set of three columns of percentages in Table 34 indicates a relative measure of the opinions of Corps leaders. "Decrease" here means that the respondent believes the item considered should be less than what it is. E.g., if a trend is increasing and should, in the respondent's opinion, be decreasing or stable this is counted as a relative decrease. The converse is true for "increase" as a relative measure. "Stable" simply means the respondent believes what is happening is what should happen. Seventy-five percent of all respondents feel there should be a relative increase

TABLE 34

SUMMARY OF CORPS RESPONSE TO QUESTION 4 (Percents)

ITEM	What is Happening			What Should be Happening			Relative Opinion About Trends			Number of Responses
	D	S	I	D	S	I	D	S	I	
A. Construction agency role	75.6	24.4	0.0	6.7	48.9	44.4	0	24.4	75.6	45
B. Service agency role	31.1	37.8	31.1	13.3	28.9	57.8	11.1	48.9	40.0	45
C. Trend in authorizations money	60.5	27.9	11.6	4.7	37.2	58.1	7.0	20.9	72.1	43
D. Trend in appropriations money	43.2	29.5	27.3	2.3	36.4	61.3	13.6	27.3	59.1	44
E. Effect of legislation	54.5	9.1	36.4	13.6	54.5	31.8	25.0	31.8	43.2	44

KEY: D = Decrease, S = Stable, I = Increase.

in the construction role. No one believes there should be a relative decline in the construction role.

The consensus is not as strong on the Corps role as a service agency. Here the respondents were about equally divided in their opinions about what is happening. However, more than half believe the service role should increase. Just over 10 percent think there should be a relative decline in the service role while half the respondents feel the role is about right. The greatest consensus on the appropriateness of perceived trends was achieved on the question of the Corps role as a service agency.

On the question of trends in authorization bill money levels about as many respondents felt there should be an increase as felt there is a decrease, indicating substantial disagreement with the perceived trend. Less than 5 percent of the respondents felt there should be a decrease in authorizations. Almost three-fourths of the respondents believe there should be a relative increase in authorizations. There is a decided concern among the respondents that money levels of authorization bills are not as high as they should be. Some of this concern undoubtedly can be linked to the lack of an omnibus bill since 1976 despite Question 4C's caveat. The interpretation of the response to this and the next question are somewhat questionable, however, due to the failure of the question to specify whether current or constant dollar trends should be considered.

Not as many people (43 percent) perceive a decline in appropriations levels as they do in authorization levels. However, a higher percent (61) believe appropriations levels should increase. About one-fourth of the respondents believe appropriations trends are as they should be

while half that many think there should be a relative decrease in appropriations.

Most respondents (55 percent) believe the effects of general legislation over the last 20 years has been to cause a decrease in the Corps program. The same amount believes there should be a stabilizing effect. Of some interest is the fact that one-fourth of the respondents believe the effect of general legislation on the Corps program should be one of a relative decrease.

Considering the overall responses to Question 4 there is a clear majority feeling, evident in the relative opinions of the respondents, that there should not be a decline in the Corps program. On the issue of the Corps construction role and authorizations there is a strong majority favoring an increase. There is also a majority favoring increases in appropriations.

The responses to Question 5, which asked the respondent to indicate the extent to which he/she agrees or disagrees with various statements regarding water development programs, are summarized in Table 35. In general Corps leaders are nearly equally divided on the question of whether the public cares about water resource development (5A) with slightly more (45 percent to 39 percent) believing they do. By nearly the opposite percentage (34 percent to 43 percent) a majority of the respondents feel there is a lack of political enthusiasm for water programs in Congress (5G). Presumably in part as a result of this lack of enthusiasm three out of four respondents believe Congress no longer supports water resource development programs the way it once did (5B).

About three out of four respondents agree that the federal role in water resource development is declining (5D) but less than 5 percent

TABLE 35

SUMMARY RESPONSES TO QUESTION 5 (Percent)

QUESTION	STRONGLY DISAGREE	DISAGREE	AMBIVALENT	AGREE	STRONGLY AGREE	NUMBER OF RESPONSES
A. Public indifference	13.6	31.8	15.9	36.4	2.3	44
B. Lack congressional support	0.0	13.6	11.4	52.3	22.7	44
C. Loss of civil works	36.4	36.4	13.6	9.1	4.5	44
D. Declining federal role	2.3	13.6	11.4	61.4	11.4	44
E. Declining Corps role	2.3	11.6	14.0	67.4	4.7	43
F. Government should decrease role	38.6	43.2	13.6	4.5	0.0	44
G. Lack political enthusiasm	4.5	29.5	22.7	40.9	2.3	44
H. Favor block grants	52.3	31.8	9.1	0.0	6.8	44
I. Interstate federal development	31.8	29.5	13.6	20.5	4.5	44

believe it should decline (5F). This is a clear indication of dissatisfaction with the trend in federal water programs. Again, about three out of four of the Corps leaders believe the Corps role in water resource development is declining (5E). Corps leaders do not seem too concerned that the civil works function will be removed from the Corps (5C) as the same three out of four majority believes this will not happen. One-fourth of the respondents agree that the federal role in water resource development should be confined to interstate projects (5I) but 60 percent oppose such an arrangement. Not unsurprisingly half the respondents strongly disagree with the concept of block grants to the states in lieu of current federal water programs (5H). A total of 84 percent oppose this concept making this the largest consensus of opinion in Question 5.

These responses reveal a belief that public and political support for federal water programs is not very strong. More significantly there is a strong belief that federal water programs in general, and the Corps program specifically, are declining. The strongest consensus occurred in opposition to the notions that the federal role should be declining and the concept of block grants, which could obviate the need for the Corps of Engineers. The respondents were only a little more responsive to the major program changes which could accompany a shift in policy to include federal involvement in interstate projects only. From these responses there evolves a sense that Corps leaders agree with the hypothesis that the Corps role in development of the nation's water resources is declining but that they strongly disagree with any intimation that this is what should be happening. A continuing role for the Corps is favored.

The cumulative impression obtained from responses to Questions 6, 7 and 8 regarding an increased role for the states in water resource development is that the states are not yet ready for such a role. About nine out of ten of the Corps leaders feel the states do not have sufficient financial resources to meet their most critical water resource needs (Question 6). About seven out of ten believe the states do not have the professional and technical expertise to expand their role in water resource development (Question 7). Among the respondents an additional one in ten felt that some states within their jurisdiction had this expertise while others did not. The remainder believe this expertise currently exists. Consistent with the response to Question 5H about nine out of ten of the Corps leaders oppose the concept of block grants to the states in lieu of existing federal water programs (Question 8). The average number of years of experience for the respondents, obtained by Question 9, ranged from 11.5 to 31 years with an average of 21.5 years with the Corps of Engineers.

CHAPTER 9

SURVEY OF CONGRESSIONAL LEADERSHIP

In an attempt to determine the relative importance of federal water resource development programs to congressmen and the extent to which they perceive the decline in the Corps program as hypothesized by this study a mail survey of the members of both chambers of Congress Public Works Committees was conducted. In the remainder of this chapter the congressional survey instrument and survey results will be discussed.

The Survey

On 7 May 1981 a questionnaire was mailed to each of the 42 House Public Works and Transportation Committee members and the 15 Senate Public Works and Environment Committee members. The Public Works Committees were chosen because of their pivotal role in the future of the Corps program. A copy of the questionnaire and the accompanying cover letter is contained in Appendix H. As with the Corps survey the questionnaire was drafted before the quantitative analyses were conducted.

Though much of the congressional questionnaire is identical to the Corps questionnaire there are a few differences. Question 1 was intended to fix the relative importance of federal water resource development among the nation's other domestic policy programs.

Question 2 is a straightforward attempt to estimate the extent of the political rewards for water resource development. Questions 3, 4 and 5 are identical to Corps survey Questions 2 (second part), 4 and 5. Question 6 is an open ended attempt to determine the most important reason for the lack of an omnibus authorization act since 1976.

The initial mailing elicited a reply from nine of the fifty-seven committee members. A second mailing was planned but was never completed on the advance of one of the committee's staff members who felt the resultant response would not justify the expense. Of the nine committee members who replied to the questionnaire three of them declined to complete the questionnaire for personal reasons. The 10 percent response rate is considered inadequate for the purpose of drawing conclusions about committee member attitudes. It was impossible to determine the percent of responses by congressmen and the percent by staff members.

Survey Results

Due to the poor response rate to this survey no inferences can be made or conclusions drawn which can be supported by the data. A summary of the six responses received is presented in this section without conclusions or the intention of implying any validity for congressional or committee attitudes in general.

By assigning a number of points equal to the rank assigned the various domestic policy areas in Question 1 an aggregate ranking of the relative importance of these policy areas can be determined on the basis of the program with the fewest points being the most important, etc. The domestic policy areas in order of their importance to the

six respondents are: 1) energy (16 points), 2) health (19 points), 3) housing and welfare (tied with 20 points), 5) transportation (28 points, 6) urban redevelopment and water resource development (tied with 31 points), and 8) air and water pollution (39 points). Four respondents to Question 2 find political rewards for water projects to be average, the remaining two cancelled each other out by their equal and opposite opinions.

To facilitate an abbreviated reporting of the response to Question 3, which asked respondents to indicate their expectations about the Corps role in water resource development on a purpose by purpose basis over the next 20 years, the average response score is reported in the table below. A score of 1.0 indicates maximum decrease, 3.0 indicates stability, and 5.0 indicates maximum increase.

TABLE 36
SUMMARY OF CONGRESSIONAL RESPONSES TO QUESTION 3

PROJECT PURPOSE	AVERAGE RESPONSE
A. Flood hazard mitigation	3.5
B. Inland navigation	3.5
C. Deep water ports	4.2
D. Small harbor navigation	2.8
E. Hydropower	2.8
F. Water supply	3.7
G. Water quality	3.3
H. Recreation	2.5
I. Beach erosion	2.3
J. Hurricane protection	2.8
K. Fish and wildlife	3.2
L. Streambank erosion	2.5
M. Water conservation	3.5

In Question 4 water supply was listed as the most important in the country by every respondent. One respondent cited the government's

inability to link water supply and water quality as the main problem. Three respondents mentioned water distribution problems as important problems. Water quality and conservation were also mentioned. Among the 16 responses from the 6 respondents there was only one mention of a problem typically regarded as part of the Corps' traditional program and that was port development.

As was done with the responses to Question 3 the responses to Question 5, which asked the respondent to indicate the extent to which he/she agrees or disagrees with various statements regarding water development programs, are summarized below as an average score. A score of 1.0 indicates maximum disagreement and 5.0 indicates maximum agreement.

TABLE 37
SUMMARY OF CONGRESSIONAL RESPONSES TO QUESTION 5

ITEM	SCORE
A. Lack of political enthusiasm	3.3
B. Favor block grants	4.0
C. Government should decrease role	2.5
D. Loss of civil works	2.2
E. Interstate federal development	3.4

Due to the limited number of responses to Question 6, on the lack of an omnibus authorizations act, the responses can be reproduced in full.

Response 1: "Growing awareness of North East and Midwest members of Congress as to the distribution of the federal money on a geographic plane. There is just not enough "pork" to go around anymore.

Response 2: "The primacy of the states in dealing with water resources was in conflict with the Carter Administration and the policies handed down by the Department of Interior. Every effort to reaffirm that primacy was quickly opposed by the Administration. That lack of cooperative effort resulted in a reluctance to deal with the issue at all as perceived by primarily Western Congressmen and Senators."

Response 3: "Water policy lacks clear consensus—what criteria exist (Principles and Standards) are abused by pork barreling. (The) whole federal role is being reexamined and in the meantime, growing discontent with "business as usual."

Response 4: "President Carter 1976-1980.
President Reagan 1981- ."

While the low response rate to the survey was disappointing it is, perhaps, not without significance. The argument has been made in this study that the historical rationale for federal water resource development is weakening and, further, it is coming under the attack of new needs and values. All the while there is no clear policy or even a consensus on what water development programs should be if they are not going to be what they always were. This ambiguity over water policy may be reflected in the lack of response by the committees charged with great authority over the Corps program.

It can certainly be hypothesized that far more urgent demands were being placed on committee members time than filling out this questionnaire. However, it can also be hypothesized that the lack of response to a questionnaire where a congressman is asked to anonymously comment on a field of responsibility indicates the ambiguity with which Congress regards water development. It seems reasonable to conclude that responding to a questionnaire on the future of the Corps civil works program was not perceived as important enough to merit the time of either a congressman or a member of his staff. The lack of response may be the most telling response of all.

CHAPTER 10

WHERE THE CORPS HAS BEEN . . . WHERE THE CORPS IS GOING

Summary

Amidst the continually increasing outputs of waterborne commerce, flood damage reductions, hydroelectric power generation, water supply, recreation and others from Corps projects, the Corps role in the development of the nation's water resources is declining. Corps water development projects continue to be built at the direction of Congress, but the new projects are fewer, smaller and more controversial in recent years. Throughout the long history of the federal development of water resources in the United States, the only real goal has been the preservation and enhancement of human values.

In the nation's beginnings the human values relating to water development were to unite the young country with a cheap and reliable transportation network that would provide the political and economic unity necessary for survival and growth and that would serve the defense of the new nation. Expanding the western frontier became a primary goal for the new nation. The colonies, having severed their umbilical cord with England, had then to rely on each other for their survival and future prosperity. Born out of the necessity of the moment, in that age of freedom and seemingly limitless natural

resources, was an ethic that economic growth and development were necessary and desirable. The nation's water resource development programs in general, and the Corps program specifically, were designed by Congress to serve the human values of the time by encouraging, promoting and making possible growth and development.

Human values change with changes in economic, social, and political conditions and population pressures. Political value judgments based on perceived human needs made at one point in time may not, and probably won't, serve the human needs of another time. Change is the only constant in an urban-industrial society like our own. The challenges of the future cannot be met by clinging stubbornly or ignorantly to the values and value judgments of the past.

The Corps of Engineers was, in essence, assigned by the Congress the formidable task of developing a major portion of the nation's infrastructure. The provision and/or protection and enhancement of this infrastructure was to serve the development ethic which predominated our first 200 years as a nation. The Corps did its job well.

The freedom and affluence of latter twentieth century Americans are based largely on our nation's wealth of natural resources and the private and public policies and activities of the first 200 years of Americans. Through that time society has changed drastically. The technology, economy, society and political structure of America in 1980 are vastly different from those of 1776, and even 1960. Human values have changed drastically. There are now substantial numbers of people who feel that the resources that made America what it is

should be protected and in some instances preserved. The country is united physically, politically, economically and socially, in a way so complex as to defy understanding. With regard to the historical rationale for the Corps program, changes in national values and priorities are weakening it. The facts that the best water projects are built, the West has been developed, most people now live in cities, states are now capable of developing water resources, environmental interests oppose much of the development of water resources and political support for the Corps program is waning have the cumulative impact of causing a decline in the Corps role in the development of the nation's water resources.

The decline in the Corps program is most evident in the value of the annual appropriations received from Congress for new water resource development. Though the appropriations continue to increase, when they are controlled for inflation, there is a significant declining trend in the amount of constant dollars appropriated for new Corps construction projects. On the average, each year the Corps is getting less money for construction of new projects. The major component of decline in the Corps construction program is the decrease in multipurpose projects including hydropower. Other traditional stalwarts of the Corps program such as navigation and flood control have experienced fluctuations in real value of water resource development with an indication that the predominant direction of the fluctuations has been downward.

Over the last 30 years the relative importance of construction to the total Corps program has declined. Though still dominating the

Corps program, an increasing percent of Corps appropriations has been going to such work as operation and maintenance, general investigations and administration of the Corps programs. Appropriations for the non-construction activities of the Corps, which are dominated by operation and maintenance work, have been increasingly significant in nominal and real terms.

Because the trends in the two major components of the Corps program have been opposite and unequal over time, there is no clear statistically significant identifiable trend in the Corps overall program as measured by total appropriations. Nonetheless, by virtue of the dominant position of the construction component of the Corps program the underlying direction of the trend seems to be one of decline. This interpretation is borne out by consideration of various relative measures of total appropriations. Appropriations for the Corps program have declined drastically on a per capita basis over the last 30 years. Appropriations for the Corps program are not coming close to keeping pace with the growth in gross national product and federal budget outlays.

The regional distribution of Corps appropriations, being directly related to neither population nor surface area, indicates the South has been the main beneficiary of the Corps program. Over the last 30 years the Western region has benefitted more than the North Central region, which prior to 1950 had been second to the South in Corps activity. There is great regional inequity in the distribution of Corps appropriations on a per capita basis.

Another strong indication of decline in the Corps program's construction component is found in the number and value of construction

starts on new projects. The number of new starts has decreased drastically in the last 30 years. The estimated real value of the new starts in the last five years has been one-tenth of the five year high during the 1960s.

The cornerstone of the Corps water resource development program is the authorization process which keeps the Corps supplied with a pool of potential construction projects. During the last 30 years 11 of 16 Congresses authorized projects with estimated federal costs of \$12 billion. Popular mythology professes the authorization act to be a ritualistic act of each Congress near the end of its term. Congress has not exceeded the average authorization costs per Congress over the last 30 years once since 1968. There is clear evidence of decline in the Corps construction program as measured by shrinking and less frequent authorization acts.

Not only is there a decline in the number of authorized projects being added to the Corps pool of potential projects but the pool of projects itself has come under direct attack. At some point the desire to have a pool of projects for potential construction gave way to concern over an embarrassingly large backlog of unconstructed projects. As a result of the large authorization bills of the past a standardized deauthorization process was developed. Over \$4 billion in projects have been removed from the pool/backlog in the last five years. As a result the Corps program cornerstone of authorized projects is experiencing a double squeeze.

There is no evidence in the roll call votes of Congress on appropriations or authorization legislation that indicates that

coalitions of political support are eroding. Despite the logical appeal of the arguments presented in this study which suggest political coalitions are weakening there is no evidence of this over time by party or by region. It is significant that the only signs of opposition become evident when ideological issues are at stake. Making inferences from appropriations votes to the Corps program is limited by the fact that most of the funds appropriated by the omnibus bills are now for non-Corps public works and programs. It is worth noting that for the first time the last two consecutive Congresses failed to enact an authorization bill.

A survey of Corps leadership revealed that most believe the era of the multiple-purpose reservoir or "big dam" is over. This belief tracks well with the observed decline in construction appropriations for these projects. It is generally believed that though the past 20 years have marked a period of stable or increasing activity levels for most Corps project purposes this trend will not continue over the next 20 years. There is substantial optimism about increasing Corps activities only in the areas of water supply and hydropower, neither of which currently enjoy the status of navigation and flood control in the Corps program. There is a clear majority of Corps leaders identifying water supply as the number one water resource problem facing the nation. Flood control and navigation are ranked in a virtual tie as the second most important water problem facing the nation.

In general, there is, among Corps leaders, substantial disagreement with the perceived trends in the Corps role in the development of water resource development. Most leaders perceive the Corps' role to be

declining, an important corroboration of the trends indicated by the data. Just as many or more Corps leaders feel the trend should be one of an increasing role for the Corps. About 75 percent of the Corps leaders feel the federal role in water development is declining, and over 80 percent of them disagree with this trend. There is a general belief that water resource programs lack congressional support, and that public support and general political enthusiasm for these projects are also less strong than has been true in the past. There is great opposition to the concept of block grants to the states and strong, though less, opposition to the concept of confining Corps involvement to interstate projects. In line with their responses on other issues is a strong consensus that the states have neither the financial resources nor the technical expertise to take on the major water problems which they face.

The members of the House and Senate Public Works Committees did not find a survey on attitudes toward federal water resource development in general, and the Corps in particular, worthy of a response.

Conclusions

At the outset of this study it was hypothesized that the Corps role in the development of the nation's water resources was declining. Analyses of appropriations, new starts, and authorizations data support this hypothesis. A survey of Corps leadership attitudes and perceptions of trends corroborated the findings of the data analyses. On the strength of the analyses summarized above and presented in detail in preceding chapters the conclusion that the Corps role in developing the nation's water resources is declining is inescapable. With this

fact proven nothing is finished. There can be no rest, for the questions now come more rapidly and they take on a greater importance. The first, and most important, question that must be answered is, "Why?" Without understanding why there has been a decline we cannot know if the decline has any significance or what if anything should be done about it.

Chapter 3 offered some explanations for the decline in the Corps role. Whether there is a causal relationship between the explanations and the decline in the Corps development program remains to be definitively proven. These explanations do hold an undeniably logical appeal for understanding why the Corps program is declining.

Accepting for now that the decline in the Corps role in water resource development is declining because of: 1) changes in national values and priorities; 2) opposition of the Office of Management and Budget; 3) the environmental movement; 4) the decline of the federal role in the development of the West; 5) needed federal development being largely accomplished; 6) the emergence of the national urban majority; 7) the emergence of states as a viable alternative to federal development; 8) criticism by intellectuals; and 9) the lack of political support for water resources, the question of "Why?" yields to the question of, "What are the implications of this decline?" Some technical and popular literature suggest that the need for publicly supported water resource development activities is as strong and urgent today as it ever was. With the Corps program, as currently constituted, in a state of decline, what does this mean to the nation's ability to solve and meet the water resource problems and needs of the present and future?

If the program of the Corps of Engineers, the nation's oldest and largest water resource agency, is declining in the face of water resource problems ever increasing in number and complexity then it is clear that neither the Corps nor the federal government's water resource programs are serving the needs of society adequately. A water resource agency or program operating primarily on the basis of a historical rationale which has long since vanished is an anachronism which must be dealt with. The major implication of the decline then, is that water resource problems and needs will go unmet and will continue to go unmet unless someone steps in to fill the void.

The key to the solution to this situation lies in the phrase "as currently constituted" which is repeatedly used in this study to describe the Corps program. The implication is, of course, that the Corps program, as it exists today, is constituted on the basis of an outdated set of national values and priorities. The obvious answer is that changes are needed. On the basis of a new historic rationale changes can be made. Trend is not destiny.

The questions do not end here. What should be the nature of the change? What should the role of the states be? The role of the Corps? Indeed, the questions never end. To suggest answers to these questions, though tempting, would be pompous. It has taken millions of Americans hundreds of years to get to where we are. To get from the positive "what is" in the state of federal water resource programs to the normative "what ought to be" cannot be accomplished quickly or easily and certainly will not be accomplished here. This study has taken a small step toward determining "what is." Determining "what ought to be" is a task that will never be completed.

Just as change is a constant in our society and in our water resource problems, needs and opportunities, it should be a constant in water politics and the program of the Corps. Without major changes in the Corps role in the nation's water resource development and management the Corps program will eventually become a politically and practically infeasible program. Congress cannot cling stubbornly to traditional values and business as usual in water politics without making the Corps an obsolete agency. The time for change has come. There need to be changes in the distributive manner in which water politics and policies have been formulated and in the basic structure in which the federal government approaches water resource issues. These changes are needed in order to successfully deal with the stresses, discussed in this study, which face the existing "system" and which threaten to undermine our ability to shape our lives in the future by rendering us a nation incapable of dealing with the problems which we face now and will face in the future.

The real point of this study reduces to a very simple one. The role of the nation's largest and oldest water resource development agency in dealing with the nation's water resource problems and needs is declining at the same time that water resource problems and needs are increasing to new and sometimes acute levels. The federal government is not meeting the water resource problems and needs of the nation through business as usual. If it is the intention of Congress to divest the Corps and the federal government from dealing with new water resource problems and needs then it is on the right course. If continued federal involvement in the development and management of the nation's water resources is in the national interest then major

changes in the existing federal programs, policies and political practices are necessary.

There will always be a trend, but trend is not destiny.

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APPENDIX A
AN OVERVIEW OF THE CORPS PROGRAM'S PROCESSES¹

To assist the reader unfamiliar with the various processes by which a Corps project comes into existence to better understand the analyses which are found in this study, this section will provide an overview of five general processes currently necessary for the implementation of a Corps project. The processes, selected here, are the authorization, appropriation, planning, construction, and operation and maintenance processes. Consideration of these processes will complete the background information of the Corps program.

Whenever an individual or group perceives a water resource need or problem and wants a study to be made of possible improvements, they may request the Public Works Committee of the House or Senate to authorize such a study. This request is normally made through a Member of Congress. The Corps may undertake investigations of water and related land resources plans under specific authorizations by Congress or, for smaller studies, under general continuing authorities. Specific authorizations are either legislative actions by Congress or resolutions by either the House Public Works and Transportation or Senate Environment and Public Works Committee. Section 1 of the Water Resources Development Act of 1974 (Public Law 93-251) established a two-phase authorization procedure for major projects. Continuing authorities

¹Much of the material in this section is taken directly from the Corps' Digest of Water Resources Policies and Authorizations, cited in the bibliography.

permit the Secretary of the Army and the Chief of Engineers to undertake investigations and construction of projects having a federal cost not exceeding: \$2,000,000 for small flood control projects, \$3,000,000 in areas that have been designated disaster areas within the past 5 years; \$2,000,000 for small navigation projects; \$1,000,000 for small beach erosion control projects, \$250,000 for clearing and snagging; and, \$250,000 for emergency bank protection. A project under the special continuing authorities is the same independent and complete-within-itself project that would be recommended under regular authorization procedures. Other legislation empowers the Secretary of the Army and the Chief of Engineers to undertake investigations for modifying completed projects or their operation (Section 216 of the 1970 Flood Control Act), for modifying or adding to structures and operations of structures or for acquiring lands to conserve wildlife on projects not substantially completed before August 1958 (Section 2 of the Fish and Wildlife Coordination Act), and for mitigation of shore damage due to navigation projects (Section 111 of the 1968 River and Harbor Act). Section 22 of Public Law 93-251 establishes a program of cooperative assistance to States in preparation of comprehensive plans for water resources development, utilization, and conservation.

After the President has signed a Congressional Act authorizing an investigation, or after the Chief of Engineers has received formal notification of a committee resolution authorizing an investigation, the Chief of Engineers normally assigns the task of report preparation to (1) the Division Engineer who has jurisdiction in the area subject to investigation, who in turn, assigns the task to the District Engineer for the location; or (2) the President, Mississippi River Commission,

in the case of localities under jurisdiction of that commission, who then will normally assign the task to the District Engineer who has jurisdiction. The designated District Engineer is referred to as the reporting officer. The staff of the reporting officer prepares an estimate of the funds required to complete the study as the first step in the appropriations process.

Procedures followed to establish yearly funds for support of the civil works program begin over a year ahead and continue until Congress passes the annual public works appropriation bill. These procedures involve: first, the submission by division and district engineers of fund recommendations for projects; second, review and adjustment by the Chief of Engineers, Secretary of the Army and OMB; presentation to Congress by the President; then, examination by congressional Appropriation Committees and; lastly, allocation of funds to projects after the appropriation has been approved. The following paragraphs describe the budgeting and appropriations process in greater detail. This detail will help the reader draw his own conclusions about the analyses of appropriations data presented in Chapter

The Corps of Engineers' annual budget recommendation is submitted by the Secretary of the Army (SA) to the Office of Management and Budget (OMB) for review in behalf of the President. The recommendation is subject to OMB budget criteria and goals, and is prepared by the Chief of Engineers in consultation with the SA after review and analysis of recommendations of Division Engineers. OMB reviews and revises the Corps of Engineers budget request in accordance with then prevailing objectives and criteria of the Administration. The Corps of Engineers

budget program is evaluated against other agencies programs to determine its relative performance in meeting the Administrations requirements within the President's overall budget ceiling. OMB furnishes, through the Secretary of the Army, the overall budget allowances for programs, studies, and projects and other guidance as conditions warrant.

Following establishment of the President's budget, the Corps prepares supporting budget data and defends the President's approved budget amounts at hearings before the House and Senate Appropriations Committees. The position of the Corps is that of support for the President's Budget recommendations. Congress reviews and revises the President's Budget request based on then prevailing objectives and criteria of the Congress. The Congress has established a budget process and timetable for completing specific activities towards establishing the annual appropriation and revenue amounts. The Budget and Impoundment Control Act of 1974 (PL 93-344) establishes these requirements. In addition to supporting the President's budget an additional purpose for the appearance of division engineers before the Appropriation Committees is to explain details of projects for which funds have been requested. These hearings, usually completed in the spring, are followed by several months of further consideration by Congress before the appropriation bill is approved and the budget cycle is at last complete. In the event Congress does not pass the appropriation bill until after the budget year has started, Congress passes joint resolutions authorizing the Chief of Engineers to continue funding civil works projects and programs already underway at a

rate that does not exceed either the previous year's rate or the rates being proposed in Congress.

The final step in the budget cycle is the allocation of project funds to divisions and districts. It is Corps policy to allocate and use appropriated funds as nearly as practicable in accordance with the program presented to the Congress, including possible modifications by the Congress in its action on the Appropriations Bill. Congress recognizes that in a program as large as civil works all the annual funds cannot be efficiently expanded or committed by the end of the year. Congress also realizes that flexibility in the use of funds must be permitted in a program of this magnitude so adjustments can be made to meet unexpected situations. Such factors as weather conditions, contracting procedures, and labor relations may, under various circumstances, help or hinder the progress on a construction project. To permit flexibility then, the Appropriation Committees have given the Secretary of the Army, who in turn has delegated to the Chief of Engineers, the authority to transfer funds between projects subject to a specified limitation of 15 percent of funds available for construction of a project in any given fiscal year. If the amount available in a year is \$500,000 or less the limit is raised to 25 percent. Transfers beyond these limits must be approved by the Appropriations Committees. Transfers in other areas of the Corps program are generally handled by the Chief of Engineers under different criteria. Funds can only be transferred to projects which have previously received an approved allocation through the budgetary process. The Chief of Engineers has no authority to transfer funds to "new" projects.

During the budgetary process there can be considerable political bargaining. Congressmen often appear before the Public Works Appropriations Committee to appeal for funding for projects of interest to them. Local supporters of the project frequently accompany the Congressman during his appeal. Normally the Congress will fund more studies and construction than the President's budget recommends. This fact has been a persistent source of tension over water development between the legislative and executive branches. Appropriations requests begin in hearings before the House committee. Because the Senate hearings are always held last they serve as the "court of last resort." In this position the Senate normally produces an appropriations bill significantly higher than the House bill. One is tempted to explain this by suggesting that backers of projects which were not included in the House bill become more persistent with the Senate. However, the same argument could be made for the opponents of projects. This political phenomenon strikes at the nature of pork barrel politics which will be discussed at length in the next chapter.

The appropriations process described above was initially introduced to describe how a Corps study is funded. The process is identical and, in fact, far more important and controversial when providing funds for advanced engineering and design studies, construction, operation, and maintenance.

When a study is funded the staff of the reporting officer is bound to conduct the study in compliance with numerous legislative, executive, and judicial laws, guidance and orders. Most notable of these are the National Environmental Policy Act requirement to prepare

an environmental impact statement and the Water Resource Council's Principles and Standards for Planning Water and Related Land Resources. These studies are considered preauthorization studies because, though authorized studies, they are conducted before a project is authorized for construction. Studies for an individual project are often called feasibility studies. The purpose of these feasibility or planning studies is, in theory, to identify the best solution to a problem or need from among several alternatives. The study when completed by the reporting officer begins its long journey back to the Congress by receiving a technical review by the Division Engineer, the Corps' Board of Engineers for Rivers and Harbors, the affected States and other Agencies, the Secretary of the Army, and OMB. President Carter proposed, without success, that the Water Resources Council provide an independent technical review of all water agency reports prior to forwarding to OMB which performs more of a fiscal review.

Upon receipt of a report in Congress it is referred to the Committee on Public Works of each branch of Congress. Each report that contains recommendations for authorizations or information which should be made readily available for future reference is ordered printed as a House or Senate document by the committee of the branch that originated the authorization for the study and report. Reports which do not contain any recommendations for authorization are usually not printed but are available to the committees and their staffs for consideration. On only a few occasions over many years have such reports been used by Congress as a basis for authorizing civil works projects.

The committees or individual Members of Congress may, but only rarely do, introduce a special bill proposing authorization of a civil

works project. Normally, the reports are accumulated and are considered by the committees for inclusion in an omnibus authorization bill, usually at two-year intervals.

In a year in which the Congress intends to consider an omnibus authorization bill, the Public Works Committee of either branch, usually the House, establishes a schedule of committee or subcommittee hearings. The other branch normally schedules hearings after the committee of the originating branch has reported out a bill or after its hearings have been well advanced. Each report is discussed at a hearing on a schedule which is announced in advance to permit the Corps of Engineers to prepare brief summary information for presentation before the committee and to permit interested Members of Congress, representatives of other Federal agencies, the States, and the public to request opportunity to make a statement to the committee on any of the recommendations under consideration. Members of the committee are furnished copies of the reports as soon as available and are given summaries of each report in advance of the hearings. At the hearing, a Corps representative is usually called first to describe the problems studied in the report, the recommended solution and significant alternatives, the estimated benefits and costs and the views of reviewing authorities and of agencies, States and others who have commented on the proposals. Such presentations to the committee are made by an officer or civilian employee of OCE who has familiarized himself with the report. They may require only a few minutes for minor or uncomplicated projects or may extend over several hours or days for major or complex plans. Practically every report evokes at least a few

questions or some discussion by committee members at hearings. Witnesses other than representatives of the Corps present statements on a high percentage of the reports considered. Written communications are also received and placed in the record and committee members often ask the Corps representative and others to furnish supplementary information on points discussed at the hearings.

Upon completion of hearings, the subcommittees and full committee hold executive sessions and prepare a committee report with recommendations and minority views, if any, on a proposed omnibus bill. There is often considerable debate on the floor of each branch of Congress on omnibus bills for civil works authorization and usually conferences are necessary to reconcile differences in the bills as passed in the House and Senate. This is the second authorization process. Generally, when "authorization" is mentioned in the literature it is in reference to this authorization stage. The earlier stage is generally referred to in the literature as the preauthorization stage. Despite this confusing terminology these are two distinct authorizations. The second stage authorizes construction of a project following two phases of advanced engineering and design studies. The first phase, Phase I, consists of the final detailed planning study. Phase I contains the final economic, social and environmental analysis of the project. Phase II consists of the technical design and specifications of the "best" project identified in the Phase I study. The Phase I project recommendation may be an affirmation of the project identified during the preauthorization planning study or it may be a different project if conditions or needs have changed. The advanced engineering and

design (AE & D) studies are also referred to as postauthorization studies. Section 1 of the Water Resources Development Act of 1974 (Public Law 93-251) established a new procedure for authorization of major water resources development projects of the Corps of Engineers. In essence it provides for a two-step project authorization by Congress, one authorization for AE & D and a second for project construction. This in effect means three separate authorizations. If the Phase I results in only minor change from the Survey report plan, and the project is without substantial controversy, the Chief of Engineers, upon transmittal of his finding to that effect to the Committees is authorized to continue project planning pending project authorization by later action of Congress. Division Engineers may proceed with Phase II AE & D upon direction of the Chief of Engineers. If project changes are significant or there is substantial controversy, further planning must be curtailed pending further action by Congress. Authorization of construction by Congress would be provided in a Water Resources Development Act.

As if the authorization process alone were not complex enough one must bear in mind that the Secretary of the Army has continuing authority to approve certain flood control, navigation, and shore protection projects with specified limits on Federal participation per project. In addition, there are blanket continuous authorities for snagging and clearing work, for flood control and navigation and emergency bank protection. This means that Congress has given the Secretary of the Army broad discretionary authority to study and construct certain small scale projects. In addition, Congress, in Section 201 of PL 89-298,

has given the Public Works Committees authority to authorize certain other projects under \$15 million in federal costs. Projects, previously authorized for construction, which have been authorized for at least eight years without any Congressional appropriations within the last eight years may be deauthorized in accordance with the provisions of Section 12 of PL 93-251 as amended by Section 157 of PL 94-587.

Following this authorization stage the appropriations process described above is repeated to provide funds for postauthorization studies and/or construction. An important distinction between the authorization and appropriation processes needs to be made here. An omnibus authorization bill is formulated to authorize a number of new projects, project modifications, or extended limits to spending under continuing authorities. Associated with this formulation is an estimated cost (to be discussed in detail in Chapter 4). The omnibus bill authorization process does not commit the Congress to these expenditures. Neither does the omnibus bill appropriate funds to support the program formulated by the bill. To label an authorization bill inflationary is not, strictly speaking, an appropriate label. The authorization process establishes a pool of projects of which some, but not all, will be funded by the Appropriations Committees in future omnibus appropriations bills.

Once local interests have signed a contract guaranteeing certain assurances of local cooperation (Commonly called the A, B, C's of local cooperation) including provision of the non-federal share of project costs and funds for construction have been appropriated construction can begin. The Corps normally will solicit bids for construction and

award construction contracts. The Corps also supervises the construction of a project. Once projects are constructed and placed into operation the operations and maintenance program (O & M) provides for the continued functioning, care, and preservation of the project. The Corps may be solely responsible for the O & M of a project, local interests may be solely responsible for the O & M of the project according to the terms of their local cooperation contract, or the Corps and local interests may share the responsibilities for O & M. The distribution of responsibility varies from project purpose to project purpose with the program and from project to project within a purpose.

Table A-1 places this complex process from the first authorization of a planning study through construction into a context of time. Based on a study of 115 projects authorized in 1958 the average time to completion is 17 years and 11 months. This does not tell the whole story. There is some unknown lapse of time between perception of a problem or need and authorization of a study. In addition, legislation (principally NEPA) and federal rules and regulations (principally Principles and Standards) have added to the study times considerably. The failure of Congress to enact an authorization bill in the last five years would, if a trend, substantially increase the time a project spends with the Congress.

TABLE A-1

AVERAGE TIME FOR PLANNING AND CONSTRUCTION OF CIVIL WORKS PROJECTS
(MAY 1971 STATUS)

Item	Time	Responsibility for Action
Awaiting funds for study initiation	4 Yrs. 4 Mos.	Congress
District office study and report	4 Yrs. 6 Mos.	Corps
Division office review	2 Mos.	Corps
Board of Engineers for Rivers and Harbors review	3 Mos.	Corps
Interagency coordination	6 Mos.	Review and coordination
Secretary of the Army review	4 Mos.	Corps/Sec. Army
OMB review	3 Mos.	Review and coordination
Awaiting authorization	7 Mos.	Congress
Awaiting initial engineering funding	2 Yrs. 1 Mo.	Congress
Advanced plans and design	2 Yrs. 2 Mos.	Corps
Awaiting initial construction funds	1 Mo.	Congress
Construction	2 Yrs. 8 Mos.	Corps
Total time with Congress	7 Yrs. 1 Mo.	
Total time with Corps	10 Yrs. 1 Mo.	
Total time in review and coordination	9 Mos.	
Total time to complete a project	17 Yrs. 11 Mos.	

SOURCE: U. S. Congress. Senate. Corps of Engineers Oversight Hearings, 1974.

APPENDIX B
APPROPRIATIONS CHRONOLOGY

In order to make a quantitative analysis of the Corps role in water resource development based on the moneys annually available to the Corps some basic understanding of the appropriations process and history is helpful. Without this basis for understanding, conclusions may be improperly drawn from the historical data. At a minimum an overview understanding of recurrent political arguments and newly developing arguments is necessary as a backdrop against which quantitative analyses can take place. To quickly review the appropriation process discussed in Appendix A the most important point is the unique way in which Corps projects are funded. The federal government funds construction projects in two distinct ways. The first method, full funding, means that when a project receives its first appropriation of funds the entire federal cost of the completed project is put into the budget. The second method, year-by-year funding, only puts into the budget the amount appropriated in that particular year. For example, if the total federal cost of a project is \$10 million to be spent in equal increments over a five-year period the amount budgeted in year one under full funding would be \$10 million; under year-by-year funding it would be \$2 million. Under the second method an additional \$2 million must be specifically appropriated in each of the following four years. The Corps is the only major federal agency to utilize year-by-year funding. This method of funding has been the preference

of the Congress. Beginning in fiscal year 1979, at the direction of President Carter, the Corps has made its budget requests for new construction starts on a full funding basis. Thus far Congress has not concurred with this method of funding Corps projects.

The Congress' peculiar method for funding Corps projects has led to two frequently raised criticisms. Some proponents of Corps projects feel that leaving the level of funding for projects underway to this annual incremental style of decision making has led to prolongment of project construction. Because project construction funding decisions are annually subjected to a constantly changing set of political and economic vagaries construction schedules are often politically determined rather than technically determined. Relating to the example of the previous paragraph, for example, funding may be cut to \$1 million per year after the first year if federal fiscal and political policies dictate lower levels of spending. The project now will take nine years to complete rather than five. Four additional years of inflation is also likely to increase the costs. Meanwhile, four years of benefits are foregone. On the other hand opponents to this method of funding feel that the Congress by making annual appropriations is masking the true cost of Corps projects from public scrutiny. If Congress authorized one \$10 million project, as described above, each year for four years, in year four the appropriation level would be \$8 million but the long-run financial commitments of the government would be \$40 million for these projects with \$20 million yet to be appropriated to complete these projects. When project price tags run into the hundreds of millions of dollars and projects underway run into the hundreds it is easy to see how future financial commitments can become very large.

Congress, at present, continues to fund Corps projects on a year-by-year basis. The historical rationale for this funding method is to maximize congressional authority over the initiation and funding of projects.¹ Of the two criticisms discussed above the most important to the Corps appropriations history since 1950 is the latter. The hidden long-term costs of Corps projects have typically become politically more controversial in times of fiscal constraint.

In the paragraphs to follow a review of the appropriations legislation since 1950 is presented by decade. The discussion which follows and the data presented are restricted to the single major appropriation act of each fiscal year. The reader should be aware of the fact that the Corps' and other federal agency's budgets are typically increased once or twice each fiscal year by supplemental appropriations acts. Because these acts do not significantly increase the overall Corps appropriation they are not included in the analyses which follow.

The 1950s

The decade began with the Corps receiving \$0.7 billion, its largest Civil Functions Appropriations Act ever. All but about 5 percent of this was for water projects, the remainder going to other civil functions of the army. From the beginning of the period of record the appropriations bills were simultaneously condemned as "pork barrel" and praised as "essential legislation." The House fought

¹For a full discussion of this rationale see Maas 1951, Holmes, 1972 and 1979, and Ferejohn 1974.

bitterly against the Senate to have the size of this bill reduced but the Senate prevailed. In FY 1951 appropriations for Army Civil Functions were included in the first omnibus money bill in modern history. In this bill the Army Civil Functions accounted for 2 percent of the total bill and there was no controversy. In FY 1952 the Congress returned to the Army Civil Functions Appropriations Bill. The House cut the President's budget by 20 percent and banned new starts completely. The Korean conflict was the force behind the House's austerity move. The Committee justified its no new start dictum saying the nation ". . . is straining every effort to provide the necessary funds for its security and perhaps survival." A severe flood on the Mississippi followed the House bill and the Senate restored many projects and cuts. Planning funds were restricted to projects certified by the President as necessary to the defense effort. In FY 1953 the House reiterated that civil works should be subservient to national defense. They stuck to heavy cuts and no new starts. There was concern raised over the long run commitment of funds to projects already underway and the growing backlog of authorized projects. The cuts were condemned by some members who cited the amounts spent on foreign aid through the Marshall Plan in comparison to those spent for water projects in the United States. The Senate again increased the bill and added new starts on the grounds of national defense. President Truman expressed his regrets that he was not able to spend what he would like to have spent due to the "emergency."

The new Eisenhower Administration immediately cut Truman's FY 1954 budget request from \$0.7 billion to \$0.5 billion. The House

cut this request further and the Senate also cut the bill, though not as deeply. The most debated issue was Eisenhower's public power policy. The FY 1955 bill was accompanied by cries of "pork barrel" by Senator Paul Douglas (D Ill.) but was not controversial.

In FY 1956 the first omnibus Public Works Appropriation Act was passed. About 40 percent of the appropriations were for the Corps civil functions, 42 percent was for the Atomic Energy Commission and the remaining 18 percent went to the Bureau of Reclamation, TVA, three power administrations, and the Army Quartermaster Corps. There was controversy on three fronts: TVA's Dixon-Yates power plant, AEC operating expenses, and Corps projects. Controversy surrounding Corps appropriations were now compounded as they became tied to controversies surrounding TVA, AEC and possibly other agencies. President Eisenhower objected to the Congressional approval of 107 unbudgeted projects. Eisenhower voiced his "great reluctance" to sign the bill because many projects had no detailed studies and eventual total costs were, therefore, unknown. The President said costs were only \$47 million now but would eventually be at least \$1.5 billion.

The FY 1957 bill was again accompanied by controversy over a TVA power project. Eisenhower again said he was "concerned" about the 52 unbudgeted starts because of their serious effect on future financial commitments of the government. The FY 1958 bill was not controversial in the Congress but Eisenhower said he was "deeply concerned" by the large financial commitment represented by the unbudgeted new starts. In the FY 1958 bill funding for the AEC was deleted and considered separately. The President called for no new starts in 1959. The House rejected this request finding that the depressed economic situation called for a different approach. The

Administration was also charged with deliberately stretching out construction schedules. The Senate joined in the recession fighting spirit of the bill considering water projects to be ". . . a quick and effective stimulus to the economy." Eisenhower's ire with the Congressional practice of including unbudgeted new starts continued to galvanize. He signed this bill only because he felt compelled to keep ongoing projects going.

The 1960s

The Corps entered the 1960s watching Congress uphold a veto of the Public Works bill which included its funds. Before Congress agreed on the final version of the first FY 1960 public works bill Eisenhower warned Congress ". . . that skyrocketing Federal spending be stopped." He felt the argument that new construction results in relatively small increases in expenditures in 1960 was "immaterial." The House agreed with the President's budget request but rejected the no new starts policy by reprogramming funds. The rejection of the President's policy was overwhelming and bipartisan according to the Committee report. The House approved Corps funds of \$0.9 billion, about 75 percent of the total bill, with 44 new construction starts and 24 new surveys.

The Senate added 62 unbudgeted projects to the 68 already approved by the House and increased Corps appropriations by \$70 million. The conference bill exceeded budget requests by \$30 million and included 67 unbudgeted new starts. On August 26, 1959 President Eisenhower vetoed the bill saying the 67 projects, ". . . ignores the necessity for an orderly development of America's water resources within the

Nation's fiscal ability." This was the President's 144th veto. In the previous four years Congress budgeted over 200 unbudgeted starts involving eventual costs of nearly \$3.8 billion. Eisenhower cited these facts as one example of how Congress in one year builds increases in the Federal budget for future years. He urged enactment of a bill with no new starts. The President's veto was upheld when the House fell one vote short of the necessary two-thirds majority needed to override the veto.

The only change the House Committee made in reconsidering the vetoed bill was a 2.5 percent across-the-board cut in all funds. No new starts were omitted. The House adopted this bill as did the Senate and Eisenhower on September 9, 1959 vetoed it for the reasons expressed earlier.

The House immediately overrode the President's veto by 12 votes, the Senate by 8 votes. The September 10 override of the President's veto was the first such successful action since 1952. White House Press Secretary James C. Hagerty said the President, "thought that the lure of the pork barrel was a little bit too much for the Congress to avoid." The final appropriation to the Corps was \$0.9 billion out of a total bill of \$1.2 billion.

In FY 1961 AEC funds were back in the Public Works Appropriations bill. Eisenhower abandoned his no new starts policy and asked for 39 new starts, 33 of which were for the Corps. The bill passed with no controversy. In FY 1962 the major controversy was whether the federal government or private power companies should construct the principal transmission lines for power from the Upper Colorado River Basin project. There was little other controversy in this first bill enacted by

President Kennedy. In the FY 1963 Corps appropriations topped \$1 billion for the first time in its 138 years in the water resource development field following Kennedy's rejection of the no new start policy. River basin commissions and an accelerated public works program swelled the final act to \$5.1 billion. The Corps got 65 new starts from the act. Action on the conference report was delayed by a feud between Senator Wayne Morse (D Ore.) and Representative Michael J. Kirwan (D Ohio). Kirwan eliminated funds for five new starts in Oregon because Morse earlier had opposed Kirwan's bill for an aquarium in the District of Columbia. Compromise, with the aid of President Kennedy, eventually broke the logjam.

President Johnson signed an uncontroversial \$4.4 billion bill into law for FY 1964. Of interest in this law was a phenomenon that had occurred before and would occur again which bears noting. Both the Senate and the House passed a bill which was below the total budget request and the requests for all agencies but the Corps. In addition there were cuts over the FY 1963 levels of funding for all line items but the Corps and the Department of Interior. The FY 1965 Public Works Act was not controversial for water projects. During the mid-1960s new starts containing major power features were more common. The FY 1966 act received the traditional criticism and support of "pork barrel legislation" and "essential legislation." Senator Proxmire began to hit full stride in his criticism of Corps projects as he cut his teeth on the Cross-Florida Barge Canal project. The only controversy in the FY 1967 act was the controversial Dickey-Lincoln School power project in Maine. The FY 1968 act was somewhat unusual in that new starts were down to 34 from the previous year's 58 with total federal

costs for these starts down from \$0.9 billion to \$0.2 billion with no major power features at any project. The major concern at this time was inflation. Opponents of public power in New England defeated the Dickey-Lincoln School power project. Funds for the Federal Water Pollution Control Administration were first included in this act. In FY 1969 for the first time since 1954 the House Committee did not include an unbudgeted item in the public works bill. The nation's fiscal situation was cited as the reason for a decrease in Corps funding over the previous year and for the reduction in new starts to 11. Water development interests in the Congress expressed their concern over the leanness of recent water appropriations.

The 1970s

In FY 1970 the Corps received \$1.1 billion out of a public works total of \$4.8 billion. Water pollution control began to rival the Corps with appropriations of \$0.8 billion and actually exceeded the Corps construction funds of \$0.7 billion. The House Committee, concerned with the flood damages of \$1.5 billion in the previous year, recommended \$1.1 billion for the Corps which was adopted by the House. The Senate Committee called the need for water resource development "urgent" and described the Corps construction funding situation as "critical." The Committee pointed out that between 1964 and 1970 major social program outlays increased 123 percent while there was actually a reduction in the funds recommended for water resource development. The Senate approved \$1.2 billion for the Corps. The debate on this bill was overshadowed by concern for the appropriate funding level for

water quality control. There were no charges of pork barrel from the chambers of Congress. President Nixon signed the bill into law.

In FY 1971 construction grants of \$1.0 billion for waste treatment projects exceeded the \$0.9 billion for Corps construction projects (out of a total \$1.4 billion appropriation). There were 35 new starts for the Corps. Despite Senator Proxmire's cry of inflationary spending and his appeal to the President to veto this bill the passage of the FY 1971 act was uneventful. In FY 1972 the House Committee reacted strongly to President Nixon's impoundment of FY 1971 planning and construction funds charging his actions increased long-term costs and decreased benefits. Concern for the environment and the need for hydroelectric power were also expressed by the Committee. In FY 1972 funds for waste treatment were transferred to the Environmental Protection Agency. In FY 1972 construction funds for Corps projects first topped \$1 billion. In FY 1973 the House Committee gave higher priority to projects of power agencies due to the "serious energy situation facing the nation." Critics of "the pork barrel" began to speak more against special interest legislation than the inflationary impacts of the projects. In FY 1974 \$0.3 billion was trimmed from the Corps' previous year budget. Charges of "pork barrel" and "stretch-outs" or "slowdowns" came from both sides. Concern over inadequate environmental impact statements began to grow. Environmental destruction joined inflation and special interest legislation as a common criticism of public works bills.

Top priority in the FY 1975 bill was given to planning and constructing hydroelectric power projects to deal with the energy crisis. There was a growing concern over delays in Corps construction as a

result of environmental opposition and litigation. In FY 1976 the Energy Research and Development Administration replaced the AEC in the omnibus public works bill. Corps funding topped \$2 billion for the first time, reaching the second billion in only 13 years after taking 138 years to reach the first billion. However, it should be noted that because the federal government was changing the starting date of its fiscal year from July 1 to October 1, FY 1976 contained 15 months. During the early and middle 70s energy began to replace water development as a primary concern in debate over public works appropriations despite continuing cries of pork barrel and essential legislation.

The FY 1978 public works appropriations bill became a vehicle for three of the most controversial issues during President Carter's first year as President. They were: Carter's attempt to kill funding on certain ongoing water development projects, attempts to phase out funding for the Clinch River nuclear breeder reactor and to provide funds for neutron warheads. All three issues were comprised in the final bill. Only the first will be considered here.

The Carter administration reviewed 320 federal water projects to reduce wasteful and hazardous federal programs and to protect the environment. A tentative decision to eliminate 19 ongoing projects, though supported by environmentalists and some Congressmen, was met in Congress by widespread rage. President Carter responded to this reaction by revising his "hit list," dropping three of the original 19 projects and adding 16 more. A final list deleted funding for 18 projects from the budget. House action on Carter's budget indicated that support was stronger than expected and though Carter's proposal to delete funds was rejected the margin of opposition indicated a

veto could not be overridden. As a result the Senate took Carter's list more seriously. In the final version of the act funding for nine projects was eliminated, three projects were modified and no new water project starts were initiated. The battle was only beginning.

The FY 1979 public works appropriations bill as originally drafted provided funding for six "hit list" projects for which funding was deleted the previous year. President Carter considered the projects dead forever, the Congress considered funding delayed for a year. The struggle was a symbolic one for control of the nation's water resource development policy. Carter also sought full funding on 36 new starts which met his new criteria for water development projects. Carter vetoed the original bill and his veto was sustained by a wide margin. The compromise bill which resulted, among other things, precluded the spending of funds on the six "hit list" projects but did not provide for full funding of projects. Though the Administration had requested \$3.0 billion for the Corps, FY 1979 funding approved was \$2.6 billion.

1980

Corps appropriations totaled \$2.8 billion in FY 1980, the highest total ever. Cries of "pork barrel" were now being made by Congressman Robert W. Edgar (D Pa.). The bill was really a single issue bill as everyone seemed to be taking a little breather following the fights of the two previous years. The FY 1980 act allowed completion of TVA's controversial Tellico Dam in Tennessee. Congress attached a rider to the bill which effectively exempted the Tellico Dam from any legislation blocking its construction. President Carter considered a veto but decided not to for political and policy reasons.

Summary

In 1950 the House was battling the Senate over proper levels of funding for the Corps, which received its largest appropriations to date. In 1960 the Congress was battling the Administration over the same issue. In 1970 the newly formed water treatment construction grants program exceeded the Corps construction program. In 1980 the only issue was an environmental one while the Corps received its largest appropriation to date. During the intervening years the essential political nature of the water development process can be seen by considering that projects are occasionally funded or not funded on such issues as one's vote on an aquarium bill. Feuds abound through this period. Between Congressmen, between public power and private power interests, between development and environmental advocates, between chambers of Congress, and between branches of government.

An examination of the public record shows that appropriations bills always originate in the House. With few exceptions the Senate approves more money for the Corps than does the House. The public works bills usually contain something for every state in the Union. Though the majority of controversies and certainly the major controversies have involved water projects, the inclusion of other federal programs in the omnibus bills has complicated the interpretation of the debate and passage of these bills. The intervention of exogenous factors such as wars, energy crises, inflation rates, etc. can affect not only the level of funding but the level of controversy in the public works appropriations bill.

Reviewing this extensive record in so short a space necessarily omits most of the content of the legislation and legislative history

of these years. Nonetheless, one can see changes at work. Changes in the feuds, in the nature of the opposition, in the reasons for vetoes, etc. are obvious. Two major points remain to be made after looking at these years of records. First, the public works process by which congressmen provided water projects to their constituents, long regarded off-limits to executive branch interference, was no longer sacrosanct. Eisenhower challenged the Congress with his vetoes. Environmental interests became galvanized by the National Environmental Policy Act and could successfully challenge projects. President Carter openly challenged the "business as usual" process and while he was not completely victorious neither was he totally defeated. Such a challenge would have been unheard of in 1950. Second, through it all appropriations levels steadily increased from \$0.7 billion to \$2.8 billion.

APPENDIX C
THE SEMILOG TRANSFORMATION

A semilog transformation is often useful for formulating models involving rates of growth. For example, it might be hypothesized that the appropriations for Corps construction activities grew at some constant annual rate with minor variations that were the result of various random events over the period 1950 to 1979. This annual growth rate can be estimated by taking the initial appropriation value of \$531 million from 1950, the last observed value of \$1,567 million from 1979 and then with the aid of a log table calculate the average annual rate of growth; that is compute the growth rate per annum at which \$531 million would become \$1,567 million after 30 years. This procedure amounts to taking the first and last points in a time series data plot and finding the slope of the line that connects these two points. It fits a line to only two points in a scatter of points ignoring the information contained in the remainder of points. A growth rate so obtained depends solely on the end points chosen.

A far superior alternative technique for estimating growth rates is the semilog transformation. This procedure postulates a relationship such as

$$Y_t = a(1+g)^t e^{u_t}$$

where

Y_t = the value for the variable whose growth is to be estimated in year t ,

a = a parameter

g = a parameter that is the compound rate of growth of Y_t ,

u_t = the disturbance term.

If we take the log of both sides of the above relationship we have

$$\ln Y = \ln a + t \ln(1+g) + u_t.$$

If we let

$$Y^* = \ln Y_t$$

$$a^* = \ln a$$

$$b^* = \ln(1+g)$$

we obtain

$$Y^* = a^* + b^*t + u_t.$$

This tells us that a compound rate of growth implies a linear relationship, not between Y_t and t , but rather between $\ln Y_t$ and t . Since $\ln(1+g) = b^*$, then $g = (e^{b^*} - 1)$. We therefore estimate the rate of growth, g , by $\hat{g} = e^{\hat{b}^*} - 1$.

The semilog transformation is most appropriately used when theory suggests that a dependent variable is growing at some annual rate affected only by random variations. Because this study argues that the variations in appropriations are not random but are the predictable results of known stresses to the existing water politics arena the applicability of this procedure is limited from the start. The semilog transformation is, however, still used because it utilizes all data points and in so doing is superior to the alternative method previously discussed.

The reader is cautioned against accepting the growth rates as gospel. To take a 1950 starting point and apply one of the annual growth

rates estimated by the semilog transformation will not capture the non-random fluctuations in the data. The greatest utility of the semilog transformation in this study is its ability to indicate a statistically significant trend direction utilizing all available data points.

APPENDIX D

SUMMARY OF REGRESSION RESULTS

The following summary regression results are presented in approximately the same order they are referenced in the text beginning in Chapter 4. Values for equations 1-14 are in \$ millions with all real value equations in 1980 dollars. Equations 15-18 are in \$ thousands.

1) Log of Total Appropriations	= 6.1 + .0580 Time (104.8)(17.7)	$R^2 = .95$ F = 313.7	N = 30
2) Log of Construction Appropriations	= 5.9 + .0482 Time (88.0)(12.7)	$R^2 = .85$ F = 161.2	N = 30
3) Log of Navigation Appropriations	= 4.0 + .0693 Time (23.4)(7.2)	$R^2 = .65$ F = 52.4	N = 30
4) Log of Flood Control Appropriations	= 4.8 + .0660 Time (48.6)(11.9)	$R^2 = .83$ F = 141.1	N = 30
5) Log of Multiple-Purpose Appropriations	= 5.3 + .0226 Time (65.1)(5.0)	$R^2 = .47$ F = 24.7	N = 30
6) Log of Other Work Appropriations	= 4.3 + .0831 Time (65.7)(22.4)	$R^2 = .95$ F = 503	N = 30
7) Log of General Investigation Appropriations	= 7.8 + .1305 Time (74.0)(24.3)	$R^2 = .96$ F = 588	N = 27
8) Log of Real T. A.	= 3.5 - .0013 Time (54.4)(-0.4)	$R^2 = .00$ F = 0.1	N = 30
9) Log of Real C. A.	= 3.4 - .0111 Time (40.7)(-2.4)	$R^2 = .17$ F = 5.7	N = 30
10) Log of Real N. A.	= 1.4 + .0100 Time (7.2)(0.91)	$R^2 = .03$ F = 0.8	N = 30

11)	Log of Real F. C. A.	= 2.2 + .0066 Time (20.3)(1.1)	$R^2 = .04$ F = 1.2	N = 30
12)	Log of Real M. P. A.	= 2.7 - .0367 Time (31.9)(7.8)	$R^2 = .68$ F = 60.4	N = 30
13)	Log of Real O. W. A.	= 1.7 + .0238 Time (41.1)(10.0)	$R^2 = .78$ F = 99.4	N = 30
14)	Log of Real G. I. A.	= 9.9 + .0663 Time (73.6)(9.6)	$R^2 = .79$ F = 93.1	N = 27
15)	Log of New Start Appropriations	= 13.9 - .0059 Time (32.8)(-.2)	$R^2 = .00$ F = 0.0	N = 21
16)	Log of Dollars/New Start	= 9.6 + .0875 Time (31.6)(3.6)	$R^2 = .41$ F = 13.1	N = 21
17)	Log of Real N. S. A.	= 11.2 - .0502 Time (26.1)(1.5)	$R^2 = .10$	N = 21
18)	Log of Real D./N. S.	= 6.8 + .0431 Time (22.7)(1.8)	$R^2 = .15$ F = 3.2	N = 21

APPENDIX E

OMNIBUS AUTHORIZATION ACTS CHRONOLOGY

Authorization acts were originally legislated as two separate pieces of legislation; one an omnibus rivers and harbors act, the other an omnibus flood control act. In practice they were often enacted together as separate titles of the same act. During the 1970s these two types of legislation were combined into one omnibus water resource development act. Several omnibus acts have been accompanied by a river basin monetary authorization act which requires some discussion for clarification. River basin monetary authorization limits work much the same as the Congressional ceiling on the national debt. The amount of money which may be spent in any particular river basin on water projects is set or authorized by Congress. The money spent in a river basin is accumulated over time and a new project cannot be initiated in a basin unless the monetary authorization limit is greater than the accumulated expenditures plus the cost of the new project. Periodically these water resource development ceilings must be raised to facilitate new development. The following paragraphs discuss the omnibus bills enacted from 1950 through 1980 without emphasizing the policy provisions of the various acts.

The River and Harbor and Flood Control Acts of 1950

As enacted in May, 1950 HR 5472, Public Law 81-516, authorized a total of \$1,483,593,325 for new projects, \$200,000,000 for Missouri river basin reclamation projects and \$46,658,500 for miscellaneous matters such as surveys of proposed projects. The final bill was \$0.4 billion higher than the House version and \$0.1 billion less than the Senate version. It authorized construction, repair or improvement of 89 river and harbor projects and 59 flood control projects with authorizations ranging from a low of \$7,500 for Palm Beach, Florida to a high of \$200,228,000 for an interstate project on the lower Mississippi River basin.

The major controversy in debate over this bill was that the Truman Administration's proposal for a Columbia Valley Administration dogged the bill's movement through the Senate. The Senate laid this proposal to rest by noting CVA legislation was to be separately considered. The Senate added \$142 million in projects in the Columbia basin to be constructed by the Corps, which had jurisdiction over this work. This bypassed the Administration's second choice plan for coordinated development of the Columbia Valley by the Bureau of Reclamation and the Corps.

The bill was strongly supported by the 40th annual convention of the National Rivers and Harbors Congress in Washington, D. C. The Mississippi Valley Association at its 31st annual convention in St. Louis strongly endorsed the work of the Corps. Other lobbies also supported the bill and opposed valley administrations in general as did the NRHC and MVA. Several days after signing the bill into law

President Truman criticized the bill as "seriously deficient." Truman criticized the Congress for giving the Corps too much of the work and for rejecting his proposal for joint Army-Interior projects in the Columbia basin.

The Flood Control Act of 1954

HR 9859, enacted as PL 83-780, was the first omnibus flood control bill voted by Congress since 1950. It was the smallest authorization bill in ten years, authorizing a total of \$1,072,353,814 for construction of 105 rivers and harbors projects, 57 flood control projects, and 22 beach erosion projects. The Committees recommending the measure said the low authorization total was based on the assumption that the next bill would not be later than fiscal year 1956. Representative George A. Dondero (R Mich.) said that a "large" bill wasn't necessary because there was a \$10 billion backlog of projects that would take 12 years to complete. Two congressmen from Kansas tried and failed to have projects in their state deleted from the bill. Special interest projects were identified and criticized by some Congressmen. Little controversy accompanied this bill.

Rivers and Harbors Veto of 1956

HR 12080 would have authorized \$764,396,000 for new Corps projects, \$200,000,000 for Interior projects in the Missouri basin, and \$653,300,000 in increased river basin monetary authorizations. President Eisenhower pocket vetoed the bill on 10 August 1956 saying many of the projects had not been thoroughly reviewed and approved by the executive branch, the Corps or the states concerned. This

was the first veto of an omnibus bill since Franklin Roosevelt did so in 1940. Over 30 projects were included in this bill without benefit of a report by the Corps being submitted to Congress. Senator Dennis Chavez (D N.M.) said this was done due to the "emergency nature" of these projects. Because Congress had adjourned the resolution of this issue was postponed.

The Rivers and Harbors and Flood Control Acts of 1958

Following Eisenhower's veto of the 1956 bill fear of another veto caused some controversy in the Congress over certain items in the bill formulated in response to the President's veto. The House defeated several Republican attempts to cut the bill and approved a total bill of \$1.5 billion. The Senate bill was only slightly higher than the House version. Charges of "pork barrel" flew in both bodies. The \$1,577,379,800 conference bill total was vetoed by President Eisenhower on 15 April 1957. The President, with support from the Bureau of the Budget, listed 14 reasons for his veto. The chief reasons included lack of reports on four projects, lack of economic justification on three projects and inadequate local participation on 14 projects. The President asked for an omnibus bill he could approve.

After two vetoes the House acquiesced to the President's requests. Public Law 85-500 (S 3910) provided \$747,930,500 for new projects, \$200,000,000 for Interior projects in the Missouri basin, and \$608,300,000 in increases for 12 river basin authorizations. The act signed into law 3 July 1958 provided for 53 navigation projects, 14 beach erosion projects and 65 flood control projects. During debate

on this legislation concern over the growing backlog of authorized projects had become a permanent feature of concern.

The Rivers and Harbors and Flood Control Act of 1960

On 14 July 1960 President Eisenhower signed HR 7634 enacting PL 86-645. This act authorized \$1,445,894,300 for water development projects. Of this amount \$796,240,000 was for increases in 10 river basin monetary authorizations. The remaining \$649,654,000 was provided for 68 navigation projects, 9 beach erosion projects and 47 flood control projects. On the basis of Budget Bureau opposition to several projects it was hinted by Senator Everett Dirksen (R Ill.) that the bill would be vetoed by President Eisenhower. The conference committee modified the bill to conform more closely with the President's wishes. The bill passed without controversy.

The Rivers and Harbors and Flood Control Act of 1962

President Kennedy on 23 February 1961 said, "We reject a 'no new starts' policy." Two years later PL 87-874 (HR 13273) was signed into law by President Kennedy. The law provided authorization for 199 Corps water projects in 44 states at a cost of \$2,256,518,300. An additional \$3,700,000 was provided to increase a river basin authorization. There was considerable controversy over a public power-irrigation project in the Snake River basin of Idaho which was deleted by the House. Public power was opposed by a multitude of private power interests. Complaints of pork barreling and violating the "ground rules" for public works projects abounded. Several controversial projects were deleted from the bill with the promise that they would

be taken up in hearings in the next Congress. This paved the way for what seems to have been a "catch-up" omnibus bill.

The Water Projects Act of 1963

Several controversial projects deleted from the 1962 Act which contained public power had been opposed by Republican members of the House committee. After much debate, authorizations totaling \$116,847,000 for five projects, four of which had been among the controversial projects deleted from the 1962 bill, were enacted in PL 88-253 (HR 8667). This bill also provided \$700,000,000 to increase 11 river basin authorizations. President Johnson signed the bill on 30 December 1963.

The Rivers and Harbors and Flood Control Act of 1965

S 2300 signed into PL 89-298 by President Johnson authorized 49 navigation projects, 9 beach erosion projects, and 91 flood control projects at a total cost of \$1,985,785,000. The law also provided for the Northeast water supply study. This first omnibus act since 1962 was accompanied by two major controversies, power projects and small project authorizations.

The public power controversy was not new. Public power was opposed by the private power industry, the coal industry, the United Mine Workers of America and several general business organizations on the grounds that it created a form of competition subsidized by the government. The Dickey-Lincoln School dispute was the most hotly debated issue and was resolved by the authorization of the project over Republican opposition.

The President opposed granting the Public Works Committees authority to authorize projects which cost less than \$10 million without the consent of Congress and the President. Johnson strongly condemned this measure as an intrusion on the powers of the President. The measure was passed over the objections of some Democrats. President Johnson then instructed the Corps not to use this authority while he sought a repeal of this provision.

Public power overshadowed pork barrel as an issue in this bill. Another \$2 billion bill was enacted.

The Rivers and Harbors and Flood Control Act of 1966

HR 18233 provided one of the smallest omnibus bills in years. Enacted by President Johnson into PL 89-789, the bill provided \$669,075,000 for 11 navigation projects, 4 beach erosion projects, and 25 flood control projects. The bill, passed near the close of the 89th Congress, was hurriedly enacted without major controversy.

The Rivers and Harbors and Flood Control Act of 1968

As signed into PL 90-483, S 3710 provided authorization for 31 navigation projects, 1 beach erosion project, and 41 flood control projects at a cost of \$1,200,894,000. Thirteen river basin authorizations were provided at a cost of \$469,000,000. Although the House Committee in 1965 said it intended to report a bill annually a bill was enacted in 1966 but not 1967. There was no major controversy in the passage of this bill.

The Rivers and Harbors and Flood Control Act of 1970

PL 91-611 (HR 19877) authorized \$596,215,000 for 11 navigation projects, 1 beach erosion project and 19 flood control projects. Eleven of the projects lacked the OMB approval that had years before provided the basis for veto of two omnibus bills. President Nixon signed HR 19877 on the last day of 1970 following its non-controversial passage through the Congress.

The Water Resource Development Act of 1974

In 1972 President Nixon pocket vetoed an omnibus authorization bill on the grounds that it was inflationary and contained unauthorized projects. PL 93-251 (HR 10203) authorized \$551,393,900 for 28 projects in a, then new, two-step authorization process. An additional \$780,000,000 was authorized to increase 16 river basin authorizations. Senator James Buckley (R N.Y.) tried unsuccessfully to remove numerous projects, contending they were "pork." A major controversy surrounded recent WRC guidelines, the Principles and Standards, which were seen as an attempt to wrest control over water resource development from the Congress and place it within the executive branch. The long-standing concern of the ever-increasing backlog of authorized projects was addressed by the creation of a deauthorization process. Testimony during Committee hearings by environmental interests had become a fixture at the hearings, one which was growing in legitimacy.

The Water Resources Development Act of 1976

On the last day of the 94 Congress, PL 94-587 (S 3823) was enacted. This law, signed by President Ford, authorized \$742,300,000

137 projects and provisions. Included were 14 construction projects, 36 "phase one" advanced engineering and design projects, 41 modifications to previously authorized projects and 46 other provisions dealing with studies and policies. Senator Mike Gravel (D Alaska) said of the conference committee,

We have just been through what I would term, in my eight years in the Senate and my four years in the Alaska legislature, as painful and difficult a conference as a human being can endure . . .

The sources of controversy in the conference committee were the strong environmental objections to several politically favored projects.

APPENDIX F

DEFINITION OF REGIONS AND SUBREGIONS

<u>SUBREGION</u>	<u>STATES</u>
New England	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
Middle Atlantic	New Jersey, New York, Pennsylvania
East North Central	Illinois, Indiana, Michigan, Ohio, Wisconsin
West North Central	Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota
South Atlantic	Delaware, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, Washington, D. C., West Virginia
East South Central	Alabama, Kentucky, Mississippi, Tennessee
West South Central	Arkansas, Louisiana, Oklahoma, Texas
Mountain	Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming
Pacific	Alaska, California, Hawaii, Oregon, Washington

<u>REGION</u>	<u>SUBREGION</u>
North East	New England, Middle Atlantic
North Central	East North Central, West North Central
South	South Atlantic, East South Central, West South Central
West	Mountain, Pacific

APPENDIX G

CORP LEADERSHIP SURVEY RESPONSES

This appendix contains a copy of the survey instrument and its accompanying cover letters and presents the answers received from Corps leaders in response to the Corps Leadership Survey discussed in Chapter 8.

QUESTION 1: Is there a need, based on economic and physical factors for multi-purpose reservoirs to be constructed in your district/division?

<u>RESPONSE</u>	<u>NUMBER OF RESPONSES</u>		
	<u>Now</u>	<u>Next 20 Yrs.</u>	<u>Distant Future</u>
NO	11	11	16
YES, but without political and public support	15	9	5
YES, with political and public support	15	20	12
OTHER	4	3	8

QUESTION 2: How do you perceive the Corps role in the following water resource purposes: 1) to have changed over the last twenty years and 2) likely to change over the next twenty years? (1 = Maximum Decrease, 3 = Stable, 5 = Maximum Increase)

A. Flood hazard mitigation

		FUTURE				
		1	2	3	4	5
PAST	1	0	0	0	0	0
	2	2	9	3	0	0
	3	2	7	5	1	0
	4	0	2	3	2	0
	5	1	3	1	1	1

B. Inland navigation

		FUTURE				
		1	2	3	4	5
PAST	1	0	0	2	0	0
	2	0	2	1	0	1
	3	4	8	9	4	0
	4	0	2	5	3	0
	5	1	1	1	0	0

C. Deep water ports

		FUTURE				
		1	2	3	4	5
PAST	1	2	0	0	0	0
	2	0	1	2	2	2
	3	0	3	4	8	2
	4	0	3	2	7	1
	5	0	2	1	0	0

D. Small harbor navigation

		FUTURE				
		1	2	3	4	5
PAST	1	0	0	0	0	0
	2	1	2	1	1	2
	3	1	7	6	4	1
	4	1	7	4	1	1
	5	1	1	0	0	0

E. Hydropower

		FUTURE				
		1	2	3	4	5
PAST	1	1	0	0	0	0
	2	1	0	0	8	2
	3	0	1	3	9	3
	4	0	1	1	8	4
	5	0	0	0	1	1

F. Water supply

		FUTURE				
		1	2	3	4	5
PAST	1	0	0	1	0	1
	2	0	1	1	2	2
	3	0	0	3	14	10
	4	0	0	1	2	5
	5	0	0	0	0	2

G. Water quality

		FUTURE				
		1	2	3	4	5
PAST	1	0	0	1	0	0
	2	1	0	3	1	1
	3	1	2	7	3	2
	4	0	1	4	8	2
	5	0	1	3	1	2

H. Recreation

		FUTURE				
		1	2	3	4	5
PAST	1	0	0	0	0	0
	2	0	0	1	0	0
	3	0	7	5	1	0
	4	1	15	3	3	0
	5	1	4	3	1	0

I. Beach erosion

		FUTURE				
		1	2	3	4	5
PAST	1	2	0	0	0	0
	2	0	0	0	0	0
	3	1	7	14	3	0
	4	0	5	6	0	0
	5	0	2	0	0	0

J. Hurricane protection

		FUTURE				
		1	2	3	4	5
PAST	1	3	0	0	1	0
	2	1	1	1	1	0
	3	1	7	14	1	0
	4	0	2	4	1	0
	5	0	1	1	0	0

K. Fish and wildlife

		FUTURE				
		1	2	3	4	5
PAST	1	0	0	0	0	0
	2	0	0	1	0	0
	3	0	1	3	2	1
	4	0	5	15	6	0
	5	0	0	6	4	1

L. Streambank erosion

		FUTURE				
		1	2	3	4	5
PAST	1	0	0	0	0	0
	2	1	1	2	2	0
	3	1	4	14	2	1
	4	0	0	8	4	2
	5	0	0	1	1	1

M. Water conservation

		FUTURE				
		1	2	3	4	5
PAST	1	0	0	0	0	0
	2	0	1	1	6	3
	3	0	1	2	7	1
	4	0	0	2	11	4
	5	0	0	0	1	3

QUESTION 3: Briefly describe what you see as the most important water resource problems in the country. Also, please indicate whether you believe that the problems should be solved by the national government, state government, local government, the private sector, or by affected individuals themselves.

PROBLEM	1st	2nd	3rd	GOVERNMENT*			PRIVATE*	
				N	S	L	Ind.	Indv.
1. Water supply	27.5	9	0	26	21	14	4	2
2. Flood hazard mitigation	6	10	6.5	13	5	8	1	1
3. Navigation	1	10	11	21	1	1	1	0
4. Water quality	7.5	14	7	14	9	5	1	1
5. Hydropower	1	7	8	13	2	1	6	0
6. Water conservation	4.5	1	2	3	4	1	0	1
7. Lack of national policy	0	1	1	2	1	0	0	0
8. Hazardous wastes	1	0	0	1	0	0	0	0
9. Other	0	5	7	5	6	2	1	1

KEY: *N = National, S = State, L = Local

Ind. = Industry, Indv. = Individuals

In some responses more than one sector was indicated as having responsibility for solving the problem.

QUESTION 4: The first part of the question asks what you think is or has been happening in some area of the Corps nationwide program. The second part of the question asks what you think should be or should have been the trend or effect. (D = decrease, S = stable, I = increase)

A. Corps role as construction agency.

<u>IS</u>	<u>SHOULD</u>		
	<u>D</u>	<u>S</u>	<u>I</u>
D	3	14	17
S	0	8	3
I	0	0	0

B. Corps role as service agency.

<u>IS</u>	<u>SHOULD</u>		
	<u>D</u>	<u>S</u>	<u>I</u>
D	4	2	8
S	1	8	8
I	1	3	10

C. Trend in authorization monetary levels.

<u>IS</u>	<u>SHOULD</u>		
	<u>D</u>	<u>S</u>	<u>I</u>
D	1	9	16
S	1	5	6
I	0	2	3

D. Trend in appropriations monetary levels.

<u>IS</u>	<u>SHOULD</u>		
	<u>D</u>	<u>S</u>	<u>I</u>
D	0	6	13
S	1	5	7
I	0	5	7

E. Effect of congressional legislation.

<u>IS</u>	<u>SHOULD</u>		
	<u>D</u>	<u>S</u>	<u>I</u>
D	5	10	9
S	0	4	0
I	1	10	5

QUESTION 5: Please indicate the extent to which you agree or disagree with the following statements. (1 = strongly disagree, 3 = ambivalent, 5 = strongly agree)

<u>SUMMARY OF STATEMENT</u>	<u>RESPONSE</u>				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
A. Public indifference	6	14	7	16	1
B. Lack congressional support	0	6	5	23	10
C. Corps to lose civil works	16	16	6	4	2
D. Federal role declining	1	6	5	27	5
E. Corps role declining	1	5	6	29	2
F. Federal role should decline	17	19	6	2	0
G. Lack political enthusiasm	2	13	10	18	1
H. Favor block grants	23	14	4	0	3
I. Favor interstate projects only	14	13	6	9	2

QUESTION 6: In your opinion, do the State and local governments within your district/division have sufficient financial resources to meet their most critical water resource needs?

NO = 40
YES = 5

QUESTION 7: In your opinion, do the State and local governments within your district/division have the professional and technical expertise to expand their role in water resource development?

NO = 30
YES = 9
SOME DO, SOME DON'T = 5

QUESTION 8: Do you favor the concept of block grants for water resource development to the states in lieu of the current water resource development programs?

NO = 40
YES = 5

QUESTION 9: How many years have you been a member of the Corps of Engineers?

<u>YEARS</u>	<u>NUMBER</u>	<u>YEARS</u>	<u>NUMBER</u>	<u>YEARS</u>	<u>NUMBER</u>
12	3	20	4	30	2
13	1	21	3	31	1
14	1	22	4		
15	1	23	3		
16	4	24	6		
18	1	25	5		
19	1	26	1		
		27	2		
		28	1		

QUESTION 10: Would you like a copy of the results of this survey?

NO = 6
YES = 39

2925 Rocky Mountain Court
Ft. Collins, Colorado 80526
May 7, 1981

Dear District Engineer:

I am an economist with the Baltimore District of the Corps of Engineers, currently attending Colorado State University on the Corps' Planning Fellowship Program. As part of my academic program while at CSU I'm taking a detailed and in-depth look at what has been happening to the Corps' role in water resource development over the last 30 years. My investigation will include an analysis of authorizations, appropriations, new starts, legislation which has formulated and directed Federal water policy, coalitions of support and opposition to omnibus bills, and, with your help, the perceptions of the Corps decision-makers.

Enclosed you will find a brief questionnaire which I'd like you to complete. The questionnaire is intended to establish the presence or absence of any consensus of opinion among the Division and District Engineers of the Corps regarding selected aspects of the Corps civil works program only. All responses will be aggregated in the final report. None of your responses will be reported in any way that they could be associated with you.

With your cooperation in completing and returning this questionnaire by 15 June 1981 I hope to produce a study that will: help all Corps elements understand what has been happening to our program over the last thirty years; and to provide a benchmark for future development in the Nation's water resource program.

I would like to emphasize that this survey is not an official Corps' study effort, but is an academic pursuit of a topic of much interest to the Corps. If you would like more information about the enclosed questionnaire or its use please contact me at (303) 223-5901. Thank you for your anticipated cooperation.

Sincerely,

Charles Yoe

2925 Rocky Mountain Court
Fort Collins, Colorado 80526
12 June 1981

Dear Division Engineer:

On May 7 I mailed you a questionnaire requesting that you complete and return it by June 15. Since the initial mailing over 70 percent of the Corps' district and division engineers have returned the completed questionnaire. In almost every case the district or division engineer himself completed the questionnaire.

Enclosed you will find a copy of the original cover letter and the questionnaire. It will be possible to include your responses in the analysis of this questionnaire if your response is received by July 3. Your cooperation in completing and returning the questionnaire will improve the validity of any conclusions which may be drawn from this survey. Your anticipated cooperation is greatly appreciated.

If you would like more information on the enclosed questionnaire or its use please contact me at (303) 223-5901.

Sincerely,

Charles Yoe

Enclosure

CORPS LEADERSHIP SURVEY

To begin, we have some questions about the need and support for multi-purpose reservoirs.

1. Is there a need, based on economic and physical factors, for multi-purpose reservoirs to be constructed in your district/division:

A. Now?

NO

YES →

Is there sufficient political and public support for this (these) project(s)? <input type="checkbox"/> NO <input type="checkbox"/> YES
--

B. In the next twenty years?

NO

YES →

Is there sufficient political and public support for this (these) project(s)? <input type="checkbox"/> NO <input type="checkbox"/> YES
--

C. In the more distant future?

NO

YES →

Is there sufficient political and public support for this (these) project(s)? <input type="checkbox"/> NO <input type="checkbox"/> YES
--

Now, several two-part questions about your perceptions of what has been and will be happening with different water resource purposes.

2. How do you perceive the Corps role in the following water resource purposes: 1) to have changed over the last twenty years and 2) likely to change over the next twenty years? (Circle the number that best reflects your judgment with 1 = Maximum Decrease, 3 = Stable, and 5 = Maximum Increase.)

	PAST 20 YEARS					NEXT 20 YEARS				
A. Flood hazard mitigation	1	2	3	4	5	1	2	3	4	5
B. Inland navigation	1	2	3	4	5	1	2	3	4	5
C. Deep water ports	1	2	3	4	5	1	2	3	4	5
D. Small harbor navigation	1	2	3	4	5	1	2	3	4	5
E. Hydropower	1	2	3	4	5	1	2	3	4	5
F. Water supply	1	2	3	4	5	1	2	3	4	5
G. Water quality	1	2	3	4	5	1	2	3	4	5
H. Recreation	1	2	3	4	5	1	2	3	4	5
I. Beach erosion	1	2	3	4	5	1	2	3	4	5
J. Hurricane protection	1	2	3	4	5	1	2	3	4	5
K. Fish and wildlife	1	2	3	4	5	1	2	3	4	5
L. Streambank erosion	1	2	3	4	5	1	2	3	4	5
M. Water conservation	1	2	3	4	5	1	2	3	4	5
N. Other (please specify)	1	2	3	4	5	1	2	3	4	5

The last several questions we'd like to ask relate to the potential for an increased role for the States in water resources planning and development.

6. In your opinion, do the State and local governments within your district/division have sufficient financial resources to meet their most critical water resource needs?
- NO
 YES
7. In your opinion do the State and local governments within your district/division have the professional and technical expertise to expand their role in water resource development?
- NO
 YES
8. Do you favor the concept of block grants for water resource development to the states in lieu of the current Federal water resource development programs?
- NO
 YES

Finally, two brief questions

9. How many years have you been a member of the Corps of Engineers?
- _____ years
10. Would you like a copy of the results of this survey?
- NO
 YES

COMMENTS

Return to: Mr. Charles Yoe
2925 Rocky Mountain Ct.
Ft. Collins, Colorado 80526

APPENDIX H

CONGRESSIONAL LEADERSHIP SURVEY INSTRUMENT

Mr. Charles Yoe
2925 Rocky Mountain Court
Fort Collins, Colorado 80526
May 7, 1981

Dear Congressman:

I am an economist with the Baltimore District of the Corps of Engineers, currently attending Colorado State University on the Corps' Planning Fellowship Program. As part of my academic program while at CSU I am making a detailed analysis of what has been happening to the Corps' role in water resource development over the last thirty years. My investigation will include an analyses of authorization, appropriation and new start data, legislation which has formulated and directed Federal water policy, coalitions of support and opposition to omnibus bills, and, with your help, the perceptions of Congressional leaders in the area of water resource development.

Enclosed you will find a brief questionnaire which I'd like you to complete. None of your responses will be reported in any way that could be associated with you. All responses will be aggregated in the report.

With your cooperation in completing and returning this questionnaire by June 15, 1981 I hope I can produce a study that will help all Corps elements understand what has been happening to the Corp program. It is hoped that an understanding of past program and policy trends will provide a valuable benchmark for future civil works program efforts. A full understanding of the past is needed to approach the future.

I would like to emphasize that this is not an official Corps study effort. It is an academic pursuit of a topic of interest to the Corps, and possibly your committee, being done by a current Corps employee. If you would like more information on the enclosed questionnaire or its use please contact me at (303) 223-5901. Thank you for your anticipated cooperation.

Sincerely,

Charles Yoe

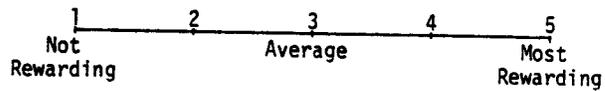
PUBLIC WORKS COMMITTEES

To begin, we'd like to ask a few questions to help fix the relative importance of water resources development within the Nation's domestic policy programs.

- Rank the importance of the following broad categories of domestic policy areas for your constituents. (Indicate rank from 1 through 8, with 1 being the highest priority.)

<u>RANK</u>	<u>POLICY AREA</u>
[]	Air and water pollution
[]	Energy
[]	Health
[]	Housing
[]	Transportation
[]	Urban redevelopment
[]	Water resource development
[]	Welfare

- Is the authorization and appropriation of water resource projects politically rewarding? (Circle the number which best reflects your judgment.)



Now, a question relating specifically to the Corps of Engineers civil works program.

- How do you perceive the Corps' role in the following water resource purposes changing over the next twenty years? (Circle the number which best reflects your judgment.)

	<u>Decreasing</u>		<u>Stable</u>		<u>Increasing</u>
A. Flood hazard mitigation	1	2	3	4	5
B. Inland navigation	1	2	3	4	5
C. Deep water ports	1	2	3	4	5
D. Small harbor navigation	1	2	3	4	5
E. Hydropower	1	2	3	4	5
F. Water supply	1	2	3	4	5
G. Water quality	1	2	3	4	5
H. Recreation	1	2	3	4	5
I. Beach erosion	1	2	3	4	5
J. Hurricane protection	1	2	3	4	5
K. Fish and wildlife	1	2	3	4	5
L. Streambank erosion	1	2	3	4	5
M. Water conservation	1	2	3	4	5
N. Other (please specify)	1	2	3	4	5

4. Briefly describe what you see as the most important water resource problems facing our country. Also, please indicate whether you believe that the problems should be solved by the national government, state government, local government, private interests or by the affected individuals themselves.

MOST IMPORTANT WATER RESOURCE PROBLEM IN THE COUNTRY:	This problem should be primarily handled by: <input type="checkbox"/> National government <input type="checkbox"/> State government <input type="checkbox"/> Local government <input type="checkbox"/> Private interests <input type="checkbox"/> Affected individuals
SECOND MOST IMPORTANT WATER RESOURCE PROBLEM IN THE COUNTRY:	This problem should be primarily handled by: <input type="checkbox"/> National government <input type="checkbox"/> State government <input type="checkbox"/> Local government <input type="checkbox"/> Private interests <input type="checkbox"/> Affected individuals
THIRD MOST IMPORTANT WATER RESOURCE PROBLEM IN THE COUNTRY:	This problem should be primarily handled by: <input type="checkbox"/> National government <input type="checkbox"/> State government <input type="checkbox"/> Local government <input type="checkbox"/> Private interests <input type="checkbox"/> Affected individuals

5. Please indicate by circling the appropriate number the extent to which you agree or disagree with the following statements.

- A. In general, there is a lack of political enthusiasm in Congress for Federal water resource projects.

1 2 3 4 5
 Strongly Ambivalent Strongly
 Disagree Agree

- B. I favor block grants to the States for water resource development in lieu of the current Federal water resource development programs.

1 2 3 4 5
 Strongly Ambivalent Strongly
 Disagree Agree

- C. The Federal government should decrease its role in water resource development projects.

1 2 3 4 5
 Strongly Ambivalent Strongly
 Disagree Agree

- D. It is likely that civil works functions will be removed from the Corps program within the next twenty years.

1 2 3 4 5
 Strongly Ambivalent Strongly
 Disagree Agree

- E. Federal development of water resources should be confined to interstate projects only; intrastate development should be the responsibility of State and local government.

1 2 3 4 5
 Strongly Ambivalent Strongly
 Disagree Agree