



**US Army Corps  
of Engineers**  
Engineer Institute for  
Water Resources

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# **A COLLECTION OF WATER POLICY PAPERS:**

**Provided for the National Federation  
of State High School Associations  
for the 1985 - 86 Debate  
on U. S. Water Policy**

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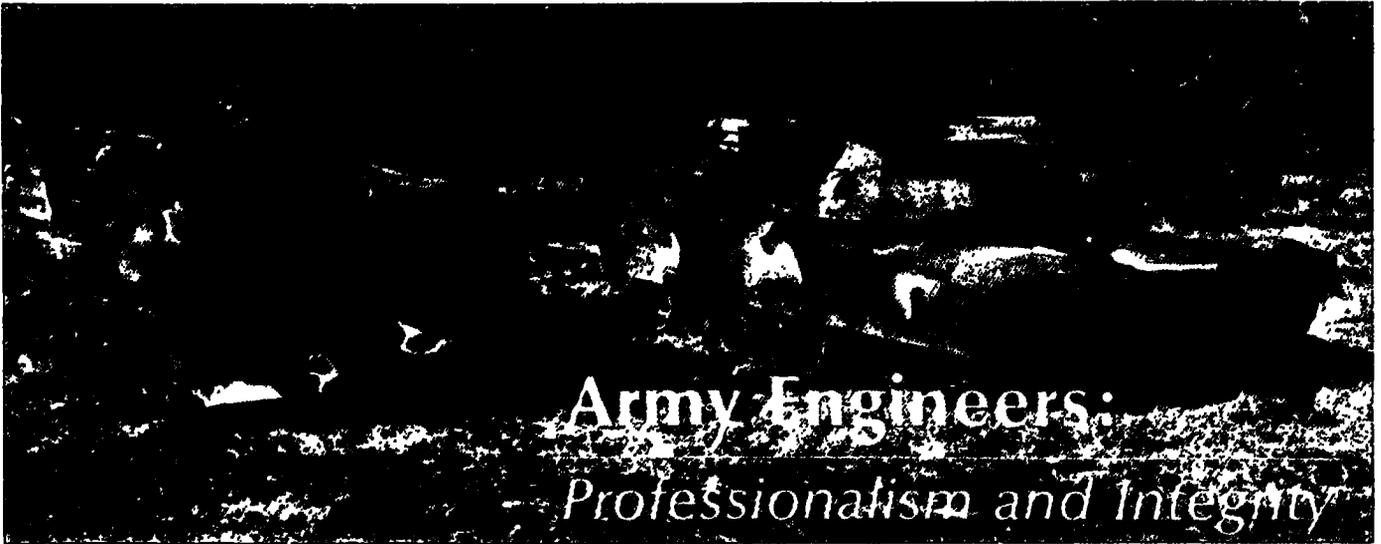


# **Army Engineers:**



**Professionalism and Integrity:  
We're Proud to Sign Our Work.**





# Army Engineers: Professionalism and Integrity

By Lt. Gen. J. K. Bratton  
Chief of Engineers, United States Army

*The first 36 M-9 Armored Combat Earthmovers (ACE) will be produced this year, with more to follow later. The ACE will permit Combat Engineers to keep pace on the battlefield with modernized equipment such as the M-1 Abrams tank, right.*

IN October 1981, we marked the Bicentennial of the American triumph at Yorktown—a victory of enormous importance forged by the Continental Army. It is significant to note that, in the crucial attack on the British fortifications, the engineers led all the rest—breaching the line to prepare the way for the attacking infantry. Even today, the modern Army remains a link to Yorktown and a repository of the ideals of our American heritage; and its engineers are still leading the way, as they have been for almost 207 years.

This is an exciting time to be in the Army; as our Chief of Staff, Gen. E. C. Meyer, has said, 1982 presents a "window of opportunity" for achieving the readiness and sustainability goals which will provide the basis for conflict deterrence and warfighting that the nation needs over the long term. Army engineers will play an important part in attaining those goals, working within the framework of a national consensus that supports a strengthened and revitalized structure of national security. The new impetus to improve defense preparedness is captured succinctly in the national theme of The Society of American Military Engineers (SAME): "Military Engineers—Partners in Rebuilding the Nation's Defense."

The Army Corps of Engineers is a special and unique organization with a broad scope of tasks and missions which range from direct

battlefield support to the construction and operation of water resources projects. It is probably the most versatile part of the Army and its most visible to the American public. It has a special pride in the achievements and battle streamers of its combat units as well as the worldwide tangible evidence of its construction prowess. But, the primary mission of the Corps is the direct support of the Army in the field as an integral and important part of the combined arms team. In the last analysis, that is what the Engineer Family is all about and that is the ultimate basis for the Corps' many roles and missions.

## Modernization

Like the rest of the Army, the Corps is caught up in the extraordinary effort to modernize the Army. It is time to accommodate to new force structure, new manning techniques, and a new emphasis on mobilization preparedness, while fielding over 400 new equipment systems and recovering from years of austerity in the maintenance and improvement of plant and facilities. Fortunately, the Secretary of the Army and the Chief of Staff have given full support to their engineers throughout the FY 82 budget process and in the FY 1983–1987 planning projections.

As a result, in this year and the years ahead, there should be an acceleration of the construction program begun in the last decade

to upgrade and modernize Army installations and housing in the U.S., Europe, and the Far East. This program is of tremendous importance to the Army's operational readiness and to the well-being of its soldiers and their families. It must be executed to produce high-quality products with the best possible return on the large investments involved. The challenges to the engineer commands and the facilities engineers will be great, but so will the results in terms of deterrent posture, readiness, sustainability, and the retention of personnel.

The increasingly favorable resourcing for military facilities are shown in the charts for Military Construction Army (MCA) (Table 1) and Real Property Maintenance Activity (RPMA) (Table 2). The FY 1982 MCA budget is a 10 percent increase from FY 1981, with the FY 1983 budget projected at \$1.2 billion, up nearly one-third. The FY 1982 RPMA figure is nearly \$2.4 billion, up 28 percent over FY 1981, with a further \$358 million increase in FY 1983. The Maintenance and Repair account reflects a substantial 69 percent increase in FY 1982.

## Civil Programs

The increases in funding for the Corps' military activities are not reflected in the civil programs, where the Administration's efforts to reduce the federal budget and work force have resulted in some exten-

sion of the completion time of certain construction projects. The cuts are not major, however, and will still result in funding of about \$3 billion this year. The more urgent programs will proceed at a good level of capability.

The reductions in civil works civilian employees, however, total 3,000 (over 10 percent of the force) in FY's 1981-1982 and have caused some extensive adjustments in Corps staffing and organization. This retrenchment will make 1982 and 1983 critical years in charting long-term directions for the nation's water resource development activities. It also comes at a time when there is also a compelling need for innovation and clarification in the planning, policy development, and funding approaches to solving water project needs. Such matters as waterways user fees, fast-tracking coal port development, and the proper balance of cost sharing remain unresolved as the second session of the 97th Congress begins.

In general, the nation's water resource needs are as well identified as its military engineering ones, but the method of resolving them is not as well planned. Among the challenges are the uncertainties in water supply policies (will water replace energy as the most pressing crisis?), port development, navigation improvements, waterways expansion, and environmental protection. As reductions continue, the Corps is maintaining its essential services and its basic strength and expertise in engineering, construction, and operations. There is

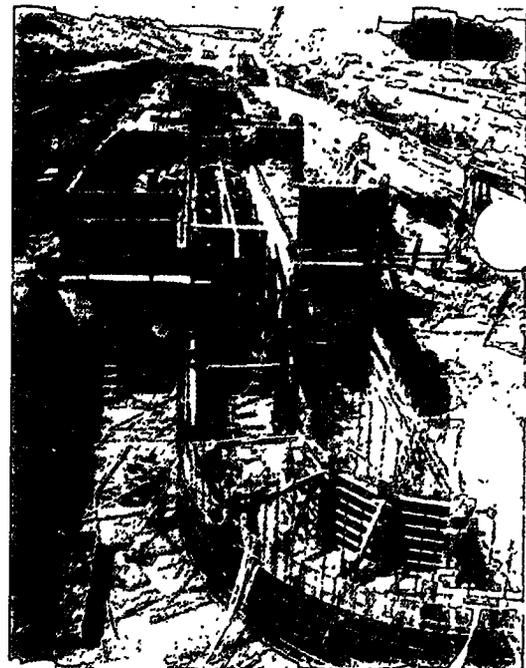
some hope that the FY 1983 civil works program will include (for the first time in several years) some new construction starts; candidate projects have been evaluated by the Secretary of the Army for referral to Congress.

### Mobilization

The requirements for mobilization have been acknowledged for the last three decades without much real action being taken to commit the resources to prepare the Army for the tasks that full or total mobilization would entail. In the past three years, however, this shortfall has been increasingly redressed and mobilization planning has become a major concern.

As was so clearly illustrated during the SAME-sponsored Defense Construction Mobilization Conference in November 1981, national mobilization requirements are monumental. They are a major peacetime challenge to the Corps in planning emergency operations and would immediately become a principal mission for the Corps upon declaration of M-Day, triggering a shift in orientation for a large part of the civil works force. The impact of mobilization on the Corps and on the construction industry would be profound, and construction requirements could be expected to escalate rapidly to some 10 to 50 times that of normal peacetime levels.

Undertaking a mobilization construction program of such magnitude requires that a ready force exist. The Corps has its own "joint



*If national mobilization occurred, this would immediately become a principal mission. Corps civil works personnel form a ready reserve which could switch their construction expertise from civil projects such as this to required military construction—overnight.*

task force" comprised of the military and civilian personnel assigned throughout its headquarters and field activities, with a peacetime strength of about 38,000 worldwide. At M-Day, nearly one-half of the civil works strength of about 25,000 could be focused immediately on military construction requirements. With validated plans "on the shelf," emergency construction could begin at once to meet the urgent needs for new facilities and installations.

Planning for mobilization is no longer a low-priority, unfunded effort suffering from neglect as the

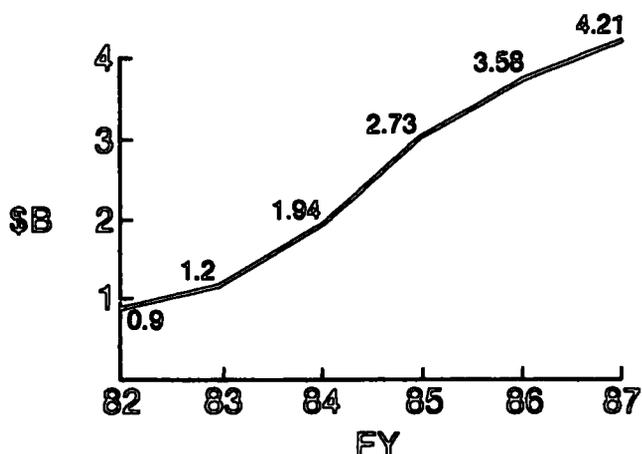


Table 1. Funding levels for Military Construction Army

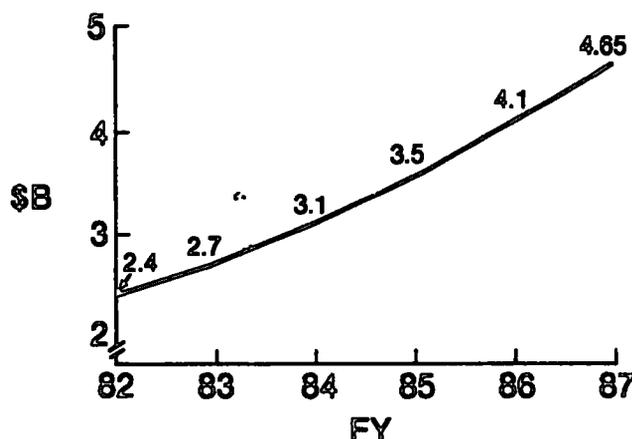


Table 2. Funding levels for Real Property Maintenance

more pressing day-to-day operational needs commanded attention and resources. Funding totaling almost \$200 million in the 1982-1987 period is now programmed in the Corps alone, and definitive planning is well under way with all the major Army commands to identify requirements, prepare emergency plans, and institute procedures to ensure a co-ordinated effort in support of over-all defense mobilization planning. The Corps has begun a program to produce a "mobilization construction book" for every Army installation which will define the construction required, scheduling and sequencing involved, designs to be used, and the specific responsibilities for execution by Corps offices.

The Corps' support to mobilization preparedness is absolute, and the investment of resources that that type of commitment demands is regarded as a necessary wedge as the nation faces a period of con-

tinuing international challenges. Mobilization planning is a reality which must be done with the recognition that wise prior planning for construction needs is the only basis for assurance that they could be met on a timely basis in the event of mobilization.

### MX

Much has been written about the MX missile and the Corps, as construction agent for the Air Force, was prepared in 1981 to begin the massive construction task involved in the Carter Administration's 200-missile/4,600 shelter basing mode. A Corps office was established at Norton AFB for that purpose and remains active while plans are approved in response to President Reagan's MX deployment decision announced last October. Pending that approval, final Corps organizational arrangements for MX work will be deferred.

### Military Construction

Overseas military construction increased substantially during 1981 and continued increases are scheduled through 1983. For the U.S. Army and Air Force, this overseas program will continue to be concentrated principally in Germany and Korea. For others, the most pressing effort is the completion of the two new airbases in Israel as the April 1982 turnover date approaches; a major milestone was reached in October 1981, when the first operational elements of the Israeli Air Force arrived at the bases at Ramon and Ovda. Linked to the airbase construction and to the withdrawal of Israel from the Sinai is the construction of facilities for the Multinational Force and Observers (MFO), the international peace-keeping organization established by the Israeli-Egyptian Treaty. The Corps is building base camps for the MFO at Eitam and Sharm el Sheik to support the



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2,500-man force, which must be operational by April 1982.

As development of the Rapid Deployment Force (RDF) has occurred over the past two years, considerable attention has been given to the requirements for RDF facilities in Southwest Asia. These are now under construction or planned in Oman and Egypt. The potential amount of construction in Egypt is large, and totals several hundred million dollars over several years if fully executed. Work is progressing at four locations in Oman to provide bases for the Omanis which could be made available for use by the RDF.

The largest overseas Corps construction program is still in Saudi Arabia, where placement has not yet peaked on a program now estimated at almost \$20 billion. The work done by the Corps in Saudi Arabia has furthered the politico-military objectives of the U.S. as well as those of the Saudi govern-

ment, and the Corps' program and presence there will continue as long as both governments perceive the program to be in their mutual interests.

The Corps is also committed to a number of nation-building activities overseas.<sup>1</sup> Aside from military-related programs, water resource support efforts are under way in Venezuela, Surinam, Paraguay, Argentina, Korea, China, Gabon, Nigeria, and Swaziland. In addition, there are active training programs at Corps facilities for engineers from a number of other nations.

### Research and Development

The Corps' research and development (R&D) programs continue to provide timely and valuable support to the entire Corps organiza-

<sup>1</sup> See "International Programs. An Important Corps Mission," by the author [M.E., July-Aug. 1981].

tion and to many other defense elements. The importance of a dynamic, well-funded R&D effort is substantial, and a responsive R&D program must be nurtured and given sufficient priority among the sometimes more immediate demands of operational requirements. The Corps' R&D program provides new and improved technologies needed to assure a modern, state-of-the-art engineering force. The Corps' five R&D laboratories have demonstrated high effectiveness in water resources development as well as military construction and engineering programs.

### Military Engineering

The Corps of Engineers is involved in so many activities in so many places and of such widely varying scope and proponenty that it is necessary from time to time to



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review its *raison d'être*: to support the combined arms team on the battlefield. That mission is executed most visibly in peacetime by ensuring that engineer troop units are trained and equipped to carry out their wartime combat duties.

Our military engineering challenge is as formidable as it is urgent. It includes the need for new doctrinal and operational concepts, improved and innovative engineer troop training, and modernization of the engineer equipment inventory. These areas are clearly interrelated and must be addressed together. Furnishing our engineers with a truly modern equipment inventory is especially urgent, but this must be done now, when the entire Army faces almost unprecedented outlays for new weapons systems and supporting equipment.

The engineers have lagged and will soon find themselves trying to keep up on the battlefield of the 1980's—a battlefield of M-1 Abrams tanks, Bradley Infantry and Cavalry fighting vehicles, self-propelled field and air defense artillery, Apache and Blackhawk helicopters, and a whole array of other new systems—with dump trucks, bulldozers, and mobility/counter-mobility equipment of the 1950's and 1960's. Indeed, the engineer soldier of World War II would not find his equipment and tools of the trade much different today from those he used in the Pacific Islands and in Europe almost 40 years ago.

Fortunately, there is increasing support to remedy this situation and to support with resources the doctrinal concepts which identify the combat engineers as full-fledged members of the first team. In 1982, the first 36 M-9 Armored Combat Earthmovers will be produced, with more to follow in the out-years. The Ground-Emplaced Mine Scattering System will go into production this year, and will greatly improve countermobility capabilities. Conversion of troop-carrying equipment in engineer combat battalions from trucks to armored personnel carriers is planned. Beginning this year, there are funded programs to replace the worn and obsolescent construction equipment which has limited effective engineer support to the Army's

airborne and airmobile units.

Over this decade, substantial amounts of new heavy construction equipment—including commercial models—will be brought into the inventory and the overdue updating of topographic support equipment is programmed to start this year. Progress is being made, but we face the realization that competition for resources, even with the generous defense budgeting now envisioned, will delay the full modernization of our engineer troop units until the end of the decade.

### Future Challenges

This is, as General Meyer said, an exciting time to be in the Army. In my view, it is a particularly exciting time for us engineers. It is a time of challenge and great opportunities to build modernized support capabilities for our engineer soldier; to take on the very large military construction programs planned for the Army and Air Force; to renew and expand the Army's physical plant, facilities, and housing; and to continue an enlightened public (civil) works program which invests wisely in the nation's future and permits a strategic reserve for the demands of mobilization. Growth-related and growth-producing water resource projects and other public works have tangible payoffs to the country and must be recog-

nized even in times of funding constraints and budgetary austerity. They are an important part in the enhancement of our national infrastructure as we strive for increased productivity and reindustrialization.

The phrase "engineered solution" has become common. Everyone acknowledges the need for engineers to "make things work." The nation has increasing demands for the practiced professionalism and precision of execution of the engineers. Military engineers and those concerned with the relationship of military engineering and defense preparedness—such as members of The SAME—can help build the United States of the future by focusing efforts on the dual challenges of developing our engineering community and maintaining the highest professional standards. We strive for excellence—on the battlefield, when necessary, and in peacetime—to ensure ready and sustainable forces and the capability to execute mobilization construction on short notice.

The Army Corps of Engineers cannot afford to rest on its laurels—the future is more important than the past, and in 1982 we have a broad range of opportunities. I suggest a simple descriptive phrase to highlight our posture and program for 1982: "Professionalism and Integrity: We're Proud to Sign Our Work." 5



*An example of the Army's concern for its soldiers and their families is this composite health facility under construction at Fort Stewart, Georgia. This 165-bed hospital, constructed under the supervision of the Savannah District, Corps of Engineers, will provide medical care for 50,000 soldiers and others.*



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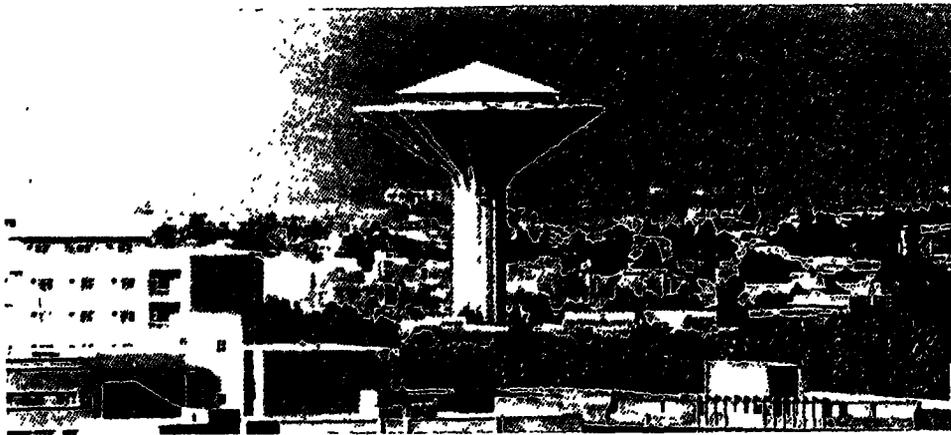


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# Urban Water Supply Planning



by Duane D. Baumann and John J. Boland

Throughout history, concentrations of population have always been associated with large-scale water supply facilities. In the Middle East, in Central America, in the American Southwest — long-extinct civilizations have left evidence of their dependence upon water supply. The Sanitary Revolution of the late 19th and early 20th centuries, by insuring the safety and palatability of urban water supplies, only increased the dependence of urban civilization on water. The dependence is no less evident today. However, as the water and other resources of the United States are more widely and intensively known, the efficiency with which they are used becomes of greater concern.

Unlike the past, present urban water supply planning is a drastically different, challenging, and complex task. Traditionally, the planning process started by projecting the population to be served, estimating per-capita water use, and then simply multiplying one projection by the other to derive the future water use. Armed with an estimate of future water need, the problem was to identify adequate and available sources of supply, usually additional reservoirs and/or well fields.

However, the problem today is not solely an inadequacy of supply; instead a wide range of factors have an influential and important role in the planning and management of our urban water resources. Consequently, new techniques of planning and methods of evaluation will need to be developed. In addition, water management policies and practices will be modified. As early as 1973, the U.S. National Water Commission noted that:

**“To increase efficiency in water use and to protect and improve its quality, and to do these things at least cost and with equity to all parts of the country . . . require major changes in present water policies and programs.”**

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Since 1973, there have been substantial changes in the process of planning and management of our urban water resources. For example, the U.S. Federal Water Resources Council has developed and recently revised the *Principles and Standards for Planning Water and Related Land Resources* and the U.S. Army Corps of Engineers has implemented new guidelines, such as the *Planning Process: Multiobjective Planning Framework*, and developed environmental impact analyses for proposed projects.

Concurrent with changes in the planning process has been a shift in perspective, that is, to a broader range of alternatives. The traditional response to increasing demand for water has been the development of additional supply. Those alternatives, for example, that would modify demand have been generally ignored. Similarly, this reliance upon technologies to increase supply, instead of policies to modify the schedule of demand, has been evident in another water resource problem — flood control.

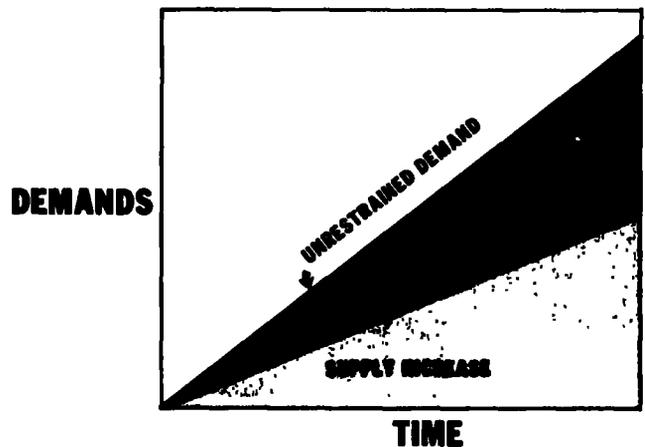
In planning for urban water the challenge is to determine the optimum combination of all alternatives to balance the supply and demand. Not only are the alternatives that increase supply considered, but those options that modify the demand for water are also evaluated, such as water conservation.

### **Water Conservation: Renewed Prominence in the 1980s**

The first indication of widespread interest in urban water conservation appeared shortly after 1970. The National Water Commission conducted a study of the potential for water use reduction through conservation practices, including pricing policy, and discussed water conservation as an alternative to, or adjunct of, water supply augmentation. Some urban water suppliers began to encourage conservation practices by their customers (for example, Washington Suburban Sanitary Commission, *A Customer Handbook on Water-Saving and Wastewater Reduction*, 1972). Further attention to water conservation grew out of the realization that reduced water use may result in reduced sewer flows. The Clean Water Act of 1977 specifically requires measures to reduce wastewater

flows as a condition of eligibility for wastewater treatment facility construction grants.

It may appear puzzling to some why conservation has gained national prominence in light of the current and future patterns of water use. For example, according to the U.S. Water Resources Council, Second



National Assessment, the amount of withdrawal<sup>1</sup> in the U.S. is expected to decline from 1975 levels by nine percent by the year 2000. This phenomenon is caused primarily by industrial water use which is expected to decrease 62 percent over this time period.

Recycling, which already has a significant effect in the reduction of industrial water use, and water use efficiencies are expected to exert an increasingly important role in projected water use. Hence, the national emphasis on water conservation is already reflected in the projections of water use.

However, the rationale for considering water conservation in water supply planning is not solely a function of the relationship between supply and projections of use; other factors today impinge upon the efficiency of water use and planning to meet future demand. Data on national aggregate water use have little relevance because urban water supply planning is a local phenomenon. It is at the local level where the

<sup>1</sup>Withdrawal of water is that amount taken from a surface or groundwater source. Consumptive use is that portion of withdrawn water not returned to the source.



range of factors that determine the efficiency of water supply production is of most interest.

There are primarily six forces that influence urban water supply planning today. First, there are environmental constraints in the procurement of additional supply: new reservoir sites have become increasingly scarce, and groundwater resources are becoming inadequate to meet the demands of urban areas. Gilbert White has noted the depletion of groundwater as one of the six most important water resource problems in the world, and particularly in the United States. A second set of problems that constrain urban water resource planning is the existence of new laws and regulations: political, legal, and institutional problems of interbasin transfers have proliferated until it is nearly impossible to plan for a transfer of water from one basin to another. Third, the concern for water quality, which mushroomed during the 1970s, has significantly constrained the opportunities in urban water management. Water quality standards have been established by passage of the Federal Water Pollution Control Act Amendments (1972), the Safe Drinking Water Act of 1974, and the Clean Water Act of 1977. Fourth, the costs of energy have increased at record rates and resulted in substantial increases in water rates. Fifth, an additional factor in the increased costs of water resource development since the early 1970s is the cost of money, which this year has witnessed a record high prime interest rate of 20 percent. Finally, in some urban areas, especially those experiencing a growth in population, the demand for water continues to rise.

### Water Policy Reform: Federal Response

Water conservation became an integral part of national water policy in 1978, when President Carter, in his Water Resources Policy Reform Message of June 6, 1978, stated:

**"Managing our vital water resources depends upon a balance of supply, demand, and wise use. Using water more efficiently is often cheaper and less damaging to the environment than developing additional supplies. While increases in supply will still be necessary, these reforms place emphasis on water conservation and make clear that this is now a national priority."**

Moreover, President Carter's Water Policy Message not only called for a new national emphasis on water conservation, but required all Federal agencies to in-



*— Often, environmental constraints limit additional supply development.*



corporate water conservation requirements in all applicable programs, and set forth a program which would provide states with financial assistance in planning for water conservation. Water conservation has been declared one of the priority areas to receive support from the U.S. Office of Water Research and Technology.

A recent GAO report underlines President Carter's Water Policy Message recommendations that call for increasing technical assistance for water conservation by farmers and urban dwellers and solving constraints that prevent or impede the implementation of better water management and conservation practices. In a related report, the GAO concluded that a major constraint to the implementation of the available conservation measures was the lack of knowledge about their effectiveness.

The expectation of these national efforts is that water conservation programs will contribute significantly to solving our national urban water resource management and planning problems by:

- making available additional water supply for other uses;
- obviating or delaying the construction of expensive additions to supply;
- reducing the size or delaying the construction of wastewater treatment facilities; and,
- reducing the financial costs and energy requirements for the procurement, production, and distribution of water supply and the treatment of wastewater, especially important since the passage of the Clean Water Act of 1977.

In response to the President's Message, the Corps of Engineers intensified its efforts to incorporate water conservation into the Civil Works program. In 1978, research was undertaken to develop appropriate methodology. The first effort was a survey and appraisal of the available information about water conservation. In order to provide initial and readily available information to Corps' planners, a selection was made of the literature reviewed and was subsequently

published as an annotated bibliography.<sup>2</sup> From the experience and data base, critical questions were raised, and deficiencies and essential needs were identified. Specifically, these were:

- What is conservation?
- What is the effectiveness of available conservation measures?
- What are the principles for evaluation of water conservation measures for municipal and industrial water supply?

*The Role of Conservation in Water Supply Planning*<sup>3</sup> addressed these questions. A precise and practical definition was formulated, estimates of the effectiveness of conservation measures were identified and appraised, and a methodology was developed not only to evaluate specific conservation measures but to integrate measures into water supply plans.

The next task was to develop a manual for the evaluation of water conservation for municipal and industrial water supply. *The Evaluation of Water Conservation for Municipal and Industrial Water Supply: Procedures Manual*<sup>4</sup> includes a description of the concepts, procedures, and techniques of measurement for developing and evaluating water conservation proposals for municipal and industrial uses of water.

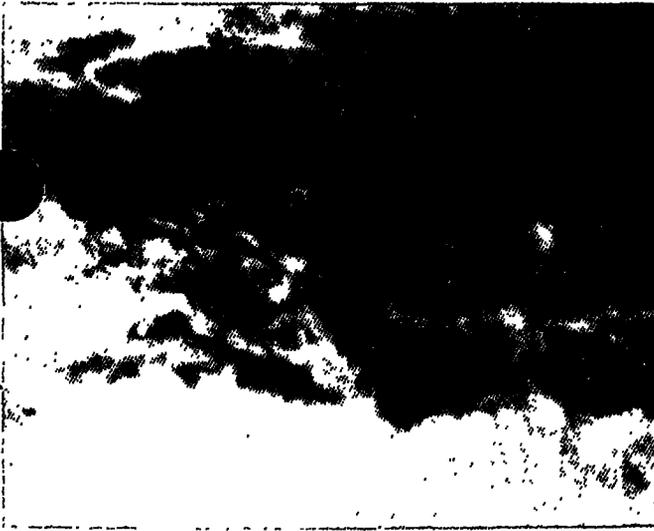
The objective of the Procedures Manual is to integrate water conservation planning with water supply planning in a logical, consistent manner. The gap between future demand and supply may be reduced by water supply augmentation, by water conservation, or, and more likely, by a combination of the two approaches.

#### **What Is Conservation?**

**B**efore any attempt can be made to determine whether conservation should or should not be implemented, a clear, precise, and practical definition

<sup>2</sup>An Annotated Bibliography of Water Conservation, IWR, Water Resources Support Center, Ft. Belvoir, VA 22060

<sup>3&4</sup>Are available from the the same address cited in footnote 2.



— Properly applied conservation measures may enhance environmental quality, through instream flows for fishing, boating and swimming.

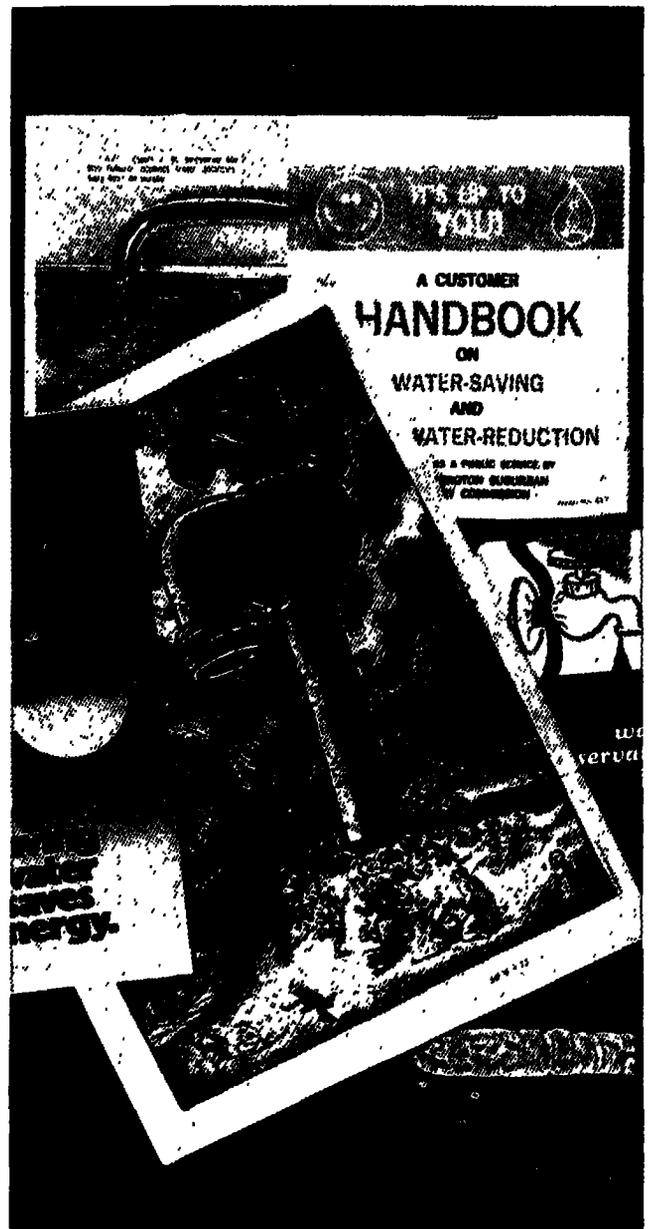
of conservation is required. Most past definitions of conservation have not been precise and consequently were not easily translated into policy. For example, to some the concept of conservation may mean a reduction in use, to others a development of new supplies, and to others the restriction of specific uses of water.

The most common definition of conservation was provided by Gifford Pinchot, considered by many as the Father of Conservation, who stated that "conservation is the use of natural resources for the greatest good of the greatest number for the longest time." Yet, to the planner who must formulate and evaluate water conservation measures, how does such a definition help? What is the greatest good? How should it be determined? Who determines what the greatest good is? Is the greatest good achieved by always striving to reduce water use? Who are the greatest number? How far into the future can we hope to plan?

In response to the President's Policy Reform Message several definitions of conservation were established by numerous groups. In a report by the U.S. Department of Interior, the objective of conservation was defined as "the wise and judicious use of available supplies." But, what does wise and judicious mean? Similarly, the ad hoc Committee on Water Resources, Commission on Natural Resources of the National Academy of Sciences, failed to distinguish between those actions or policies that qualify as conservation and those that are simply efficient water management strategies.

Comprehensive water supply planning requires the evaluation of three basic sets of considerations, including the merits of demand reduction practices; the potential for more efficient utilization of existing supplies; and the need for new supplies. The first two categories, which are demand management strategies, are included within the definition of water conservation.

But, should all measures that reduce water use or loss be implemented? And if so, to what extent; that is, how much curtailment of water use? The answer is quite clear and precise: Only those measures that re-



duce the use, or loss, of water without disproportionately increasing the use of other resources can qualify as conservation. For each measure the total beneficial effects of the reduction in water use and/or water losses must be greater than total adverse effects.

Water conservation, then, is defined as "any beneficial reduction in water use or water loss." A water management practice qualifies as a conservation measure when it passes two tests:

- It conserves a given supply of water by reduction in water use or water loss.
- It results in a net increase in social welfare.

More specifically, the first criterion states that implementation of a water management practice must result in water use (or loss) which is less than it would have been had the measure not been implemented. The end result is in the reduction of water use or loss so that a segment of existing or future water supply is available for uses that otherwise would not have been served except by the provision of new supplies.

The second criterion is that the reduction in water use or loss must be beneficial. That is, in order to qualify as a conservation measure, implementation must result in a net positive contribution to the Natural Economic Development objective, the Environmental Quality objective, or both.

### **Types of Conservation Measures**

Water conservation measures have been classified as (Table 1):

- Regulatory practices;
- Management practices; or
- Education efforts.

The regulatory practices are those measures that are dictated by local, state, or Federal legislation. In general, these measures would likely carry penalties or sanctions for noncompliance, e.g., local requirements of low-flush toilets in new dwelling units.

Management practices are those implemented by the local water utility or by the responsible units of

government that result in a beneficial reduction in water use or water losses. These include measures such as leak detection, metering, or modification of pricing policies.

Educational campaigns are directed toward voluntary beneficial reductions in water use or losses. For example, information on conservation efficiency in lawn sprinkling may result in a reduction of lawn water use without damage to lawns.

### **How Effective are Conservation Measures?**

It is not uncommon to read about enormous reductions in water use for a specific community attributed to conservation. For example, Schoenfeld's study in Rhode Island noted that municipal water use can be reduced during periods of shortage by 35 percent without drastically changing life styles.

How useful are such estimates in assessing the role of conservation in urban water resource planning? The authors believe such estimates are of little value and frequently misleading.

Based upon a review of the literature, the major conclusion about the effectiveness of water conservation measures is that comparatively little is known. Concerning information about the probable adoption of voluntary conservation measures, there is even less.

There are two major reasons for the variation in estimates of the effects of specific water saving strategies. First, many estimates are applicable only for the conditions at the sites from which they were derived. Second, the studies to estimate effectiveness may be poorly designed, leading to erroneous conclusions.

Clearly, during a prolonged drought residents are more likely to employ water reducing devices than during average or wet years; hence, estimates on effectiveness measures during drought cannot be assumed to be applicable during nondrought years. However, most of the estimates of effectiveness have been derived during periods of drought. This is particularly true today concerning the recent California drought. In addition to drought, average weather (climate) varies from place to place and is an important determinant in water use and therefore on the effectiveness of water conservation measures. Similarly, the

REGULATIONS	MANAGEMENT	EDUCATION
<p>Federal and State Laws and Policies</p> <ul style="list-style-type: none"> <li>A Presidential Policy</li> <li>B PL 92-500</li> <li>C. Clean Water Act Amendment 1977</li> <li>D. Safe Drinking Water Act</li> </ul> <p>Local Codes and Ordinances</p> <ul style="list-style-type: none"> <li>A. Plumbing Codes for New Structures</li> <li>B. Retrofitting</li> <li>C Sprinkling Ordinances</li> <li>D Changes in Landscape Design</li> <li>E. Water Recycling</li> </ul> <p>Restrictions</p> <ul style="list-style-type: none"> <li>A. Rationing <ul style="list-style-type: none"> <li>1. Fixed Allocation</li> <li>2. Variable Percentage Plan</li> <li>3. Per Capita Use</li> <li>4 Prior Use Basis</li> </ul> </li> <li>B. Determination of Water Use Priorities <ul style="list-style-type: none"> <li>1 Restrictions on Public and Private Recreational Uses</li> <li>2. Restrictions on Commercial and Institutional Uses</li> <li>3 Car Wash Restrictions</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>A. Leak Detection</li> <li>B Rate Making Policies <ul style="list-style-type: none"> <li>1. Metering</li> <li>2. Pricing Policies <ul style="list-style-type: none"> <li>a Marginal Cost Pricing</li> <li>b. Increasing Block Rate</li> <li>c. Peakload Pricing</li> <li>d Seasonal Pricing</li> <li>e. Summer Surcharge</li> <li>f Excess Use Charge</li> </ul> </li> </ul> </li> <li>C. Tax Incentives and Subsidies</li> </ul>	<ul style="list-style-type: none"> <li>A. Direct Mail</li> <li>B News Media</li> <li>C Personal Contact - Speaker Program</li> <li>D. Special Events - School Programs</li> </ul>

socio-economic conditions within each community which influence the effectiveness of water conservation vary markedly. Is the community primarily residential or is there significant industrial and commercial water use? What is the price of water? What is the income of the customers? What is the lawn size of the residential customers? In order to calculate more precise estimates of water use reduction, community water use must be disaggregated and relevant information on the charac-

teristics of each user class must be obtained to derive more precise estimates of effectiveness. Finally, there is little or no information about the factors affecting the adoption of voluntary water conservation measures. The results of educational campaigns are usually based upon communities under crisis conditions, such as drought. Clearly, additional research is required to determine the factors that affect consumer adoption of water conservation measures during noncrisis situa-



— *Conserving water makes the scarce resource available for a multitude of uses.*

tions such as the current studies funded by the U.S. Office of Water Resources and Technology. Such information will be useful in estimating the effects of proposed measures and in the formulation of a cost-effective educational campaign.

### **Conservation in Water Supply Planning**

The extent to which water conservation measures should be included in a particular water supply plan is determined by testing each possible measure against that plan, and identifying and measuring advantageous and disadvantageous effects. The Procedures Manual describes this process, which consists of three phases:

- Measure-specific analysis, which is independent of the characteristics of the water supply plan(s);
- Evaluation of conservation measures, which incorporates the characteristics of the water supply plan(s); and
- Integration of the water conservation measures into the water supply plan(s), forming the final water supply/conservation plan(s).

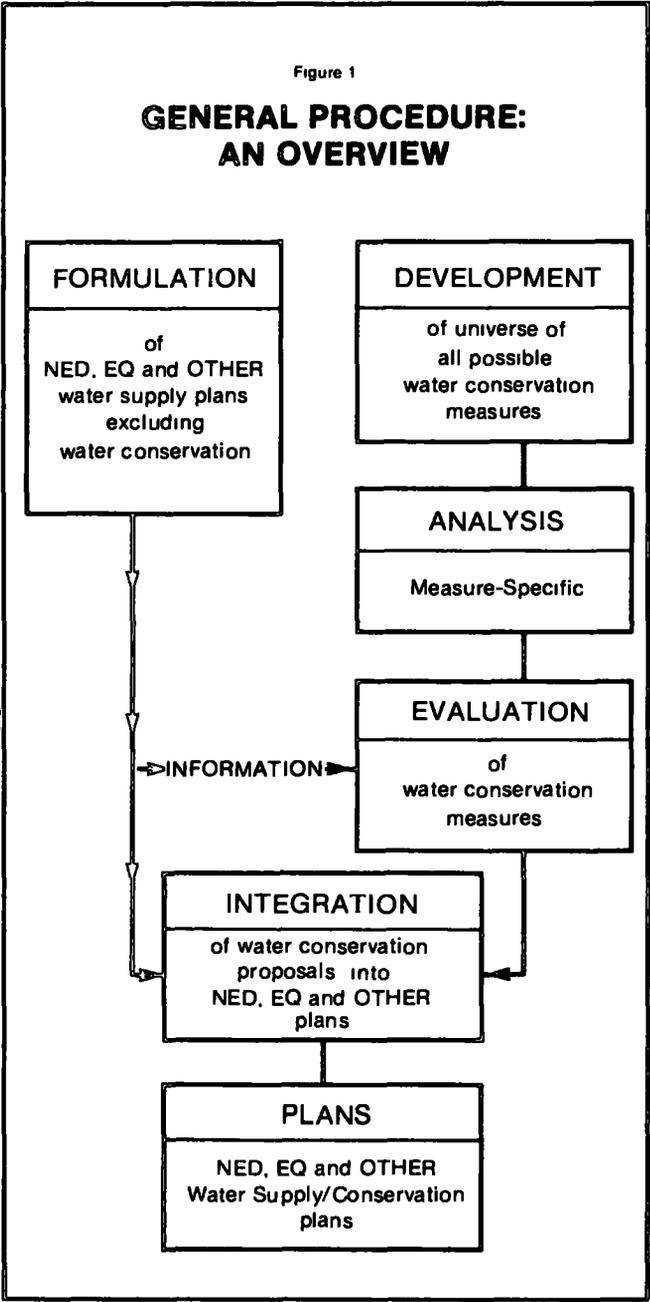
The procedure is shown in Figure 1. Prior to initiating the first phase, a list of all possible water conservation measures is developed, including those based on regulation, management actions, and educational efforts.



**SUMMARY**

Water conservation is the **beneficial** reduction in water use or in water losses. It is important to reemphasize that water conservation according to this definition is neither a new nor a different water management technique. Instead, water conservation practices are merely a **subset** of all alternatives that comprise efficient management of water resources.

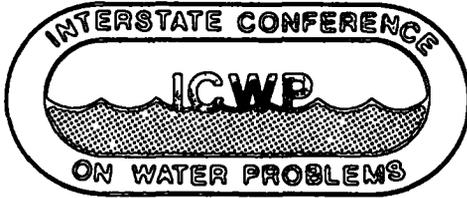
The challenge for the planner is to consider the efficient allocation of the water resource at every stage of distribution and use. Among the desirable practices are some which involve beneficial reductions in the use of water or in water losses; it is these practices that in our judgment are water conservation. The cautions of measuring the effectiveness of potential water conservation measures have been discussed; and, the methodology to assist the planner in evaluating water conservation measures for possible integration into water supply plans has been developed and been briefly described. □







US Army Corps  
of Engineers



# **Executive Summary**

## **WORKSHOPS ON WATER PROJECT FINANCING**

**Sponsored by**

**U.S. Army Corps of Engineers**

**and**

**Interstate Conference on Water Problems**

**October - December 1984**

**Prepared for the**

**ICWP/CORPS Financing Roundtable**

**April 24, 1985**

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## EXECUTIVE SUMMARY

### Workshops on Water Project Financing

Sponsored by

U.S. Army Corps of Engineers

and

Interstate Conference on Water Problems

The Federal government has played a major role in meeting the water resources needs of the nation. The Federal government has financed project planning and construction to promote Federal objectives related to economic development, environmental protection, and human safety. Non-Federal project sponsors have traditionally provided lands, easements, and rights-of-way for certain types of Federal water resources projects, and have borne the costs of the vendible project purposes, in many cases repaying these costs over the life of the project.

Today, funds for investment in water projects are in short supply at both the Federal and non-Federal levels of government. Due to high interest rates and inflation, water project development is more expensive than in the past. At the same time, water projects face stiff competition with investment needs for other public purposes. The result has been a slowdown in the construction of water projects and a potentially serious shortfall in meeting our needs for the economic and environmental benefits related to water development.

The nation must find a way to meet its essential water management needs. Both the Federal government and the States have searched for solutions that will enable the most urgently needed water projects to be built.

For a number of years Congress and the Executive Branch have debated potential changes in traditional policies. The proposals that are under discussion are certain to bring significant changes in the historic roles of local project sponsors, state governments, and Federal water agencies.

Significant differences remain among the positions of the Administration, the Congress and the States on cost sharing and financing policies. Key issues involve cost sharing percentages for new projects and for project additions, modifications or reallocations; financing terms for new projects; the treatment of sponsors' financing capabilities in cost sharing and financing agreements; and the composition and magnitude of non-Federal planning cost shares. These differences must be resolved to end the water development impasse.

President Reagan has recommended an approach which assigns more of the responsibility for project cost sharing and financing to non-Federal project sponsors. In general, the President has recommended that cost shares be consistent among sponsors for each project purpose, and that water development agencies negotiate reasonable financing arrangements with sponsors on a project-specific basis. Planning costs would also be shared.

The recommended cost sharing and financing program for the U.S. Army Corps

of Engineers is an extension of the President's basic policies. Planning sponsors would bear 50 percent of all planning costs after a 12-to-18 month "reconnaissance" phase. The non-Federal share of project costs would be consistent for each project purpose. The Corps of Engineers' position is that variable cost shares might reward inefficiency or create problems in equity among sponsors. Cost shares would be set at a level greater than or equal to the traditional level. Each sponsor's cost share according to the Corps position would be provided by the sponsor during construction, except that the Federal government would consider financing at the Treasury rate if the sponsor is unable to obtain favorable financing. Each agreement for project financing and cost sharing explicitly recognize the ability of Congress to modify the terms of the agreement.

The Interstate Conference on Water Problems (ICWP) has developed its own policy recommendations. ICWP supports the following principles as a basis for water resources development:

- o Federal involvement in major water resources projects of national and Federal interest is necessary and must continue.
- o Any requirements for up-front financing of Federal project by non-Federal sponsors must recognize the practical limitations of financial capability faced by project sponsors.
- o Project costs should be recovered from identifiable beneficiaries of vendible products to the extent possible, taking into account the limitations of administrative feasibility and financial capability.
- o Cost-sharing and financing policies must be applied consistently and equitable for like project purposes by all Federal agencies.
- o Flexibility is needed in project planning and development to reduce costs and delays in project completion.

ICWP has recommended a new national approach to water resources development emphasizing the following elements:

- o honoring prior Federal commitments to authorized, on-going, and completed projects;
- o development of a new system of funding that distinguishes between national projects and state level projects; and
- o development of a national water financing authority to provide an effective means of financing water projects via revenue bonds secured by the repayment agreements of the non-Federal beneficiaries, which would simultaneously remove many projects easing the burden on the Federal budget deficit.

In the fall of 1984 over 300 representatives from the States, local governments, regional agencies, the Corps of Engineers, other Federal water management agencies, and the financial community gathered at four workshops on water project financing sponsored by the U.S. Army Corps of Engineers and ICWP.

The workshops were held in Raleigh, NC; Chicago, IL; Dallas/Ft. Worth, TX and Seattle, WA. The purpose of the workshops was to discuss how the water project financing problems can be solved and how the states and the Federal government can work in a partnership to meet the water management needs of the nation.

Each workshop featured the following elements:

- o remarks by senior state and Corps of Engineers officials
- o presentations on five technical topics
- o examples of state and substate financing institutions
- o case studies of water project financing
- o work group discussions
- o an open discussion period
- o administration of workshop questionnaires.

The workshop participants recognize that the new financing conditions will require many difficult adjustments to planning practices, in non-Federal arrangements for sponsorship, financing and cost recovery, and in procedures for project authorization, funding and implementation.

This paper summarizes for further discussion the results of the workshop presentations and opinions expressed in discussions and questionnaires. The paper attempts to highlight some of the challenges and opportunities involved in the water project financing dilemma. It is grouped into six major parts:

- o management of the planning process
- o financial feasibility, non-Federal concerns and plan formulation
- o cost recovery strategies
- o financial planning
- o project financing and financial assistance
- o project implementation

The statements recorded and paraphrased in this paper represent neither a consensus of the workshop participants, nor the position of the Federal government, the Department of the Army, the Interstate Conference on Water Problems or any state, regional agency or local government.

#### MANAGEMENT OF THE PLANNING PROCESS

The Administration has proposed a greater non-federal role in paying for and carrying out project studies. Non-Federal sponsors would be asked to bear

a greater share of planning costs, and in turn would expect more control of the execution of planning tasks. These conditions would create new challenges in the management of the planning process. In general, closer cooperation would be required throughout planning among the Corps, states and sponsors.

The outcomes of planning are uncertain, both because the nature of the recommended plan cannot be known in advance and because there is no guarantee that the plan will ultimately be implemented. Planning sponsors will need reassurance that their contributions are being spent wisely. They will expect a shorter and less expensive planning process involving limited planning scope, early consideration of non-Federal capabilities and concerns, a limited number of plan alternatives and more decision-directed analysis and evaluation.

Non-Federal planning partners will also play a greater role in the execution of planning tasks. The planning partners must agree upon the division of responsibilities and upon a method for assigning value to the services provided by each. Individual sponsors may be particularly suited for certain tasks, such as demographic studies or financial analysis. In addition, planning sponsors may expect a greater role in scoping, screening, evaluation and other tasks which affect planning costs.

Federal agencies typically use economic analysis in project evaluation. With broader non-Federal responsibilities for project financing comes the need to include both financial and economic analyses in project planning studies. Financial data and analyses will be used in non-Federal decision-making throughout the planning period. Consequently financial analysis should be included in the planning process from an early stage, and financial data should be geared to continually support sponsors' financial decisionmaking.

States, the Corps and project sponsors all have something to contribute to the financial analysis of projects. Nonetheless, it is particularly important that the Corps of Engineers conduct training and information transfer activities to enhance its professional expertise and organizational capabilities to perform financial analyses in concert with its economic analyses, or to assist non-Federal sponsors in conducting such analyses during the planning period. Furthermore, handbooks or manuals on water project financing and financial analysis should be prepared for use by the Corps in conjunction with the states and project sponsors.

#### FINANCIAL FEASIBILITY, NON-FEDERAL CONCERNS AND PLAN FORMULATION

In the future, projects will need to be both economically and financially feasible. This dual test of feasibility could have significant effects upon plan formulation.

Economic feasibility analysis is used to identify the project providing the greatest economic benefit to society; financial feasibility analysis is used to determine whether a project is affordable to the sponsor, how the project can be financed, and whether to do so makes sense for the sponsor. Specifically, economic and financial analysis differ in four fundamental ways:

- o Economic analysis addresses all monetized costs and benefits, including uncompensated gains and losses;

- o Financial analysis addresses only the benefits which are appropriated as revenues and the costs which result in cash outlays.
- o The time pattern of revenues and outlays is critical to financial feasibility; economic feasibility is not as affected by cash flow.
- o The financial feasibility of a project is more sensitive to risk

Both economic and financial analysis recognize project-related risk and uncertainty, yet financial analysis is more sensitive for a number of reasons. First, lenders are concerned with institutional or legal risks that can interfere with the ability to repay project debt. Second, lenders, are unwilling to recognize projected benefits and revenues which are uncertain and subject to changes in the growth of demand, the price elasticity of demand, the cost of substitutes, or other factors. Furthermore, traditional economic analysis for water projects often assumes marginal cost pricing, and does not adequately treat the effect of output pricing on project usage; financial analysis must project revenues based on actual prices. Together, these risks and uncertainties are considered in financial analysis as "credit risk".

Theoretically, the economic discount rate is a real charge for the use of capital. Financial interest rates include this charge but must also compensate lenders for expected inflation, for credit risk, for the relative loss of liquidity and for interest rate risk, i.e. the risk that market rates will rise and reduce the value of their holdings.

The Principles and Guidelines (P&G) for water resources planning state that optimization of net national economic development (NED) benefits, consistent with protecting the environment, is the Federal water planning objective. There was general agreement at the workshops that efficient use should be made of project sites.

The P&G also state that non-Federal concerns and the acceptability of the plan (which probably includes plan affordability) are to be considered in plan development. Whereas there was general agreement that non-Federal concerns and financial feasibility should be explicitly treated in planning, there was disagreement over the extent to which these considerations should constrain NED optimization in the formulation and selection of plans. It was noted that in some cases, a project with maximum net national economic development benefits may be - because of institutional or market reasons - unable to meet a financial feasibility test. Risks of some project element or scope may prevent non-Federal borrowing to finance the maximum net NED project, but a "less optimum/down-scaled project may be financeable. Concern was expressed by some workshop participants that insistence on a NED plan which fails to meet the financial market test may lead to no project and no economic benefits. Is doing nothing better than doing less than the optimum, in striving to serve national economic development objectives?

The scope of each project will come under scrutiny as it is measured against the concerns of non-Federal interests. Sponsors may encourage greater emphasis upon vendible outputs or limiting the number of project purposes. In that regard, the Corps may need authorization to study single-purpose plans for water supply in order to meet high priority water needs. Some sponsors may

put greater emphasis on plan features which meet immediate local needs or which create desirable regional economic, tax, or employment effects which may be essential to secure non-Federal financing. It may be difficult to balance competing Federal and non-Federal priorities and to reach a consensus on plan formulation.

Since non-Federal sponsors must be able to both obtain project financing and to recover costs sufficiently to pay debt service, they will expect project planners to design projects in such a way that costs are minimized or deferred at the sacrifice of non-immediate or uncertain benefits:

o First, sponsors will expect planners to use conservative methods for estimating project benefits which are acceptable to the financial community and which involve careful consideration of the effects of price-demand uncertainty and other factors on projected usage.

o Second, sponsors will encourage cost savings and cost effectiveness in design. For example, project design may be modified to reduce scale, shorten design life, accelerate construction, make greater use of nonstructural and demand management measures, or substitute recurrent costs for capital costs. As another example, the Federal standards, procedures and criteria for acceptable risk, environmental protection coordination and other decision rules which are imposed upon the design of Federal projects and which increase project cost can be modified (alternatively, added costs which result from Federal policy which do not apply to non-Federal projects would be borne by the Federal government.)

o Third, separable project increments can be staged, both as a hedge against the failure of benefits to develop as expected and as a way to more closely match debt service, revenues, and borrowing capacity over time. For instance, staging has been recommended by the State of North Carolina for the development of recreation facilities at Randleman Lake.

A workshop case study of a proposal to deepen the lower Mississippi River illustrates these points. When conservative methods were used to re-estimate future navigation usage, a scaled-back, staged version of the project was recommended.

#### COST RECOVERY STRATEGIES

A major concern of sponsors is how to translate project benefits into revenues sufficient to finance and/or repay debt incurred for a project. Although there is a general correspondence between a high benefit/cost ratio and financial feasibility, design of an effective cost recovery strategy is essential. Under some circumstances, significant institutional changes at the state and local level as well as the removal of Federal legal constraints may be required to implement an effective cost recovery strategy.

#### Vendible Outputs

Theoretically, the use of project capacity and the investment schedule for project additions can be optimized by setting price equal to marginal cost. However, under most conditions marginal cost pricing generates insufficient

revenues to provide for operating costs and debt service. A cost recovery strategy must be developed based upon the sensitivity of demand to the price of project outputs. If the demand of most users is not sensitive to price, one-part pricing (e.g. price per thousand gallons) or two-part pricing (e.g. connection charge plus price per thousand gallons) is appropriate. If the price-elasticity of demand varies among user groups or with time, variable pricing may be appropriate. Water and electric utilities frequently use such pricing: examples are declining block rate, peak load or seasonal pricing or discriminatory pricing by customer class.

To firm up revenue streams, users who are the "captives" of a project, such as current users of port or water supply facilities, may be made to share in cost recovery. Alternatively, the sponsor can enter into leases or contracts with third parties, who require the sponsor's permission to gain access to the project. Contracts which provide a guaranteed revenue stream regardless of whether the third party uses the project outputs are called a "take-or-pay" contracts. A workshop presentation on Skiatook Reservoir discussed how public recreation facilities on lands leased from the Corps of Engineers could be financed with revenue bonds backed by revenues from subleases to residential land developers.

If an otherwise vendible output creates widespread benefits, or is costly to withhold from non-payers, or involves issues of equity among beneficiaries, the use of tax and assessment powers to complement pricing may be justified. For example, properties which have an increase in value incidental to development of a reservoir or navigable waterway may be assessed based on the value of the increment. As another example, "complementary goods" may be taxed; these are goods such as barge fuel or sporting goods which are jointly consumed with project outputs. Finally, general sales, income, or property taxes may be used to recover a portion of the costs of a project with significant overall effects on incomes or property values.

The case study of the deepening of the lower Mississippi River illustrated the cost recovery difficulties for vendible outputs. Even for a scaled-back, staged project, it was found that because ports are highly competitive a user charge on shippers sufficient to pay debt service and recurring costs would discourage use. However, with a lower initial charge and graduated increases the project would not be self-sustaining for 22 years. The study consultants recommended some form of credit assistance backed by the full faith and credit of the State of Louisiana or the Federal government.

The theory of vendible products is tempered by institutional constraints on who can establish charges and collect from beneficiaries. In the case of a port, for example, the non-Federal sponsor (a state or local port agency) may not, in fact, "control" access to all port facilities for cargo handling, fueling or other essential services, or have jurisdiction over all interstate and international shippers using the port. With no admiralty jurisdiction or physical ability to restrain the nonpaying ship, or enforce fees against the out-of-area shipper, it is difficult to collect a general port use fee or tax based on quantity or value of cargo. Further, in some cases state constitutions, various Federal laws and even boundary compacts prohibit imposition by states of charges upon navigation. These constraints must be addressed, even for the "vendible products", if a successful cost-recovery system is to be implemented.

## Non-Vendible Outputs

For non-vendible outputs such as flood damage reduction, instream flows and environmental amenities, the benefits cannot be withheld from any beneficiary. A sponsor needs a mechanism to compel beneficiaries to make their fair cost recovery payments. Three taxation or assessment strategies are value increment taxes or assessments, general taxes, and taxes on complementary goods.

As a means to recover the costs of flood control, properties can be assessed for benefits received (the Miami Conservancy District is an excellent example of this approach.) A special service tax levied on benefited properties is a variant of the property assessment. General taxes can also be used, based on the rationale that many benefits are widespread and that collection of assessments or special taxes is difficult.

Non-vendible outputs may also be cross-subsidized by sales of vendible outputs from the same project at market-based rather than cost-based prices.

## Selection of a Cost Recovery Strategy

The powers of the sponsor depend on its basic charter as a general purpose government, a state-chartered authority, a local special district, an investor owned utility, or a multigovernmental joint action agency. The effects of a sponsor's geographic jurisdiction taxing, charging or assessment authorities, and constitutional or statutory limitations on cost recovery must be addressed on a case-by-case basis.

Furthermore, cost recovery must be examined from the standpoints of enforcement costs, revenue-raising effectiveness, and political acceptability. The method for assessing flood-prone properties adopted by the Miami Conservancy District met these criteria. In some instances, problems of legal authority and jurisdiction make the Federal government the most efficient collector of project user charges.

Planning projects with multiple sponsors may involve complex and lengthy negotiations on design priorities, the allocation of costs, and the allocation of outputs. As illustrated by a case study of the Northwest Municipal Joint Action Agency, joint ventures may be developed in order to achieve economies, to properly define relationships among the parties, and to provide the institutional mechanism to adapt to change. The Corps and the states can participate constructively in such negotiations.

Multi-state projects will probably require new or modified interstate compact arrangements to negotiate a cost sharing agreement requiring several years for State and Federal enactment. Congress could expedite and encourage interstate cost sharing by enacting a law giving general approval and consent to such compacts.

Removal of institutional constraints, creation of new authorities, or institutional changes may be required. The participation and cooperation of the states is essential to many of these modifications. The modification of a State constitution, State or Federal statute, or local ordinances takes considerable time, nevertheless, institutional change is possible when both

water problems and the limitations of existing institutions are clearly recognized. The possibilities for change were demonstrated in presentations on the passage of the Ohio Conservancy Act in 1914 and on the creation of Natural Resource Districts in the State of Nebraska.

Planning studies can support the development of cost recovery measures and institutional capabilities. First, the planner can focus on identifying project beneficiaries and documenting the distribution of benefits among user groups and geographic areas. Second, the planner can analyze alternative cost recovery strategies based on financial and institutional considerations. Third, the planner can communicate the benefits of a project to sponsors and beneficiaries in order to generate support for needed actions.

## FINANCIAL PLANNING

Today's complex financial conditions require increased sophistication in financial planning and management by States and localities. Financial planning should evaluate various funding strategies from the standpoints of cost, risk, and financial flexibility. Because sponsors have limited revenue bases, using general obligation debt will require water projects to be considered among other competing capital needs.

Non-Federal sponsors of capital improvement projects such as water projects assemble a financing team to evaluate the feasibility of project development, establish the legal and organizational prerequisites for project financing, prepare a financing plan and prepare the necessary financial and implementation transactions. Principal members of the team are the design engineer, the financial advisor, and the bond counsel. The sponsor also retains general counsel, an independent consulting engineer, an auditor, and a bond rating agency. A bond underwriter purchases the bonds from the issuer and markets them. An insurance company or bank may provide credit support.

Although there remains some confusion regarding roles in project development, primary responsibility for financial planning and implementation should remain with project sponsors. States and the Corps can provide technical analyses and assistance. Furthermore, Federal and State water agencies have a responsibility to inform the public of the importance of water projects to the national economy.

Many States operate technical assistance and supervision programs for local issuers of debt. These programs are designed to facilitate bond issuance, encourage responsible debt management, and improve credit ratings. The programs of the North Carolina Local Government Commission and the California Districts Advisory Commission were described at the workshops. These programs examine plans, approve issuance of debt, monitor conformance with procedural requirements, supervise expenditure of bond proceeds, inspect projects, and/or audit the accounts of units with outstanding bonds.

Even in States which have such programs, the water agencies can assist local sponsors in identifying financing options, participating in intergovernmental negotiations, developing organizational capabilities, and working to remedy legal constraints to project financing. These constraints include statutory limitations on debt, taxation, expenditures, or contracts and

deficiencies in the express or implied authorities of the particular sponsor or sponsors.

The Corps of Engineers can assist by adapting elements of its planning process to financial planning and implementation needs. Project design, sponsorship, sources of revenue and financing may be addressed in their interrelationships throughout planning. Planning methods may be developed and refined which jointly address engineering, environmental, economic, financial, and institutional opportunities and constraints.

Planning studies should provide data and analyses which are useful to the financial community as well as economic analyses for Federal review and authorization purposes. However, it is unlikely that greater attention in planning reports to the financial aspects of projects will eliminate the need for a bond issuer to retain a nationally recognized independent consulting engineer for bonding purposes.

## PROJECT FINANCING AND FINANCIAL ASSISTANCE

### Financing Innovations

Issuance of tax-exempt municipal bonds is the most common method for financing public works. Traditionally, bonds were sold at face value, had long maturities and fixed interest rates, and retired principal on a regular basis.

General obligation bonds pledge the full faith, credit and taxing power of the issuer. Use of G.O. Bonds minimizes interest cost and marketing cost. However, a sponsor's ability to use G.O. bonds may be limited by its fiscal capacity, by limitations on taxation or debt, by requirements for approval by legislative bodies or public referenda, or by other legal limitations.

Revenue bonds pledge project or system revenues as security. Although subject to fewer restrictions, revenue bonds involve higher interest and marketing costs. Like revenue bonds, limited obligation bonds make a restricted pledge. Limited obligation bonds include dedicated tax bonds, special assessment bonds and special service tax bonds. Where revenues, special taxes or assessments are to be used for cost recovery, the sponsor may nonetheless choose to issue G.O. bonds in order to lower interest and marketing costs.

As financing responsibilities are shifted to non-Federal sponsors, the municipal bond market will provide a greater proportion of project funds than has been the case historically. While this shift reduces the Federal deficit, it does not reduce overall borrowing needs and increases the financial risks associated with project development.

Furthermore, this shift comes at a time when the municipal bond market has undergone dramatic changes. High and volatile interest rates have driven up financing costs. In response, bond issuers have developed creative financing techniques which reduce costs to the lender and to the issuer.

One innovation is to use financing methods with short-term characteristics. These methods take advantage of the lower interest rates available for

short-term debt. Interim financing may use short-maturity instruments for financing project development and construction but which are refinanced at the completion of construction. Examples are bond anticipation notes (BAN's) and tax-exempt commercial paper (TECP). The risk to the borrower is that interest rates will rise or funds will not be available to refinance at maturity. A letter of credit (LOC) from a bank reduces this risk by providing backup credit security.

Other types of bonds with long maturities have features of short-term debt that appeal to investors. "Put bonds" may be redeemed by the bondholder at stated intervals, thereby providing liquidity and protection against interest rate changes. Variable rate demand notes (VRDN's) pay interest at a rate which is pegged to market indicators and also give investors the "put" option, thereby providing similar protection. Because of their short term features, these instruments offer interest savings, but involve risk to the bond issuer of cash shortfalls to cover "puts" or of unanticipated increases in interest payments.

As discussed in workshop presentations, both the Port of Oakland and the Massachusetts Port Authority have benefited from the use of short-term and adjustable-rate debt. Massport issued \$23 million in TECP in 1982 and has "rolled it over" until the present, at an average interest cost of only 5 percent. Massport is planning to issue adjustable-rate put bonds, and expects to reduce the interest rate to 4 or 5 percentage points below ordinary long-term debt. The Port of Oakland issued BAN's in 1982 at a net interest cost of 6.6 percent. These were refinanced in 1984 with "ACES", or adjustable, convertible, extendible securities, at an initial interest rate of 6.1 percent, which has since declined.

A second financing innovation has been the use of zero coupon bonds. These bonds are sold at a deep discount from face value and pay no interest. Issuers use these bonds to load debt service into the out-years, thereby more closely matching debt service to the growth of revenues. This is important because bond maturities are usually 20 or 30 years, although useful project lives are 50 years and more. For the Mississippi River deepening project, it was recommended that the State of Louisiana issue a zero-coupon "assurance bond" which would be used to finance early-year deficits but would be recouped by out-year surpluses in time to repay the principal.

A third financing innovation has been the increased use of funding sources other than debt. The workshop examples of the Lock Haven flood protection project and the financing activities of the Trinity River Authority of Texas illustrate the creative use of multiple financing sources, including internally generated funds from existing facilities, grant receipts and in-kind contributions as well as bond proceeds.

Privatization involves the participation of private interests in the financing, construction, ownership and/or operation of facilities which provide services to a public entity. Privatization is competitive with tax-exempt bond financing because it offers depreciation deductions (in the case of a lease or service contract) or tax exemption of interest (in the case of a purchase contract.) Other benefits include cost savings on construction (through avoidance of public procurement requirements) and avoidance of debt restrictions. However, because privatized facilities must be separated from

those involving public funds, privatization has little applicability except to finance adjunct facilities at a Federal project or as a substitute for Federal participation.

A fourth financing innovation is the expanded use of bond insurance. Bond insurance is usually cost-effective for issuers whose bonds are rated lower than AA by the rating agencies because bond insurers pool risk, whereas individual bondholders charge a "risk premium" reflected in interest cost.

The exemption from Federal taxes of interest on State and local debt is based on state sovereignty as delineated in the U.S. Constitution, and it continues to be a mainstay of non-Federal financing. Elimination or severe curtailment of this tax-exemption has at times been recommended; in fact, recent changes in the tax law have restricted the tax-exempt use of industrial development bonds (IDB), and Internal Revenue Service guidelines may remove the tax-exempt status from certain projects. For example, as State and local sponsors seek to secure their revenue bond borrowing to finance water supply storage in Corps reservoirs through contracts with major utility or industrial users in a basin, IRS rulings threaten to treat these bonds as IDB's ineligible for tax-exempt status and hence render them unsellable. Similarly, IRS's rulings threaten the status of State and local bonds used for projects jointly financed by the Federal government and non-Federal sponsor(s) for which there may be an implicit Federal repayment guarantee. Further restrictions on tax-exempt borrowing could dramatically increase non-Federal financing costs, compound financing difficulties and drive borrowers which are small or are lesser credit risks out of the bond market, but could be subject to constitutional challenge.

#### Financial Assistance

A water projects sponsor's ability to float G.O. bonds depends on its creditworthiness; the ability to float revenue and limited obligation bonds depends on the certainty of the dedicated revenue stream. Access to the bond market and to the financing innovations discussed above is available only to issuers whose bonds are investment grade, i.e. rated BAA or better by the rating agencies. Whether due to limited geographic jurisdiction, restricted charging power, limited revenue base, flood-induced reduction of property values, exhaustion of borrowing capacity or other factors, some units of government would not be able to issue bonds to finance their participation in a Civil Works project, or would not be able to do so at reasonable cost.

Consequently, the Corps of Engineers policy is that if a sponsor obtain more favorable financing, the Federal government would consider financing and requiring repayment at the Treasury rate, in effect lending the money to the sponsor.

The States have a major role to play in assisting local sponsors in less extreme circumstances to lower financing costs or improve access to funds. With the reduced availability of Federal funds, state participation will become more important in meeting both State and local needs.

States such as Pennsylvania and Washington have traditionally relied upon appropriations and debt to provide direct grant assistance for water and other needs. Many states now find that financial needs for all types of

infrastructure investment exceed the ability of the states to market bonds without threatening their credit worthiness and bond rating. For instance, in Pennsylvania the non-Federal share of pending Federal water projects alone is on the order of \$300 million.

Over time many States have developed mechanisms to stretch both State and local credit capacity farther by acting as intermediaries between local borrowers and the financial marketplace. Loan programs are a basic form of intermediation; for instance, the Oklahoma Water Resources Board is authorized to sell revenue bonds and lend the proceeds to a blind pool of qualified local governments for water and sewer projects.

Other forms of intermediation are possible. The Utah Board of Water Resources purchases general obligation or water revenue bonds from political subdivisions of the State. Other states have created bond banks, which purchase local bonds and use them as collateral for debt floated by the banks. Some states guarantee approved local debt for certain water projects.

A recent development is the revolving loan fund (in which new loans are made as old loans are repaid) initially capitalized by appropriations and/or bonded indebtedness, and recapitalized by repayments, dedicated revenues and/or continued appropriations or debt.

The State of Utah has two revolving water development funds which subsidize interest paid by local borrowers. In 1978, debt was used for the first time to provide principal for the fund; in 1983, the fund was used for the first time to provide collateral for other borrowings. However, dedicated revenue sources are needed to lessen reliance on debt and appropriations.

Oklahoma's water development revolving fund is funded by legislative appropriations. The primary purpose of the fund is to provide additional security and collateral for revenue bonds issued through the Oklahoma Water Resources Board's loan program. The fund can be used to construct State water projects to finance the State cost-share for Federal water projects, to make payments to the Federal government to fulfill existing State contractual obligations, and to fund water resources planning and research activities. Interest earned by the fund is used for emergency water and sewer grants.

Infrastructure banks are financing vehicles which are capitalized from multiple sources and which may apply their funds to a variety of uses, including revolving loans. Washington and New Jersey have developed proposals for infrastructure banks. The New Jersey bank would include Federal grant money, general obligation debt proceeds, appropriations, and dedicated project revenues as sources of capital. Use of the Federal grant money would require changes in Federal law. A number of single-purpose revolving loan funds would be set up within the bank. In addition, the bank could finance local cost shares of Federal projects by issuing debt on behalf of sponsor communities. While the New Jersey bank has not been established, the State has created a number of single purpose lending and project financing authorities.

#### PROJECT IMPLEMENTATION

Implementation of jointly financed projects involves diverse challenges to

the Corps of Engineers, States, and sponsors. Greater speed and certainty is needed in authorization; budget and funding schedules must be coordinated; mutual assurances of project funding and performance must be provided. These challenges are critical.

Greater speed and certainty is needed in procedures for project review, authorization and initial funding. State and local sponsors need reassurance that the commitments they make in planning will be honored in the review process and that their efforts will result in a project in a reasonable period of time. This will assure both that current needs will be met and that sponsors will be willing to participate in planning and to make the necessary legal, financial and institutional arrangements for financing. Most alternatives considered for accelerated authorization would provide greater discretion to the Corps of Engineers, particularly for small projects.

Joint Federal/non-Federal financing of water projects requires coordinating budget and funding schedules. Securing non-Federal financing authority and approvals must often be obtained within limited "windows of opportunity" constrained by legislative sessions, election dates for referenda, and state and local budget cycles. The issuance of debt must be scheduled with other capital projects according to what the market will bear so that credit ratings can be maintained. One way to ease scheduling problems is to relax current Corps rules under which sponsors may not be credited with project-related expenditures made prior to Federal authorization nor with expenditures in excess of \$1 million made prior to Federal appropriations. Another method, in States where long term contracts are authorized, is for the sponsor to agree to provide its share of construction funds after a "grace period". Such an approach was negotiated between the Corps and the State of North Carolina for the Randleman Lake project.

Before construction can begin, the Corps requires assurance that the sponsor's cash contributions for construction and project operation will be provided at the appropriate times. States in which it is illegal to obligate future legislatures to appropriate funds, may have to place the funds in an escrow account prior to construction. In other States, construction payments may be made in installments under an enforceable agreement.

Bondholders require assurance that a project to be financed will be completed and operated as expected, and sponsors need assurance that they will not be saddled with debt without a project to show for it. As a result, the Corps needs to guarantee not only that Federal funds for the project will be provided, but that the project will be completed on time and at the stated cost to the sponsor and that the project will be operated so that anticipated outputs (and revenues) will be delivered. These assurances may be provided by the full funding of projects prior to construction, by fixing the non-Federal share, by providing the Corps greater discretion to reallocate funds to assure project completion, and/or by negotiating the operating rules for jointly financed projects.

#### CONCLUSIONS

The summary statements which follow highlight key issues and action opportunities which were identified in the workshop presentations and

discussions. These statements represent neither a consensus of workshop participants nor the position of the Federal government, the Department of the Army, the Interstate Conference on Water Problems or any state, regional agency or local government.

### General Issues & Opportunities

o Significant differences remain among the positions of the Federal administration, the Congress and the States on cost sharing and financing policies. Key issues involve cost sharing percentages for new projects and for project additions, modifications or reallocations; financing terms for new projects; the treatment of sponsors' financing capabilities in cost sharing and financing agreements; and the composition and magnitude of non-Federal planning cost shares. These differences must be resolved to end the water development impasse.

o When confronted by limitations in a sponsor's capability to finance a water resources plan, the Corps of Engineers, the affected State and/or the sponsor may take one or more of the following general courses of action:

- o modify the plan
- o modify the sponsor's cost share
- o modify the institutional and legal conditions of sponsorship and cost recovery to enhance cost recovery opportunities
- o modify the financing responsibilities of the sponsor or the financing opportunities and terms available to the sponsor.

### Management of the Planning Process

o In response to the needs of non-Federal planning partners, the Corps of Engineers should develop a shorter and less expensive planning process involving limited planning scope, early consideration of non-Federal financing capabilities and concerns, fewer plan alternatives and decision-directed analysis.

o In developing a water resources plan, the Corps of Engineers must reach an agreement with its non-Federal planning partners on the division of planning responsibilities, the valuation of in-kind planning services, and the scheduling of study elements to facilitate state and local budgeting and assignment of personnel.

o Financial analysis should be included in the planning process from an early stage, and financial data should be geared to support sponsors' financial decisionmaking during the planning period.

o The Corps of Engineers should conduct training and information transfer activities to enhance its capabilities to perform financial analyses in concert with its economic analyses, or to assist non-Federal sponsors in conducting such analyses during the planning period.

o The Corps of Engineers and States should develop manuals on water project

financing and financial analysis for use by the Corps, States and sponsors.

### Plan Formulation

o As called for in the Principles and Guidelines for water project planning, planning studies should explicitly consider the acceptability of alternative plans. Elements of acceptability may include the sponsor's capability to finance each alternative.

o As called for in the Principles and Guidelines for water project planning, planning studies should explicitly consider non-Federal concerns. These concerns may include plan outputs and features desirable to non-Federal interests, plans providing regional economic, tax, and employment effects, and limited or single purpose plans meeting priority needs such as water supply. In this regard, the Corps of Engineers may need new authority to study single-purpose projects.

o Planning studies should estimate future project benefits conservatively in light of the possible effects of price and demand uncertainty on project usage.

o Planning studies should consider plans which achieve construction cost savings by reducing scale or design life, accelerating construction, making greater use of nonstructural or demand management measures, or substituting recurrent for capital costs.

o The Corps of Engineers should reevaluate standards, procedures, criteria for acceptable risk, environmental protection, coordination, and other decision rules which are imposed upon the design of Federal projects and which may increase project cost.

o Planning studies should consider staging separable project increments, both as a hedge against the failure of benefits to develop as expected, and as a way to match debt service requirements more closely to revenues over time.

### Cost Recovery Strategies

o Planning studies should focus on identifying project beneficiaries and documenting the distribution of benefits among user groups and geographic areas.

o Planning studies should analyze alternative cost recovery strategies based on financial and institutional considerations.

o Planning studies should communicate the benefits of a project to sponsors and beneficiaries in order to generate support for needed actions.

o The effects of sponsors geographic jurisdiction; taxing, charging or assessment authorities; constitutional or statutory limitations and administrative cost and feasibility on cost recovery opportunities should be addressed on a case-by-case basis. In some cases it may be most efficient for the Federal government to recover costs from beneficiaries.

o Projects with multiple sponsors may involve lengthy and complex negotiations on design priorities, the allocation of costs and the allocation

of outputs. The Corps of Engineers and the States can participate in these negotiations and assist in developing interstate compacts, joint action agreements or other implementing mechanisms.

- o The states can play a major role in remedying institutional constraints to cost recovery; however, institutional modifications take several years to enact.

- o Planning studies should provide financial data and analyses useful to the financial community; however, an independent consulting engineer is still needed for bonding purposes.

#### Project Financing and Financial Assistance

- o As financing responsibilities are shifted to non-Federal sponsors, the tax-exempt municipal bond market will provide a greater proportion of project funds than has been the case historically. While this shift reduces the Federal deficit, it does not reduce overall borrowing needs. In fact, it increases the financial risk associated with project development. Any curtailment of tax exemption for interest on public debt would dramatically increase financing costs and restrict the access of many borrowers to capital.

- o "Creative" debt financing techniques do not increase the availability of capital, but lower financing costs by reducing credit risk (the risk that principal or interest will not be repaid) or interest rate risk (the risk that interest rates will rise, severely reducing the value of the lender's bonds.)

- o Under Internal Revenue Service guidelines, interest in project debt which is explicitly or implicitly backed by a Federal guarantee of repayment (in the form of Federal ownership, joint development agreements or contracts involving Federal repayment) may not be tax-exempt.

- o Under the 1984 tax reform act, non-Federal project sponsors who seek to secure non-Federal financing of a portion of a Federal water project through contracts with utility or industrial beneficiaries may find the bonds treated as industrial development hence subject to severe limitations or ineligible for tax-exempt status.

- o If the sponsor cannot obtain favorable financing, the Federal government would consider financing and requiring repayment at the Treasury rate. It should be noted, however, that if the tax-exempt status of non-Federal bonds used in water project financing is further eroded, access of non-Federal sponsors to the capital market will be severely threatened, and increased interest costs would cause most if not all project to require Federal financing under this policy.

- o States should assist communities which are poor credit risks to obtain greater access to funds by creating financial assistance program. Alternative forms of assistance include grants, direct purchase of bonds, bond banks, loans, revolving loans, loan guarantees, or composite "infrastructure banks"

#### Project Implementation

- o The Congress should expedite procedures for project review

and funding so that current needs will be met and so that sponsors will be willing to contribute to project planning costs and to make the necessary legal, institutional, and financial arrangement for project financing.

o Because Federal and non-Federal schedules for funding approvals, budgeting, appropriations and debt issuance differ, the Corps of Engineers and/or Congress should provide sponsors greater latitude in the timing of their financial contributions, by giving sponsors credit for early expenditures and/or allowing "grace periods" for the contribution of construction funds.

o In order for a sponsor's revenue bonds or limited obligation bonds to be marketable, the Corps of Engineers and/or Congress should provide assurance that the project will be completed on time and at the stated cost to the sponsor, and that the project will be operated so that the anticipated outputs will be delivered.

**DEPARTMENT OF THE ARMY  
OFFICE OF THE CHIEF OF ENGINEERS**

**STATEMENT OF LT. GENERAL E. R. HEIBERG III  
CHIEF OF ENGINEERS  
U. S. ARMY CORPS OF ENGINEERS  
BEFORE THE SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT  
COMMITTEE ON APPROPRIATIONS  
HOUSE OF REPRESENTATIVES  
ON THE FY 1986 CIVIL WORKS BUDGET**

**FEBRUARY 20, 1985**



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STATEMENT OF LT. GENERAL E. R. HEIBERG III  
CHIEF OF ENGINEERS  
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COMMITTEE ON APPROPRIATIONS  
ON THE FISCAL YEAR 1986 CIVIL WORKS BUDGET

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

INTRODUCTION

Mr. Dawson has identified the policies and objectives directing the development of our program and the FY 1986 budget. I will expand on those objectives by discussing the expected impact on the funding and directions that will be taken for various activities within our program. However, I first will review the accomplishments of the past and current years and then provide more detailed information on the FY 1986 budget. A table summarizing the funding levels of the individual appropriation titles for the period FY 1984-1986 inclusive is attached for the Subcommittee's reference. I also will report on the status of our dredge fleet and dredging program, certain proposed legislation that should be of interest to this committee, and our responsiveness in developing our part of the Nation's infrastructure.

PROGRAM IMPLEMENTATION OF THE PAST TWO YEARS

OVERVIEW

Outlays for FY 1984 totaled over \$3 billion, with both the construction and the project operation and maintenance programs exceeding \$1 billion each. Based on appropriations of almost \$2.8 billion for FY 1985 plus carryover, we are anticipating that the outlays once again will exceed \$3 billion.

During FY 1984, essentially all remaining Jobs Act funds were obligated. The results reflected our objectives of maximizing the number of jobs generated and awarding contracts in virtually every state. Overall, some 22,000 jobs were created by the award of over 700 contracts in 47 states. About 60 percent of Construction, General funds were used for work on major flood control and navigation projects, and almost a third was used on projects under our Continuing Authorities program. Almost three-fourths of Operation and Maintenance funds were used on navigation projects and, in the Mississippi River and Tributaries account, more than 90 percent of Jobs Act funds were used for repair and restoration of flood control projects.

#### Construction Program

Under our Construction, General program in FY 1984, work continued on 143 specifically authorized projects, 14 major rehabilitation projects, and one dam safety assurance project, with five others funded for only engineering and design. Completions included: two navigation projects, four flood control projects, one beach erosion control project, and three major rehabilitation projects. In FY 1985, 127 regular construction projects are being funded together with 11 major rehabilitation projects and one dam safety assurance project. Again, five projects are being funded for engineering and design, with 19 projects scheduled for completion. The completions include: three navigation projects, eight flood control projects, one bank protection project, one beach erosion control project, one multiple-purpose hydropower project, and five major rehabilitation projects. Of particular significance is the opening of the Tennessee-Tombigbee Waterway to navigation traffic approximately 18 months ahead of schedule. The Waxler Towing Company's four-barge tow, containing 64,000 barrels of petroleum valued in excess of

\$2 million, departed New Orleans on 9 January 1985, and arrived at its destination, Sheffield, Alabama on the Tennessee River, on 17 January 1985. In all, the river miles traveled by the tow was 820 miles, a reduction of some 335 miles over the traditional route via the Mississippi River.

#### Project Operation and Maintenance Program

The scheduled activities and outlay levels for the Corps operation and maintenance program in FY 1984 and FY 1985 are essentially the same -- over \$1.3 billion. Operation and maintenance of over 330 harbors and the inland waterways are programmed for accomplishment in FY 1985 at a level consistent with their commercial traffic requirements, with an average annual dredging requirement of about 255 million cubic yards for the two year period. Some emergency dredging was done in FY 1984 in Galveston Harbor as a result of Hurricane Alicia and on the Mississippi River, Baton Rouge to the Gulf, as a result of low water conditions. In addition, four waterway projects are in caretaker status in FY 1985; the extent of commercial traffic moving on these waterways precludes any increase in the level of operation beyond the caretaker status.

I would like to mention one of these caretaker projects in particular - Locks & Dams 5 through 14 of the Kentucky River navigation system. The last full year of operation of these 10 locks was FY 1981. In FY 1982, only five of the 10 locks were operated on weekends for recreational boating during the summer. Since then we have discontinued the operation of all 10 locks and dams. During the ensuing period, however, we have sought to transfer ownership of those locks and dams to the Commonwealth of Kentucky. State ownership would enable this project to be managed in ways which are more responsive to local and regional needs. With the assistance of Congressman

Hopkins and Governor Collins it now appears that we will attain that goal. An interim operating agreement will provide a smooth transition from Federal to State control. This agreement provides that the Corps will make such repairs as are necessary to make the locks operational. Upon execution of this agreement these repairs will be initiated and, when completed sometime this spring or early summer, the State will begin operating the locks at its own expense. During this transition period, which will run until October 15, 1988, we will retain some responsibility for maintenance and will assist in training state employees in the operation and maintenance of the facilities. At the end of the transition period, the State will assume full ownership and all operation and maintenance responsibilities for the 10 locks and dams. A report and legislative proposal recommending that the Federal Government divest itself of any interest in Locks and Dams 5 through 14 by amending PL 84-996 is being processed now to permit transfer of title to the State.

The operation and maintenance of 352 flood control and multiple-purpose power projects continues at a level slightly above that for FY 1984. The FY 1983 Jobs Act gave us an opportunity to accomplish needed maintenance work, most of which was completed in FY 1984.

#### Studies Program

In our studies program funded under the General Investigations account, actions by the Division Engineers were completed on 67 preauthorization reports in FY 1984. We expect to complete action on the reconnaissance phase of about 30 studies and on 55 final preauthorization reports in FY 1985. In addition, the follow-on planning and engineering work is being funded for 64 projects in FY 1985, part of the 86 such projects which have been funded under our Continuation of Planning and Engineering (CP&E) program since it was

initiated with Congressional support in FY 1982. The CP&E work on 46 of the 86 projects will be completed by the end of FY 1985.

Under our Review For Deauthorization program, 469 projects have been deauthorized to date, based on recommendations contained in the first eight annual reports printed by the Congress. The ninth and tenth annual reports recommending the deauthorization of 15 projects are currently under review by states and agencies. Work is continuing under this program and we expect to complete 39 more such reviews in FY 1985.

#### Flood Damage Prevention and Emergency Response Activities

During FY 1984, the Nation's investment in Corps dams, levees, and flood protection projects returned dividends by preventing billions in flood damages. Projects were particularly effective in the mid-Atlantic and New England areas, where record estimates of annual flood damages prevented were reported. Additionally, Corps projects were very efficient in reducing flood damages in the Pacific Northwest, and in the Missouri River Basin in FY 1984. Once again, the Lower Mississippi River Valley projects worked well in avoiding extensive flood damages in Louisiana and Mississippi.

In addition to the flood damages prevented by Corps projects, emergency response activity also was highly effective. During FY 1984 and the first quarter of FY 1985, the Corps has provided extensive assistance to states and local entities in response to widespread flooding, as well as other types of emergencies and disasters. This assistance has been in the form of emergency operations at Corps projects and direct assistance under our Public Law 84-99 emergency authority. In addition, the Corps has provided assistance under FEMA's Public Law 93-288 authority. During this period, there have been 39 major disaster declarations and five emergency declarations which have

affected all or parts of 31 states and territories. Lesser emergencies in the same states and in other states have required Corps assistance.

In Idaho, the Corps provided assistance in response to changed streamflow conditions due to an earthquake and major ice jam problems. In addition, well-above-normal snowpacks across the west resulted in major flood problems during the spring melt in many of those basins with no natural outlets (Great Salt Lake Basin, Utah; Humboldt River Basin, Nevada; Malheur Lake, Oregon; and Mud Lake, Idaho) and in the Snake and Colorado River basins. A repeat of some of these same problems may occur again this year, as early snowfalls in the Pacific Northwest, the Great Basin, and the Upper Colorado River basin have been well above normal and are projected to continue.

Record to near-record flooding occurred along portions of the middle Missouri River, especially its tributaries in Nebraska, Kansas, South Dakota, Iowa, and Missouri. Almost every state east of the Mississippi River suffered with problems from severe storms and widespread flooding. In addition, tornadoes caused havoc in many states, and coastal storms, including Hurricane Diana, severely impacted several East Coast states. Major damage occurred in Arizona, New Mexico, and Oklahoma due to flash flooding.

Currently, the Corps is assisting Idaho with ice jam flood problems. In Utah, advance measures assistance is being evaluated to supplement State and local efforts to respond to the projected near-record levels on the Great Salt Lake. In addition to the above normal early snowpack across most of the west, wet ground conditions and above-normal streamflows exist in large sections of the eastern two-thirds of the country. With these conditions and long-range predictions calling for above-normal precipitation across most of the country, a high potential exists for widespread flood problems again this year.

Currently, about \$8.5 million remain in the Emergency Fund. However, commitments for completed emergency actions and requests that are currently being processed will utilize \$7.5 million by the end of the winter. Identified potential requirements would deplete the remaining funds. Should significant flooding develop, it may be necessary to temporarily utilize funds from other flood control appropriations to meet the emergency response needs.

#### FISCAL YEAR 1986 PROGRAM

##### SUMMARY

We are requesting \$2.338 billion in general appropriations for the Civil Works Program in FY 1986. That appropriation request, together with the contributions that would be forthcoming under existing legislation and the Army's proposed legislation, would provide new funds amounting to \$2.808 billion for the Civil Works program. This compares with \$2.799 billion in Federal funds and an estimated \$36 million from the Rivers and Harbors Contributed Fund required under existing legislation for work programmed in FY 1985. The FY 1986 budget request is adequate to meet all programmed requirements assuming that the projected \$470 million in required non-Federal contributions are received in a timely manner. Included in this total is some \$403 million that are to be derived from navigation interests with collection of such funds dependent upon enactment of the proposed legislation.

Under the Army's bill, the non-Federal share of costs for various existing and future activities would be increased and made available to us on a "pay-as-you-go" schedule. The net financial result is to reduce the level of funds the Congress has to appropriate. Based on the programmed requirements of non-Federal contributions, our FY 1986 request for Federal funds is \$461 million less than that appropriated for FY 1985.

I will cover a number of the highlights of the budget at this time. Additional information on the FY 1986 Civil Works budget is provided in the Detailed Summary which also is being submitted for the record.

Construction, General

A total of \$916 million is programmed for those activities funded under the Construction, General Account. The actual FY 1986 budget request for Construction, General is \$842 million and is to be augmented by non-Federal contributions of \$74 million, \$15 million of which is pertinent to improvements of ports and inland waterways and, consequently, dependent on enactment of legislation. The budgeted amount is about five percent less than FY 1985 but will permit us to maintain schedules, insofar as funding is concerned, on all construction projects and major rehabilitation projects funded under this account. Funds also are included for 29 new construction starts, as well as four dam safety assurance projects involving increased spillway capacity and modifications based on seismic considerations. Funds are also included in a lump sum, to initiate construction on an as yet undetermined number of dam safety projects that may be ready to be undertaken in FY 1986. Funding of the new construction starts reflects the Department of the Army's cost sharing and financing proposals accepted by the projects' sponsors. Thirteen of the 29 new construction starts are projects previously budgeted in Fiscal Years 1983, 1984, and 1985. They were considered but not acted upon in the 97th and 98th Congresses.

Bills addressing the issue of cost-sharing were developed during the last Congress by the authorizing committees in both chambers and since have been reintroduced in this session. Both bills endorse the basic goal of increased non-Federal financial participation in project development and operation and

maintenance. What remains at issue is the extent of non-Federal cost sharing and financing and, indirectly, the role of the Federal Government in the construction, and/or operation and maintenance of projects with certain outputs, most notably commercial navigation, recreation, hydropower, municipal and industrial water supply and hurricane protection. Since the potential for resolution of all issues appeared good, we continued this past year to negotiate for the joint development of additional projects with those sponsors who are voluntarily willing to increase their share of project costs. The investment required for all 29 budgeted new construction starts is now estimated at over \$1.6 billion (October 1984 price levels), of which the non-Federal share would be almost \$900 million, or about 57 percent of the total investment. In all cases, the agreements with the sponsors provide for the non-Federal share to be adjusted to reflect whatever cost-sharing provisions are agreed to by the President and the Congress.

The joint agreements with the four port authorities are cases in point. The port people have not been enthusiastic about the proposals for increased cost sharing, as evidenced by the earlier stand taken by the American Association of Port Authorities and the differences inherent in the array of Congressional bills introduced during the past three years. Nevertheless, the need for further navigation development seems to have overcome an understandable reluctance on the part of some ports to commit their financial resources at this time.

Also pertinent to our role in developing water resources is the three-party agreement for the Town Bluff, Texas project that Mr. Dawson discussed. Our program calls for the total non-Federal funding of this power project. Power sales and revenue disposition will be made in accordance with

Section 5 of the 1944 Flood Control Act. The project financier and the preference customer (both selected independently in accordance with the provisions of the Administrative Procedure Act) is the Sam Rayburn Municipal Power Agency. The Southwestern Power Administration, as the marketing agency, will deliver the power and energy produced at the project to the sponsor for a term of 50 years in lieu of a financial return on its investment. That agency will recover all Federal expenses for the project's operation, maintenance, replacement, and marketing costs on an annual basis. These revenues will be deposited into the Treasury.

#### Continuing Authorities Program

We are requesting \$43 million under the Construction, General account for the continuing authorities program. This is a significant request and reflects our confidence that the President and Congress will agree to appropriate cost sharing and financing arrangements.

The budget request is premised on implementation of the same type of cost-sharing proposals being applied to the regularly authorized projects. Study cost sharing on a 50-50 basis will be applied to the detailed project studies phase of the flood control, navigation, and beach erosion control authorities. The initial appraisal and reconnaissance phases will continue to be conducted at full Federal expense. Sharing of a project's capital costs generally is comparable to that being proposed for regularly authorized projects. Sharing of operation and maintenance costs is unchanged from previous arrangements, except for projects implemented under the navigation authorities; for these projects the local sponsor would be expected to assume responsibility for 70 percent of the operation and maintenance costs.

## Operation and Maintenance

Over \$1.3 billion is being programmed in FY 1986 for work normally funded under the Operation and Maintenance, General account. This is only \$11 million, less than one percent, above last year's appropriation, an increase attributable to activities previously funded under other appropriation titles. The budget request of \$961 million is to be augmented by user fee receipts to be collected and deposited in existing trust funds to help defray our costs for the operation and maintenance of our navigation projects: \$160 million from the Inland Waterways Trust Fund and \$195 million from the Rivers and Harbors Contributed Fund, another trust fund.

The program request basically provides sufficient funds for the continued operation and maintenance of our projects. Some \$741 million is needed for the continued operation and maintenance of shallow-draft and deep-draft navigation projects, including channels, harbors, and lock and dams, both completed projects and new projects coming on line. The small increase of resources this year is attributable to both the full operation of the locks and dams on the Tennessee-Tombigbee River and the higher follow-on funding required for the major rehabilitation of three harbors, one lock and dam on the Illinois Waterway and one powerhouse initiated last year. The FY 1986 program includes \$381 million for dredging, a reduction of \$43 million from that scheduled for accomplishment in FY 1985. We again are proposing to add three projects to the four projects already funded for caretaker status because their commercial tonnage does not justify the continuation of regular operation and maintenance activities. Another \$485 million of the amount would be used for essential operation and maintenance of our completed flood control and multiple-purpose power project facilities. The remaining

\$90 million is for protection of navigation as well as the continuance of our regulatory and mobilization planning programs;

With the increased awareness of the need to evaluate and repair older structures, we are budgeting some \$67 million for the major rehabilitation or replacement of our projects. Included is \$33.2 million under the Operation and Maintenance, General, account of which \$5.7 million is for new starts on four lock and dam projects. As an adjunct to our major rehabilitation program, we are undertaking a major research program addressing the problems associated with the repair, evaluation, maintenance and rehabilitation of existing structures. The goal of this research program is to develop improved or new techniques, capabilities, and even materials to achieve savings and efficiencies that will greatly reduce our expenditures for the major rehabilitation of our projects. Budgeted in FY 1986 for the third year of this six year research program is almost \$8.2 million

As Mr. Dawson has indicated, the Presidential reductions applied to all domestic programs required us to defer some maintenance of lower priority for one year. These maintenance activities included some dredging at harbors with less than 25,000 tons of commercial traffic annually and some project maintenance that had been previously programmed for accomplishment in FY 1986.

#### Mobilization and Readiness Planning

The Corps' mobilization and readiness planning mission which is budgeted for \$13.3 million encompasses emergency functions beyond the expected military support. Involved are activities that are responsive to needs resulting from national disasters -- for example the national water resource allocation, and the emergency construction and engineering support provided FEMA and others, including the individual States and local authorities.

The Corps' program provides the necessary construction support ability, both stateside and overseas, to assist in the promotion of a credible national defense. However, the support capability that the Civil Works program provides the Nation is equally important. Key to both Corps missions is the availability of personnel capable of rapidly concentrating their efforts to support the military and civil sectors during a national emergency. Critical to this support is the effort directed by Executive Order 11490, as amended, to develop emergency relocation sites so as to maintain continuity of operations. These emergency relocation sites would provide protected facilities located outside a critical area to which essential personnel would be moved under emergency conditions. As directed by the Conference Report, HR 98-866, a detailed plan is being developed for submittal to Congress which defines the scope and the parameters for selection of the emergency relocation sites.

Flood Control, Mississippi River And Tributaries (MR&T)

For the MR&T program, the \$269 million budget request together with \$33 million in proposed user fee receipts from the Inland Waterways Trust Fund, represent a decrease of \$19 million from the FY 1985 appropriations. The decrease essentially is attributable to a reduction in the funding requirements for the Old River Auxiliary Control Structure as construction of that feature nears completion. The overall funding request is sufficient for normal operation and maintenance of the MR&T project, and for continued survey and construction schedules consistent with prior year performance and historic funding experience. One new start is included in the MR&T budget request - the initiation of Continuation of Planning and Engineering on Nonconnah Creek in Tennessee and Mississippi.

## General Investigations

Total funding for the overall General Investigations program in FY 1986 amounts to \$127 million with \$119 million in appropriations being requested. The \$127 million is a decrease of \$11 million from last year's appropriation. The budget continues to reflect our policy of emphasizing those studies most likely to result in early construction of traditional Corps projects. It is a reasonably balanced program in that funds are included for eight new starts as well as for continuing activities. In FY 1985, we are funding the feasibility phase of studies at full Federal expense once a conditional contract is executed; however, the FY 1986 budget request of \$8.6 million for continuing 47 of these studies is the Federal share, or one-half the total requirement. I, therefore, fully endorse Secretary Dawson's statement that you allow us to implement this cost sharing. As of 31 January 1985, we have executed five Feasibility Study Cost Sharing Agreements with local sponsors and are proceeding with Federal funding of both the Federal and non-Federal shares of study costs to insure efficient study schedules pending implementation of study cost-sharing. This permits an orderly transition to the proposed Federal and non-Federal partnership arrangement in FY 1986. I should note here that the 50/50 feasibility phase cost-sharing arrangement on which the budget request is premised is compatible with study cost-sharing provisions of Senate Bill 1739 under consideration in the last session of Congress and since reintroduced in this session as Senate Bill 366.

Included under General Investigations is a request of \$28.2 million to continue planning and engineering on 47 projects, including three new starts. The Advance Engineering and Design (AE&D) program continues to decline as design is completed on the remaining unconstructed authorized projects of

interest to local sponsors. Work on 13 ongoing and one new start will be funded with the \$5.4 million requested for the AE&D program.

#### Revolving Fund

Our FY 1986 Plant Replacement and Improvement program (PRIP) under the Revolving Fund is estimated at \$81 million, and includes a request for new budget authority in the amount of \$7 million. This consists of \$2 million to initiate construction of a replacement dustpan dredge for work on the Mississippi River, and \$5 million to initiate procurement for the Corps of Engineers Automation Plan, which we call CEAP. Both of these items have been previously identified to the Committees and we expect to award contracts for procurement in the latter part of FY 1986.

Included in our program are second year costs of the new major items approved by the Committees in FY 1985, and the continuation costs for items initiated prior to FY 1985. Maintaining our emphasis on modernization and increased productivity of our plant equipment, we have included new starts for four major items in FY 1986. They include a riprap test facility at the Waterways Experiment Station, an addition to the Hydraulics Laboratory Building which is also at the Waterways Experiment Station, a replacement towboat for use on the Upper Mississippi River by the Rock Island District, and a replacement derrickboat for use on the Ohio and Kanawha River navigation projects by the Huntington District.

#### General Expenses

The FY 1986 budget request for General Expenses is \$107 million, a decrease of \$5 million from the FY 1985 appropriations. The FY 1986 request reflects a freeze at the FY 1985 appropriation level and a further reduction of \$5 million imposed as part of the President's initiative for a 10 percent

reduction in administrative expenses. This appropriation, which is essentially for the executive direction and management of the Civil Works program, includes requirements for Headquarters, Division Offices, and four Support Centers. This cut in funding will be absorbed but with some real difficulties.

#### PROGRAM FUNDING

##### OVERVIEW

As I mentioned earlier, what really differs from past budget submission is how our workload is to be funded. Under the proposed authorization bill, the non-Federal share of costs for various ongoing and future activities would be increased and made available to us on a "pay-as-you-go" schedule. The projected increases in non-Federal contributions reflect the basic objective of having the beneficiaries pay a more equitable share of our costs, including financing, incurred in the study, construction, and operation and maintenance of our projects. The non-Federal share of the study and construction costs generally is to be paid on a pay-as-you-go basis. Financial relief in the repayment for all or part of the local share of costs for non-ven-dible or partially vendible outputs would be granted if the cost of borrowing by the local interests proved greater than that incurred by the Federal Government. In practically all cases the tax-exempt status of non-Federal bonds makes it more financially advantageous for the sponsor to borrow and pay its share of costs upfront; the Federal Government also benefits by having to appropriate and borrow less monies. In the case of the 29 new construction starts recommended for initiation in FY 1986, only one sponsor found it necessary to seek Federal financial assistance.

## COLLECTIONS

### Studies and Construction

The non-Federal share of our costs would come from collections deposited into two existing trust funds. The collections would be made up of contributions both voluntary and required by law, and receipts from proposed user fees. The non-Federal contributions required for those programmed studies and construction projects affected by the new policies total \$82 million. Of this contribution, \$8 million represents the local share of 47 feasibility studies and \$74 million is for projects under construction or recommended for new construction starts.

### Operation and Maintenance and MR&T Construction

In addition, the proposed authorization bill provides for the collection of funds from the individual sponsors to help pay for part of our operation, maintenance, and rehabilitation costs of those channels and harbors that exceed 14 feet in depth; Federal funds would be used only when the costs at any one port exceed 125 percent of the national average for such work, based on a unit-cost per ton of commerce at all ports. The bill also calls for user fees to cover 70 percent of our operation, maintenance, and rehabilitation costs for channels and harbors with depths at mean low tide of 14 feet or less, including the Inland Waterways system and those deep port harbors with commercial traffic of less than a million tons a year. In all, some \$388 million in receipts are projected to be collected and made available for obligation in FY 1986, with \$355 million allocated for expenditure on work heretofore funded under the Operation and Maintenance, General appropriation title and the balance of \$33 million allotted for use on the Mississippi River and Tributaries project for both operation and construction activities.

### Use of Trust Fund

All the non-Federal contributions are to be deposited into two existing trust funds and will be withdrawn by the Corps on an as-needed basis. The first trust is the existing Rivers and Harbors Contributed Funds trust into which all the required contributions for programmed studies, construction, and operation and maintenance of projects other than those on the Inland Waterways would be deposited. User fees for the recovery of costs incurred on the Inland Waterways for the planning, engineering, construction, operations, and maintenance would be deposited in the existing Inland Waterways Trust Fund. These user fees are over and above the funds being collected pursuant to the fuel tax enacted by Public Law 95-502.

### Implications of Cost-Sharing Proposals

The requirement for increased cost sharing by local interests will bring about some significant changes in our program -- both in its direction and outputs. There is a strongly held view or perception, that earlier cost sharing does help test projects before they go too far to be stopped, perhaps more painfully later. The two-phase study process now in place, including the cost-sharing of the feasibility-phase study, should help assure that our planning and engineering efforts are being concentrated on those projects that the sponsor will want to carry through to the construction stage. Just as important is the fact that the reality of the projects' outputs as reflected by the willingness to cost share should assure that we are working on the priority problems within each region of the country. Financing capabilities also will encourage implementation of the plan which produces the greatest amount of benefits at a cost that is affordable, in other words, the most cost-effective plan. Such a change should result in a future emphasis on

smaller or simpler projects that are more carefully tailored to the basic needs and financial capabilities of the sponsor and, where feasible, to the construction phasing of a project's separable elements.

#### OTHER PROGRAM HIGHLIGHTS

##### Regulatory Program

We are making significant gains in our regulatory reform efforts, particularly with regard to reducing delays and uncertainty for the public. In 1982, we signed new memoranda of agreement with the Federal resource agencies which review our permit applications. The agreements provided expedited coordination procedures which, along with other program revisions, have helped reduce our application review time by some forty percent to an average of about 75 days per permit. In addition, changes in provisions by which these agencies may request elevation of applications to Washington for decision, have resulted in significantly fewer such referrals. Overall, we now are handling about 13,500 new applications a year, a 20 percent reduction from FY 1982, attributable to the use of regional and nationwide permits which eliminate the need for individual applications.

We are also making progress in our relationships with the states in the regulatory program. Our regulations have been rewritten to give state views greater weight in our decision making process. We are also working with the state agencies to speed up their procedures to provide water quality certification for our permits. Finally, we have realigned our regulatory boundaries so that in the last four years, we have gone from 13 to 33 states that need deal with only one Corps district on permit matters.

##### Review of Completed Projects

Many Corps projects now in operation can be easily modified, physically or operationally, to help meet some of the Nation's unmet water needs.

Section 216 of the 1970 Flood Control Act provides authority to review existing projects to ensure their most efficient use. Faced with the potential for increased use of this authority in the years ahead, the two phase study process will be applied to all new Section 216 studies starting in FY 1985. The reconnaissance-phase study will be conducted at full Federal expense; the feasibility-phase study will be equally cost shared with a non-Federal sponsor when it appears that modification and retention of the Federal project is warranted. Where Federal retention is not contemplated, such as transfer to a non-Federal entity or deauthorization and abandonment of a project, the feasibility-phase study will be at full Federal expense. Moreover, if the project is part of the Inland Waterway system, the study will be undertaken at full Federal expense.

#### Workyears

The Corps workyears ceiling for FY 1985 is essentially the same as that for FY 1984. However, it reflects a FY 1985 decrement of 251 workyears offsetting Public Law 98-473 which, by reference to Section 129 of H.R. 5899, exempted the workyears required for operation of the Washington Aqueduct from the Corps ceiling. The Corps workyears ceiling for its FY 1986 Civil Works program is 28,395 workyears of Full Time Equivalent (FTE). This is a reduction of 250 FTEs from our FY 1985 ceiling of 28,645. This reduction will be accomplished, for the most part, by contracting out additional work and by management efficiencies. While we have been basically able to accomplish our Civil Works program within our reduced workyears ceilings, projections of future workloads indicate a real potential for deficiencies in certain functional areas. Enactment of a Water Resources Development Act and restoration of our construction program could cause significant increases in

the planning, engineering, and construction management functions. The potential shortfall in workyears will be alleviated by identifying areas where the current workload can be carried out more efficiently.

### Productivity Improvements

While there are several different kinds of productivity-oriented initiatives the Corps of Engineers uses to examine maximum low-cost delivery of high-quality services, there are two of particular emphasis for FY 1986 and the following years.

The first initiative focuses on commercial-type activities to determine the best procedure for getting the job done, and to see if private industry can deliver the same services at a lower cost. We expect to identify approximately 1,000 positions across the Nation for such studies during FY 1985, although not all such studies will be completed in this timeframe. In FY 1986, the Corps plans to study about 1,500 more positions with another 3,000 scheduled for study in Fiscal Years 1987 and 1988. Past experience indicates that even when the activity continues to be performed by the Corps workforce rather than by contract, some savings accrue to the agency. However, one factor which may be difficult to assess is the impact on the morale of those whose positions are being studied. Manpower savings resulting from either the restructuring of internal operations or the conversion to contract operations where cost effective, can be reallocated and used to offset the workyears shortfall that could be experienced once the cost-sharing impasse over future workload is resolved and the work is funded for implementation.

The second initiative involves the efficiency review of non-commercial activities. If it is determined that a function is not a commercial activity,

the Corps still critically examines that function for productivity improvements. We will be looking at 1,250 positions in this manner in FY 1985, approximately 2,200 in FY 1986, and another 4,325 in the two-year period, FY 1987-1988. These studies will cover much of the Corps engineering, construction management, and real estate workforce, and are expected to yield savings in processing time, manpower, and our total cost of doing business.

#### DREDGING FLEET

##### CORPS FLEET

In general, industry has responded well to the national dredging requirements, including the Great Lakes area, where many of the jobs previously performed by hopper dredges are being accomplished with non-hopper equipment. Accordingly, early in FY 1984 we were able to reach the minimum fleet level of four hopper dredges. We are currently operating eight non-hopper dredges, including one cutterhead, three sidecasters and one special-purpose dredge. We will continue to operate the sidecaster dredge SCHWEIZER and the special purpose dredge CURRITUCK until the industry develops an equivalent capability. These two vessels are used to maintain the shallow draft inlets, channels, and harbors along the Atlantic Coast. When the industry has plant capable of responding to these needs, we will re-evaluate the requirement to operate the SCHWEIZER and the CURRITUCK and, if feasible, reduce our fleet to six non-hopper dredges.

##### RESERVE FLEET PROGRAM

Concurrent with the reduction in the Corps fleet we have supplemented our emergency and defense dredging capabilities of our minimum dredge fleet by establishing a reserve fleet of industry dredges under the Corps of Engineers Reserve Fleet (CERF) program. We will continue to deploy immediately the

Corps minimum fleet vessels to meet emergency and defense dredging requirements as they occur. When this capability is not adequate to meet the dredging requirements, we will deploy industry reserve fleet dredges as they are needed. The CERF is analogous to the Civil Reserve Air Fleet of the Air Force and the Sealift Augmentation program of the Navy, with the exception that we will not compensate the industry firms unless their dredges are activated under the CERF.

In October 1984, during the Powder River mobilization exercise, we tested our reserve fleet program by activating an industry dredge to perform some emergency dredging in the entrance channel to Mobile Harbor. The activation worked as planned, with the industry dredge mobilizing within the required 72 hours and performing the work expeditiously and efficiently. This exercise was conducted under "real world" conditions, and we were quite pleased with the results. The first phase of our CERF program is limited to the use of industry hopper dredges in the geographical areas of the United States and its possessions. During this past year, all of the twelve industry hopper dredges in the United States have been enrolled as participants in our reserve fleet program. The next phase will include preparation of contract documents for use of the industry reserve fleet in overseas areas. We expect to complete this phase during this fiscal year and include the use of industry non-hopper dredges in the reserve fleet program during FY 1986.

#### **DISPOSAL OF DREDGED MATERIAL**

##### **PERSPECTIVE**

The disposal of dredged material continues to be the number one problem in the management of our national dredging program. For example, in many of our coastal areas and some of the inland areas we are approaching a crisis

situation in locating required new upland sites which are both environmentally acceptable and within a reasonable haul or pumping distance from maintenance dredging activities. Such problems are frequently exacerbated by the often-conflicting environmental goals of the over 30 major Federal environmental statutes which govern the manner in which dredged material is disposed.

Much of the environmental concern over dredged material stems from the fact that in certain limited cases there were contaminants associated with dredged sediments. However, extensive scientific research, including the Corps' 5-year \$33 million Dredged Material Research Program, clearly indicates that over 90 percent of the sediments we dredge each year for navigation projects pose no significant threat to the environment. In spite of this fact, there continues to be a public perception that all dredged material is contaminated. Recent experience at the Tampa, Florida, harbor serves to emphasize this point. Although state-of-the-art scientific testing procedures clearly demonstrated the continued environmental acceptability of maintenance dredged material for disposal, the close-in, open water site used in prior years was closed due to public concerns over sediment toxicity and moved farther offshore at greater expense to the taxpayer. However, surveys completed about a year after use was terminated at the original site clearly show that this disposal site now harbors a highly-productive and diverse biological assemblage. Ten percent of all dredged material may contain contaminants which have a potential for unacceptable adverse effects. For that material, the Corps has developed careful disposal management techniques which preclude the potential contaminants from entering the ecosystem. Unfortunately, the environmental statutes and their implementing regulations

and criteria have not, for the most part, been revised to reflect the scientific data and knowledge which we have acquired during the past 10-12 years.

#### DISPOSAL SITES

There has been a major breakthrough as a result of the issues surrounding the Tampa Harbor ocean disposal site; the resource and local environmental groups now have agreed that future decisions regarding use of a disposal site will be based on hard data concerning degradation. Consequently, the EPA and the Corps are closely monitoring the disposal of dredged material and the effects of disposal both within and outside the designated disposal area. Results to date do not indicate any evidence of adverse impacts, and we are hopeful that subsequent disposal site decisions there and in other coastal regions around the country will be based on solid scientific evidence rather than subjective or emotional conclusions. The savings or cost avoidance associated with the continuing use of inshore coastal disposal areas rather than being forced to go to remote and costly offshore disposal sites amounts to several hundred millions of dollars and is particularly meaningful in this era of reduced Federal expenditures and the need to have the beneficiaries bear a part of the cost of port improvements and subsequent maintenance

#### RESEARCH EFFORTS AND FOLLOW-ON

##### Operational and Technical Activities

The Corps is continuing to assign high priority to research and development on all environmental facets of our dredged material disposal activities including beneficial uses, intensive management procedures such as dewatering for maximizing the life expectancy of existing disposal sites, and scientifically appropriate testing, evaluation, and disposal management

procedures for handling highly-contaminated dredged sediments, such as at proposed Superfund sites. In addition, we have developed a comprehensive and scientifically based dredged material assessment and disposal management protocol which will be useful for future studies relating to dredge and fill issues.

#### Field Verification Program

A cooperative field verification program between the Corps' New England Division, our Waterways Experiment Station and the EPA has been established to evaluate three different disposal alternatives. The Corps' Black Rock Harbor project at Bridgeport, Connecticut was selected because dredged material from a single maintenance dredging operation could be used to evaluate, independently and at the same time, the three basic alternatives of open water disposal, upland disposal and wetland creation. This field study will provide the first opportunity for direct comparison of the environmental consequences using the same dredged material under different disposal conditions. Test results from the field studies will be compared to laboratory predictions to verify the accuracy of predictive methods that both agencies feel should be used in evaluating disposal alternatives.

The EPA will be responsible for the determination of predictive methods for the following environmental parameters: bioaccumulation of contaminants by aquatic animals; the consequences of bioaccumulation in aquatic animals; and the effect of aquatic disposal on the aquatic community structures. At the same time, our Waterways Experiment Station will be responsible for the monitoring and correlation of predictive methods for evaluating the effects of upland disposal on water quality and the bioaccumulation of contaminants in upland and wetland plants and animals. This field verification program

initiated in CY 1982 is scheduled to be completed in CY 1987. For your information, interim results are very promising and should shed new light on the assessment techniques and comparative risk assessments of land disposal as opposed to estuarine or aquatic disposal of contaminated dredged material. At this time, disposal on land and in the wetland environment appears to be more detrimental with regard to bioaccumulation of toxic substances than does the aquatic or open water disposal alternatives.

#### OTHER LEGISLATIVE ITEMS OF INTEREST

In addition to the cost-sharing legislative initiatives mentioned earlier we are preparing several other legislative items for consideration by the 99th Congress. I will discuss a few of these briefly.

#### RECREATION USER FEES

We are proposing to eliminate the prohibition on the authority of the Corps of Engineers to impose fees to help offset the cost of operating and maintaining project recreation lands and facilities. The current fee program is limited to the collection of fees for specialized recreation services, primarily overnight camping. Current collections amount to about 10 percent of costs. The proposed legislation would allow an increase in the cost recovery to a more equitable level -- about 25 percent.

The Department of the Army, unlike other land managing agencies, is severely limited in the charges it may impose for admission to or use of recreation areas or facilities. With the expanded authority for collecting fees, we should be able to realize some \$33 million for FY 1986. This represents an additional net increase in receipts of about \$22 million over that estimated for collection in FY 1985. These amounts would, in turn, be available for appropriation to fund the outdoor recreation program of the Corps of Engineers, reducing the burden on the General Fund of the Treasury.

Receipts from collected fees would be credited to the already established special recreation user fees account and remain available until expended.

#### HYDROPOWER

There are 243 Corps of Engineers dams without power plants at which additional power could be developed. Most hydropower projects can be planned, constructed, and operated by non-Federal interests under the FERC procedures. However, the Corps should be directly involved in planning, design, and construction of hydroelectric facilities at its dams whether the power is developed by the Corps or non-Federal interests. Such involvement would assure that hydropower development is compatible with authorized purposes of the Federal project and that the structural integrity of the project is maintained. The Corps' 68 power projects account for almost one-fourth of the Nation's and one-half of the Federal installed hydropower capacity, and generate approximately three percent of the Nation's total electrical power. These projects account for nearly one-third of Federal power of all kinds -- hydropower, fossil fuel, and nuclear. We have two legislative proposals to address development of hydropower facilities at Corps projects.

In those cases where non-Federal development of a hydropower potential at an existing Corps project may be impractical because of physical, legal, competing use, institutional, environmental or economic reasons, our first proposal would allow Federal development of hydropower with non-Federal interests financing the cost. In those cases where non-Federal development of hydropower at a Corps project is practical, our second proposal would provide for an arrangement which would be a good example of private-Federal partnerships to serve the best interest of the taxpayers by combining Federal expertise with non-Federal financing to accomplish sound hydropower

development. In addition, where appropriate, joint construction of the power facility and the Corps project would be more efficient and cost effective, especially with regard to the power-on-line date.

#### **DISPOSAL OF HOPPER DREDGES**

Another of our proposals would permit us to dispose of fourteen obsolete Corps hopper dredges. These dredges, which have an average age of thirty-seven years, were retired as the industry constructed modern hopper dredges in accordance with the provisions of Public Law 95-269. The annual cost of retaining these surplus vessels in the Maritime Administration "dead fleet" is significant, about \$500,000, even though minimal maintenance and surveillance is being provided. Under the proposed legislation these dredges may only be scrapped or sold to foreign buyers.

#### **INCREASE PROJECT COST LIMITS**

And finally, we propose to increase the single project limits on several of our continuing authorities programs, such as those for small flood control and navigation projects. Existing legislation limits the costs of projects to be implemented under these continuing authorities programs and these limits are now too restrictive compared to their levels when last set by legislation. The increase we propose is justified by normal cost increases since Congress last authorized increased cost limitations.

#### **FEDERAL CAPITAL INVESTMENT PROGRAM INFORMATION ACT**

Public Law 98-501, passed during the last session of Congress, establishes a National Council on Public Works Improvement which is to assess the state of the Nation's infrastructure in three annual reports in 1986, 1987, and 1988. The Act also provides for a twelve member inter-governmental Advisory Group chaired by the Secretary of the Army. Administrative support

is to be provided to the Council by the U. S. Army Corps of Engineers and we are now identifying space and other administrative support requirements pending appointment of the council members. The Corps of Engineers has been directed through the office of the Assistant Secretary of the Army to form an Ad Hoc Planning team to examine administrative support requirements and options and to gather preliminary data to facilitate the work of the Advisory Group. The Secretary of the Army has initiated action that will facilitate the convening of the advisory group. The objective of this action is to assist the Council, when formed, in preparing the three annual reports on the state of the Nation's infrastructure as required by the law. We feel this initiative is necessary so that this very important effort be completed well and on time. The Corps, as directed, also has allotted up to \$3.2 million for the use of the Council, starting in FY 1985.

A separate part of the Act requires an annual report on budget projections and a needs assessment to accompany the President's Budget. The Office of Management and Budget forwarded this report on February 11, 1985 to Congress.

**CORPS OF ENGINEERS - CIVIL WORKS PROGRAM**

**SUMMARY OF PROGRAM AMOUNTS FOR FISCAL YEARS 1984, 1985, AND 1986**  
(\$Million)

<u>Account Title</u>	<u>FY 1984 <sup>3/</sup></u> <u>(Appropriations)</u>	<u>FY 1985 <sup>5/</sup></u> <u>(Appropriations)</u>	<u>FY 1986 Program</u>		<u>Total Funds</u>
			<u>Budget Request</u>	<u>Non-Fed. Contr. <sup>6/</sup></u>	
<b><u>GENERAL APPROPRIATIONS</u></b>					
General Investigations	135.810	138.0	119.0	8.0	127.0
Construction, General <sup>1/</sup>	926.804	890.0	842.0	74.0	916.0
Operation & Maintenance, General	1,190.492	1,305.0	961.0	335.0	1,316.0
(Special Recreation Use Fees <sup>2/</sup> )	(6.000)	(15.0)	(12.0)		(12.0)
Flood Control, Mississippi River & Tributaries	302.480	321.0	269.0	33.0	302.0
General Expenses	105.800	112.0	107.0	-	107.0
<sup>71</sup> Flood Control & Coastal Emergencies	10.000	25.0	25.0	-	25.0
Revolving Fund	9.500	-	7.0	-	7.0
<b><u>PERMANENT APPROPRIATIONS</u></b>					
Special Activities	<u>9.779</u>	<u>8.0</u>	<u>8.0</u>	-	8.0
Subtotal, Federal Budget Authority	<u>2,690.665</u>	<u>2,799.0</u>	<u>2,338.0</u>	-	-
Contributed Funds (required)	<u>39.174 <sup>4/</sup></u>	<u>36.0 <sup>4/</sup></u>	<u>-</u>	<u>470.0</u>	<u>470.0</u>
<b>TOTAL, ALL FUNDS</b>	<b>2,929.839</b>	<b>2,835.0</b>	<b>2,338.0</b>	<b>470.0</b>	<b>2,808.0</b>

<sup>1/</sup> Excludes \$180M deferred in FY 1983 for use in FY 1984-1985.

<sup>2/</sup> Included in Operation and Maintenance, General.

<sup>3/</sup> Reflects transfer of funds from Construction, General (\$4.8M) to General Investigations (\$2.0M) and General Expenses (\$2.8M). Includes Supplemental Appropriations.

<sup>4/</sup> Required financing from existing Trust, the Rivers and Harbors Contributed Fund.

<sup>5/</sup> Excludes effects of proposed Section 2901 (PL 98-369) rescissions and transfers for pay raises.

<sup>6/</sup> Includes projected contributions from the Inland Waterways Trust Fund and an expanded Rivers and Harbors Contributed Fund as provided for in the President's proposed authorization bill.



**THE WHITE HOUSE**

**WASHINGTON**

**January 24, 1984**

**Honorable Paul Laxalt  
United States Senate  
Washington, D.C. 20510**

**Dear Paul:**

Some time ago, you and 14 of your colleagues wrote to me expressing your concerns regarding water project development. I appreciated receiving this valuable counsel which has helped crystalize the extensive discussions within the Administration on this vital subject.

We all agree on the goals. These goals are to revitalize the magnificent water development programs launched early in our Nation's history. The Federal-State partnership has succeeded even beyond the dreams of those who developed the concept so many decades ago. This partnership has helped create abundant year-round water, electric and food supplies; reduced flooding, and provided low-cost inland, coastal and oceanic waterborne transportation. In addition, millions of Americans have enjoyed vast new opportunities for water-related recreation.

Providing enough high quality water promptly to those who need it is a task that has confronted Americans since the earliest days of our national experience. In the first summer at Plymouth, the Pilgrims experienced a summer drought that nearly ruined their crops. More than 350 years later, Americans had to contend with flooding on the Mississippi and the Colorado, and drought throughout most of the rest of the Nation. The lesson of these events is clear. Providing enough high quality water where and when it is needed is a never-ending process.

This Administration is committed to working with the States, local entities and those private sector interests concerned with water development all across America. We are rebuilding the Federal-State partnership so that we can resume water development efforts to avert water crises in the coming decades. We have accomplished the following:

- o Re-established the policy of State primacy in water rights resulting in less interference from the Federal Government in water resources management.
  - Reinforced State primacy by the repeal of a Federal non-reserved water rights opinion.
  - Established and successfully implemented a process for negotiated settlements of Indian water rights disputes.
  - Offered States the option of having Federal reserved water rights within their boundaries expeditiously inventoried and quantified to enhance their management capability.
- o Implemented the Reclamation Reform Act of 1982 to recognize advances in agricultural technology and the market economy based on the family farm, giving these farmers an opportunity to build commercial operations without unrealistic limitations on their access to land and irrigation water.
- o Established new Principles and Guidelines for water project planning to remove cumbersome regulations and promote flexibility in planning, thereby encouraging water resources development.
- o Elevated water resources decisionmaking to the level of the Cabinet Council on Natural Resources and the Environment, chaired by the Secretary of the Interior.
- o Presented to Congress new project construction proposals incorporating increased non-Federal financing based on the tangible economic returns produced by the projects.

All of these actions have helped to rebuild and strengthen the foundations of the Federal-State partnership so we can move forward to develop much needed, environmentally sound and economically prudent water resources projects. We have made numerous studies and conducted extensive discussions within the Administration in quest of ways that the Administration, the Congress, the States, and the American people can develop true partnership arrangements that recognize the realities of today's economics and tomorrow's environment. We are gratified that Congress is now addressing the key issues related to water project cost sharing and financing.

Water development needs, geography, climate, economy, fiscal capacity, and Federal interests all vary from State to State, and from region to region. Furthermore, the Federal Government has made prior commitments to individual States with regard to water development within their borders. During the past months, I have fully considered the views expressed by you, your colleagues, the Cabinet Council on Natural Resources and the Environment, and many of the Governors regarding how the Federal Government might participate in water project development and project financing under these conditions. Traditionally, many Federal water project beneficiaries have repaid the construction costs of their projects, but we all agree new partnership arrangements will be necessary to finance any additional projects in the future.

It is time to conclude the discussion and to establish a national water project financing policy so that we can get on with the job of completing projects where commitments already have been made and undertaking new construction starts to meet the country's future needs.

Indeed, the construction of storage reservoirs has not kept pace with the increasing demand for water. As a result, our water supply is less reliable and more vulnerable to drought than it was a decade ago. We must develop even better ways to work together effectively. We will have to make the best use of the water we have if we are to avoid serious future problems. I am convinced that by working with State and local governments we can solve the problems of flood, drought, and quality.

The water project financing and cost-sharing policy of this Administration is:

- o All Federal water development agencies will continue to seek out new partnership arrangements with the States and other non-Federal interests in the financing and cost sharing of all proposed projects. Each such agency will negotiate reasonable financing arrangements for every project within its respective area of responsibility.
- o Prior commitments to individual States with regard to water development within their borders must be considered and shall be a factor in negotiations leading up to project construction.
- o Consistency in cost sharing for individual project purposes, with attendant equity, will be sought.

- o Project beneficiaries, not necessarily governmental entities, should ultimately bear a substantial part of the cost of all project development.
- o Safety problems at Federal dams should be corrected as expeditiously as possible. The cost of safety work should be borne by the Federal Government. However, if additional economic benefit results from the modification, appropriate cost sharing among the beneficiaries shall be allocated by the appropriate Secretary. Criteria to determine dam safety designation shall be developed by an interagency technical team in consultation with non-Federal parties.
- o The costs incurred by the Federal Government in project planning generally will be shared with project sponsors. Specific arrangements will differ among agencies because of their differing planning, authorizing, and funding procedures.
- o Once financing, cost sharing, and cost recovery arrangements have been agreed to, they will be reviewed by the Office of Management and Budget and submitted to the Congress for ultimate disposition.

This process will result in arrangements that are workable, fair, just, and practical. It will put into place the final building blocks in an improved program to meet America's current and impending water needs while recognizing Federal budgetary realities.

I sincerely appreciate your cooperation on this subject. Working together, we can move ahead into a new era of water project development for the benefit of the Nation and all Americans.

Sincerely,

/s/ Ronald Reagan

KEYNOTE ADDRESS

CIVIL WORKS SEMINAR FOR DISTRICT ENGINEERS

ACTING ASSISTANT SECRETARY OF THE ARMY DAWSON

THE ADMINISTRATION POLICY

AND THE DISTRICT ENGINEER

All of you here today are aware of the water resource problems of this nation and the snags encountered daily by the Corps in the management of one of this nation's most valuable resources -- our water. The Corps has a proud history of concerned involvement in the management and development of the Nation's water resources. Throughout our National history, the Corps has responded to water problems as they occurred... often before they occurred. But this is 1984--not 1824. Today bold and innovative approaches are imperative if we are to successfully face impending water resource priorities. Past policies cannot endure. Priorities have radically altered the status quo. The Federal Government -- through the Corps -- can no longer carry the entire burden. The benefits of water projects are shared -- therefore, the costs should also be shared. Through mutual cooperation and proportioned responsibility a more equitable funding arrangement between the Federal government and the states must become an economic fact-of-life.

But before describing what is necessary to meet the challenges of our future resources problems, I would like to briefly mention the heritage of over 200 years of Corps' effort which has brought us to this crossroads. All of you are familiar with parts of the history of water resource development, but many of us never think about the many and varied roles that it played in

the social evolution of our nation. Water resources development was, from time to time, both a conscious and unconscious instrument of national policy, and the focus of development has shifted from visionary planning to piecemeal problem solving and back again several times during the past two centuries.

During the colonial years, water-related development consisted mainly of local port and harbor improvements for the main trade centers along the eastern seaboard. The Gallatin Report, published in 1808, was essentially the first water resources development policy for the United States, although it focused primarily on canals and waterways to meet a young nation's growing transportation needs. In following years, private enterprise and state and local governments did much to bring the Gallatin dream to reality. By the late 1840's canals had provided over 3,000 miles of waterways, and these routes became one of the principal means of public and commercial transportation.

Early Federal involvement in water resources development was extremely limited due to bitter opposition from the states over the constitutionality of government intervention in state and local affairs. However, Congress in 1824 first authorized Federal surveys of roads and canals... and directed local improvements for navigation. These activities marked the turning point in the development of our water resource policies, and were to set the precedent for future government involvements. The Corps became the lead agency...and you still are...with a background of 160 years of proven service.

Disastrous floods along the Mississippi River in the early 1850's prompted congressional authorization of the first comprehensive study of a

major U.S. river basin, and, in 1882, with the establishment of the Mississippi River Commission, the government realized the necessity for flood control problem-solving.

The close of the 19th century marked a significant period of social, economic and political change in America. Hydroelectric power became an important energy source for both industry and population centers, and it was inevitable that new conflicts would arise between the various water consumers. Some of the bitterest resource controversies of this period centered around the issue of public versus private power development. In addition, new industrial processes involving petroleum and chemical products began to produce water pollutants which severely affected water quality and the ability of streams to support aquatic life.

Teddy Roosevelt and his administration perceived water as a national asset and advocated its comprehensive development according to the conservation ethic of the times. His administration's most significant contribution to water resources planning was the creation of the Inland Waterways Commission in 1907. Unique in its aims, the Commission stressed the use of multiple purposes and multiple benefits in water development projects, and sought to merge local projects and users of inland waters in a comprehensive plan designed for the benefit of the entire country.

Over the next two decades public concern prompted Congress to pass a series of flood control measures which were to give the Federal Government a far greater role in the nation's future water resource development. Congress authorized Federal surveys to produce detailed inventories of water resources problems...and assess the potentials of each river basin, along with broad

outlines of multipurpose improvement plans for navigation, power development, flood control and irrigation. These surveys and studies were to provide the foundation for comprehensive water resource planning, and they guided river basin development for years.

The Depression years marked the beginning of multipurpose development of our water resources through better coordination of local, state and Federal involvement. By the late 1960's the Federal Government assumed national leadership in water resources development and emphasized its own responsibilities for good planning standards and objectives, while also trying to foster reasonable roles for local and state governments.

The 1970's, known as the "Environmental Era," were concerned mainly with the establishment of Federal policies on environmental quality in relation to continued expansion of our economic growth. One of the most significant documents in our development of water resources was the National Environmental Policy Act--NEPA-- which requires environmental impact statements on all proposed Federal projects or action, and established the President's Council on Environmental Quality as the major advisory committee on environmental matters.

So, as you see, we have experienced several eras of water resource development cycles. The 1980's might be tagged the decade of "spreading ourselves too thinly." We need new directions...since we are not getting new starts. Congress is providing O&M money--not construction funds. We have multi-dimensional economic problems which demand a clear sense of purpose and a listing of priorities to guide the continued development and management of our existing water resources.

Let me briefly discuss some of these many-faceted issues which are presently confronting us in the water resource policy arena.

First, we have increasing and continual competition among the various users of water. Industries consume large quantities of water in the production of such basic products as a daily newspaper and a loaf of bread. By the year 2000 the population of this country will be over 300 million. Humans must have potable water to exist. Water supply methodologies and wastewater treatment technologies will have to be up-graded substantially to maintain health and environmental standards while keeping the cost of water within reason for average householders. Agriculture and nuclear power will have expanding and opposing needs for water use. And, again, consumer costs vs. producers costs for farm products and a relaxing lake front for recreation will need to be confronted head on. Fundamental value conflicts, both philosophic and economic, are bound to intensify.

Second is the growing competition for fiscal resources needed for capital investment in facilities for development and management of existing water resources. There are limits to the spending of Federal monies, while, at the same time, there is a seemingly limitless need for funds. Every agency of the Federal Government clamors for its portion, and each agency and legislator has an active vocal constituency which enters the fray. So water resource development has its share of competition when it comes to allocations from the Federal checkbook.

Third, is the "water politic"... or the lack of firm policy for developing and implementing programs that reflect national priorities while addressing local problems and concerns. Not all states have a water resource policy and those that do may not have effective coordination between counties, industries, the major cities, and the large population centers. Even worse, the policies which cover the state water resource programs may be in conflict with national policies and interests. A reasonable, planned, and cost-shared program at each state government level... negotiated with the Federal Government... is a workable solution.

Criticisms of Federal water policy have raised serious concerns and questions on the part of the consuming public. Some of the issues under fire are:

One, legislative intervention or the "exchanging" of "pork-barrel" project. Accusers claim that water projects that are desperately needed never get on the drawing board, while those that are not entirely necessary receive Federal funding.

Two, overlapping and complicating laws and policy. Although the original legislative intent was to aid Federal decision making, the laws are so numerous that some overlap and at times even conflict.

Three, lack of an accounting of Federal spending. Congressmen and Senators say that their constituents are demanding an accounting of government spending, both at the national and state levels.

Fourth, we have a break in communications between environmentalists, government and developers. Lobbyists campaign for industries, some of which are against conservation and environmental protection or rational water management. Environmentalists fight hard for preservation and the lines of communications break down.

The old-fashioned principle of sound management is the right prescription for water issue complaints. We have the Federal, institutional and business experience and knowledge to pursue a workable and equitable water policy. Plus, we have a growing public awareness of the critical need to manage our resources for the benefit of all.

One of the achievements of this administration is the emphasizing of cost-sharing by the beneficiaries, or water projects cost sharing and financing. When we talk about costs we need to begin with the Federal budget. The FY 1984 budget projected a total outlay of \$990 billion. The largest share... or 42 cents of every dollar... is for benefits to individuals, which include social programs. National Defense receives 29 cents out of every dollar. Grants to states and localities claim an additional 11 cents, and interest payments 12 cents. These expenditures total 94 cents, leaving 6 cents for other government operations, including the Federal water program.

Of the Federal environmental enhancement allocation, less than one percent... or \$9.8 billion... is for national resources and the environment, and of that total only \$3.3 billion is for water resources. Federal taxpayer outlays for water resource programs collectively then, amount to about 3 tenths of one percent of Federal expenditures budgeted for FY 1984.

Now, let us look at the other side of the coin, or the dollar, in this case. Considering both non-Federal contributions to project financing and the repayment of Federally-financed costs over time, we find that non-Federal contributions accounted for only 30 percent of the total cost of an average water project. The variation around this average is wide, however, depending upon the project purpose. For municipal and industrial water supply and hydropower, local beneficiaries pay about 64 percent of project costs. Users of inland waterways pay less than 10 percent. Recipients of irrigation water pay only about 19 percent. Historically, the beneficiaries of Federal water projects reap economic and other benefits without bearing much of the costs of development. At the same time, Congressmen and their constituents have pressed for these Federal water projects in their respective states or localities. And this causes confrontation. Why should the western taxpayer pay for a water project in the east because an eastern state congressman has the loudest constituency? And, of course, the reverse is as traditionally true.

The time has come to plot a new course. The Federal budget is being stretched too thin. Direct beneficiaries of water projects are not directly contributing to their project. Decreased reliance on Federal financing and an increased reliance on the project beneficiaries to assemble financing packages, and, at the same time re-arrange their water project priorities, is the course we have chosen.

With regard to project cost sharing, I have some Administration desires to impart to you. Admittedly, much is beyond the purview of the District Engineers.

One - Sponsors are to either finance with cash or in-kind contributions during the construction period, or to repay with appropriate interest 35 percent of the costs allocated to flood control, 100 percent of the costs allocated to water supply and 50 percent of the specific costs of recreation, and to assume responsibility for all subsequent operation and maintenance costs.

Two - Payments of the full non-Federal share during construction is to be strongly encouraged; however, when it can be demonstrated convincingly by the sponsors that it is unreasonable to require their share during project construction, accommodation may be made in accordance with the following principles:

a. First priority is to be given to non-Federal financing of the costs of flood control; second to the joint costs of recreation; and third to the cost of water supply.

b. Water supply costs not paid during construction are to be repaid in accord with the Water Supply Act of 1958.

c. Acquisition of separable recreation lands and construction of other than basic recreation facilities are to be deferred until the non-Federal share can be financed by a local sponsor.

d. Federal participation in recreation facilities will be limited.

Athletic fields or other intensive-use facilities not related to the water resource will not be cost shared by the Federal Government.

e. The project's economic analysis is to be adjusted as necessary to reflect modifications to the scale, scope and timing of facilities that result from the cost sharing and financing negotiations. Any adjustments would be reflected in budgetary presentations.

The cost-sharing and financing agreement should provide for subsequent revision if new cost-sharing arrangements are agreed to by the President and Congress. Should the project's cost-sharing terms be revised later, the contract should stipulate that new requirements are to be applied to any outstanding non-Federal obligation before any refunds are made.

Other areas of water resource fiscal planning which the Administration is looking at include flood control, mitigation, two-phase planning for new feasibility studies.

We are fully committed to the support of Federal flood control projects where the required expenditures can be adequately justified. Formulation of flood damage reduction plans must follow the procedures contained in the Principles and Guidelines. The alternative plan with the greatest net economic benefit consistent with protecting the nation's environment (the NED plan) is the plan to be recommended for Federal action unless an exception is made. Exceptions are to be granted only when other Federal, state, local and international concerns provide overriding reasons for recommending another plan.

We concur in the desirability of achieving a certain minimum level of protection for urban areas. If the NED plan would leave significant portions of an urban area within the post-project 100-year floodplain and if the additional costs are not unreasonable, we will grant an exception for a proposal to increase the level of protection to 100 years when it can be adequately demonstrated that this will reduce non-Federal eligibility requirements for the National Flood Insurance Program (NFIP). This is particularly of concern when 100-year protection has the potential to substantially reduce future subsidized reimbursements for insured flood losses.

We are also examining fish and wildlife mitigation planning, in these specific areas:

a. Formulation of justifiable mitigation measures is to be based upon thorough professional evaluations and is to be fully responsive to the requirements of all environmental statutes.

b. The recommended mitigation plan shall be considered only when the value of the last increment of losses prevented exceeds the added cost of the last increment of mitigation (monetary and non-monetary values in both instances) so as to maximize overall Fish and Wildlife Coordination Act project benefits. All factors which are considered as contributing to justification of the expenditures recommended for mitigation measures will be explicitly described.

c. Mitigation of unavoidable losses should be provided to the maximum extent practicable and justifiable through development and improvements on project lands.

d. Because project impacts on fish and wildlife are usually of a localized nature, separable mitigation lands normally will be contiguous with project lands. The Fish and Wildlife Coordination Act recognizes this limited geographical impact in allowing for the acquisition of land, quote, as reasonable needed to preserve and assure of the public benefit the wildlife potentials of the particular project are, unquote. Only for extraordinary circumstances such as when unique resource values or economies in management are involved will there be acquisition of noncontiguous lands for mitigation.

e. Non-Federal public lands already being managed for environmental purposes will not be acquired for mitigation; however, Federal participation in fish and wildlife enhancement measures on locally available public lands may be recommended.

f. The extent to which the beneficial fish and wildlife action associated with projects offset the adverse impacts...by replacing or providing substitute resources or environments... should be assessed before considering separable measures.

g. Evaluation of separable measures is appropriate when the adverse project impacts exceed the impacts of beneficial fish and wildlife actions and/or when the adverse impacts include values of such significance that specific consideration is justified.

The two-phase planning process for new feasibility studies provides a mechanism to accommodate greater non-Federal participation in Corps feasibility studies, thus contributing to a more efficient, effective planning process. The first reconnaissance or phase will provide a preliminary indication of the potential of the study to yield solutions which could be recommended to the Congress as Federal projects. The results of the reconnaissance phase will provide the basis for decision-making within and outside the Corps and the Administration to evaluate the merits of continuing the study and allocating feasibility phase funds. The second feasibility or phase will be conducted under current Federal guidelines and statutes and will result in a feasibility report with a recommendation to Congress. This procedure will concentrate resources on those studies with substantial local support, and should increase the proportion of completed studies that lead to implementation of projects.

When implemented, a study cost-sharing policy will provide for the feasibility phase to be shared 50-50 with a non-Federal sponsor. The policy will apply to all feasibility study new starts or new interim studies. Inland waterway studies which are exempt from this policy.

Another issue which has raised some questions is the maintenance of current repayment requirements. This administration will not alter any of the contractual agreements in effect with regard to repayment costs. The existing policy will define the Federal water actions until new agreements are finalized by Congress and the President.

All of you in the Corps Districts have been providing outstanding leadership in the management of water resources not only in your own districts but throughout the Corps of Engineers. There is no doubt that the same dedication and devotion you have exhibited will carry over to the new policy. At this time, it behooves all of us to work for new cost sharing terms and policies which draw upon the ability of non-Federal sponsors to finance project costs and do not place large demands on the Federal Treasury in a time when priorities have shifted.

The 1980's could be remembered as the age of resource management by fiscal responsibility rather than the age of continued economic misdirection.

**DEPARTMENT OF THE ARMY  
OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)**

**COMPLETE STATEMENT**

**OF**

**ROBERT K. DAWSON**

**ACTING ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)**

**BEFORE THE SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT**

**COMMITTEE ON APPROPRIATIONS**

**HOUSE OF REPRESENTATIVES**

**ON THE FY 1986 CIVIL WORKS BUDGET**

**FEBRUARY 20, 1985**



STATEMENT OF ROBERT K. DAWSON  
ACTING ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)  
BEFORE THE SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT  
COMMITTEE ON APPROPRIATIONS  
ON THE FISCAL YEAR 1986 CIVIL WORKS BUDGET

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

INTRODUCTION

I am pleased to appear before your Subcommittee today to discuss the Army's Civil Works Program and the Fiscal Year (FY) 1986 Budget Recommendations. The Chief of Engineers, Lieutenant General E. R. Heiberg, III; the Director of Civil Works, Major General John F. Wall; and the Chief of Programs, Dr. Bory Steinberg, are with me and will assist in presenting the Army's testimony.

With your permission, Mr. Chairman, I would like to proceed by presenting an overview of my statement, and I request that General Heiberg be permitted to summarize his statement. We would then be available to answer the Subcommittee's questions. I also ask that my prepared statement and that of General Heiberg be placed into the record.

My statement addresses these topics: the FY 1986 budget including the context, policies, and directives that contributed to its formulation; the regulatory reform; ocean disposal; Federal Engineer; and, finally, items and projects of concern to the Administration and Congress.

CONTEXT OF THE CIVIL WORKS PROGRAM FOR FY 1986

President Reagan has stated: "Providing enough high quality water promptly to those who need it is a task that has confronted Americans since the earliest days of our national experience." We know that this Subcommittee continues its commitment to working with the States, local entities, and those private sector interests concerned with water development all across America on this never-ending challenge. It is in the spirit of working with you to

rebuild the Federal-State partnership, so that we can resume water development efforts to avert water crises in the coming decades, that we present our testimony today.

The Department of the Army has done all that it could during the past four years to develop a new means to move forward with the Civil Works Program executed by the Corps of Engineers. For over a decade, this program had been in a state of retrenchment as the traditional terms for authorizing and implementing projects apparently lost favor with the American people and thus with the Congress. In spite of our efforts to date, we have been unable to convince Congress of the merits and value of a new charter for water resources development and management by the Federal Government in partnership with the States and local project sponsors. But I believe there have been lessons learned on all sides. The proposed FY 1986 program, of necessity, is premised on the enactment of new legislation, and I am hopeful that there will be the will and the wisdom to get the job done.

The legislation which we are proposing would accomplish three objectives: (1) authorize more than 60 projects, six of which are proposed as new construction starts in FY 1986; (2) provide for substantial navigation cost sharing and cost recovery as well as new financial arrangements for other project outputs; and (3) provide new authorities to facilitate efficient Federal water development and management.

#### FISCAL YEAR 1986 BUDGET

##### Summary

The gross FY 1986 budget request for the Civil Works program totals \$2.338 billion. Based on proposed legislation and/or voluntary agreements with local sponsors of new construction projects, we anticipate cash contributions from non-Federal project sponsors of new construction projects and receipts from navigation user fees to be \$470 million. The requested

Federal appropriations when enhanced by new non-Federal payments would provide the Corps of Engineers with total new program funding in FY 1986 of \$2.808 billion. This amount is adequate to meet all scheduled program requirements. This compares favorably with appropriations of almost \$2.8 billion in FY 1985 and demonstrates that, in the area of water resources development and management, it is possible to maintain our level of activity in spite of the necessity to reduce Federal spending.

#### Presidential Initiatives

I should point out that the FY 1986 budget reflects the reductions applied by the President to all domestic programs. These include: a freeze of requests at the FY 1985 level or FY 1986 request, whichever was lower; a 10% reduction in administrative expenses; and a 5% pay reduction, effective January 1, 1986. We have also reviewed the recommendations of the Grace Commission with a view to implementing selected ones that involve the Corps of Engineers. For example, we have proposed legislation which would result in increased user fees for navigation and general recreation. The budget request also provides funds for an increased number of studies and efficiency reviews, which will lead to productivity improvements involving both commercial and non-commercial activities.

#### CONSTRUCTION OF NEW PROJECTS

We continue to strive to re-establish a strong development program with cooperating States and local sponsors. In the FY 1986 Budget, we propose to initiate construction of 29 new projects including six which require construction authorization. Seventeen of these new construction starts are local flood control projects; five are deep-draft navigation projects; three are multiple-purpose reservoirs providing water supply, flood damage reduction, and recreation benefits; three are hydroelectric power projects, two of which involve installation of generation facilities at existing Corps

reservoirs, and one is for replacement of locks and rehabilitation of the dam at one of the essential elements of the Inland Waterways System. While 13 of these projects had been included in previous budgets but were not acted upon by Congress, 15 are additional new construction projects based on newly negotiated financing arrangements. We believe these projects demonstrate further the willingness and ability of local sponsors to increase their financial participation in new project development when a strong, productive project exists, a project sure to provide a return on their financial investment. Also included as a new project is one inland navigation project, Gallipolis locks and dam on the Ohio River, which reflects the willingness of the Department to undertake navigation investments conditioned on a substantial, that is, 70 percent, financing contribution from the waterway beneficiaries to new project construction as well as to ongoing operation and maintenance expenses.

The 29 new projects represent a capital investment of slightly under \$1.6 billion. Under the cost sharing arrangements we have negotiated with sponsors and inland navigation user fees, non-Federal funds would be used to finance almost \$900 million, or about 57 percent, of total implementation costs. Under traditional arrangements, non-Federal funds would have been used to finance less than \$200 million, or about 12 percent, of project implementation costs. With the Subcommittee's support, this investment could be underway as early as October and begin to produce benefits within one to two years.

#### COST SHARING POLICIES FOR NEW PROJECT CONSTRUCTION

##### General

Under the legislative proposal, some non-Federal contribution would be required for the construction of all Federal water resource projects. The amount of that contribution would be dependent on the ease with which the non-Federal sponsor could recover its capital investment through user fees or

other benefit-based charges. For example, for fully vendible outputs, such as hydropower and municipal and industrial water supply, 100 percent recovery of costs, as is now required by law, has been relied on as a source of project financing. For outputs such as flood control and general recreation, which are not fully vendible, the level of cost sharing has been increased to provide a more equitable balance between Federal and non-Federal interests and yet, in our view, still encourage the advancement of meritorious projects. For navigation, a major share of the assigned costs for this output is proposed to be borne by non-Federal interests. The level of Federal funding being retained for navigation is sufficient to assure that a national interest is preserved in the development of deep-draft and shallow-draft channels and harbors along our coasts, on the Great Lakes, and on inland waterways.

The new funding arrangements we have negotiated for new construction start projects, and the generic cost sharing legislative authorities we are proposing, reflect the economic realities of water project development and the potential for increased beneficiary participation in project cost sharing and construction financing and the Federal budgetary realities the Subcommittee and we in the Administration face. Just as we have learned much in the process of negotiating new financing arrangements, we also have benefitted from the continuing dialogue with Congress, State and local governments, private financing institutions, and interest groups. Particularly noteworthy has been the range of options available to sponsors as they seek to minimize the cost of providing their share of project financing.

The overall objective of the Army's new construction starts initiative has been to develop policies which will maximize the amount of new water project construction that can be supported with the limited Federal funds which are available in the face of current budget deficits and changed spending

priorities. In pursuing this objective, we have sought to accommodate the full range of project types and local sponsor capabilities to finance productive projects.

Millions of American citizens, as users of project-provided goods and services, directly benefit from Federal water development. Millions more are indirectly affected by project development, as the benefits of development are diffused throughout the economic system by the ordinary operation of the market economy. The economic benefits of water projects provide a basis for non-Federal financing when the institutions are in place to allow a share of those benefits to be captured through user fees and other benefit-based charges.

#### Consistency

The new cost sharing objectives reflected in the Army's legislative proposals are specific to individual project outputs or purposes. We believe that it is essential to maintain consistency in cost sharing by project purpose, in the interest of treating all sponsors comparably. Nothing would detract more from the Department's credibility than to approach sponsors of similar types of projects on different terms. Indeed, a question frequently asked of District Engineers, as they approached potential sponsors, concerned the terms being offered to other sponsors.

#### Financial Assistance

We acknowledge, moreover, that Congress, as the ultimate reviewer of budget and legislative proposals, may want to consider unique circumstances which affect specific projects. It should be recognized that the Department has introduced new flexibility with regard to the amount that is to be financed by project sponsors during the construction period. Where projects produce the less-ventible outputs, such as flood control, there may be financing problems because of an inability to adequately capitalize project

benefits; and the Department is prepared to address that need, a need which we recognize is of great concern to the Subcommittee. The approach in the generic legislation, as well as in the budgeting process, has been to look at the ability of sponsors to pay during the construction period, that is, in anticipation of receipt of benefits, as opposed to over time as benefits are actually received.

In formulating our FY 1986 new starts, we offered flexibility in financing to the sponsors of those projects with less-than-fully-ventible outputs. This flexibility, underscored in President Reagan's Water Policy letter of January 24, 1984 to Senator Laxalt, responds to the concerns of some members of Congress, Governors and others, as well as our own concern, by providing for reasonable financing arrangements for new projects while seeking consistency in cost sharing by project purpose.

Some members, we are sure, continue to be concerned that the new financing policies might favor wealthier regions and communities. They do not. The policies are tied to the flow of benefits produced by the project, not the wealth of the beneficiaries. Whenever a project is truly productive in the sense that its benefits exceed its costs, the local sponsor should be able to pay the required cost share as the benefits of the project are accrued. If the sponsor is willing to recover its portion of project costs through benefit-based fees, it can pay the requested share of project costs by capturing a share of the flow of project benefits.

#### Cost of Borrowing

In some instances, however, it may not be possible for the sponsor to pay all of its share during the construction period. Such difficulties may arise as a result of the community not being able to borrow at reasonable terms from the private capital market for a variety of reasons. By the refinements we

have made in the new start program and in the generic cost sharing legislation which we are proposing, we have responded to that concern. When a sponsor of a project producing an output such as flood control is unable to provide its share of funds during the construction period, we will lend the sponsor Federal funds at an interest rate reflective of the cost of Federal borrowing for the period the loan is desired. This has the effect of making credit available to every flood control project sponsor at the cost of funds borrowed by the Federal Government from the private sector.

Because most sponsors have access to capital markets through the issuance of tax-exempt securities, it should not be surprising that only one sponsor has requested a possible Federal loan to finance its share, a 35 percent contribution, of the cost of obtaining its flood protection project. The Department believes that by placing an effective ceiling on the cost of raising capital to finance the local share of flood control and other less-than-fully-ventible outputs, we can assure that every sound project can be implemented in a timely way.

#### Financial Considerations

Congress also should be aware of the tremendous effort that water project sponsors are making to implement their projects in a timely and efficient way. These efforts are reflected not only in the stated commitments underlying new starts, but also in the news articles and in the letters we are receiving which recount the innovative means which sponsors are developing to implement and finance projects. No better demonstration of this impressive commitment by States and sponsors can be found than in the case of deep-draft harbor improvements. The Baltimore, Norfolk, Mobile, and New Orleans harbor and channel deepening projects are receiving unprecedented scrutiny as sponsors look for means to either stage project construction or even modify the

project plan so that implementation can proceed in accord with projected benefits and their financial capabilities. Potential sponsors have been participants in a series of four workshops on water project financing jointly sponsored by the Corps of Engineers and the Interstate Conference on Water Problems. Not only are sponsors desirous of moving ahead with development of new terms, but they, like we, have become aware of the great amount of expertise available to assist in obtaining new sources of capital on the most attractive terms possible.

#### OPERATION, MAINTENANCE, AND REHABILITATION

In spite of the new construction proposals we have made, expenditures for operation and maintenance of completed projects will continue to demand the largest share of budgetary resources, at least in FY 1986 and for the next few years. Starting in FY 1986, under the Army's legislative proposals, beneficiaries would pay a larger share of the cost of operation, maintenance, rehabilitation, and replacement. This would be done in four ways: (1) users of the locks and dams and channels of the inland waterways system would be required to pay a ton-mile fee which would cover about 70 percent of the annual operating and maintenance costs for the inland waterways; (2) local sponsors would be required to pay 70 percent of the annual costs for major deep-draft harbors with commercial traffic less than one million tons and for all shallow-draft navigation projects including the harbors on the inland waterways which, from a management standpoint, would no longer be considered part of the inland waterways system; (3) sponsors of deep-draft harbors and channels would pay the full cost of operation and maintenance but no more than 125 percent of the average cost per ton of traffic on or off loaded at the nation's ports; and (4) project sponsors would be responsible for the full cost of the operation, maintenance, rehabilitation, and replacement costs for all

newly constructed non-navigation projects, including reservoirs. Non-Federal sponsors will be encouraged to recover their share of these costs through user fees or any other mechanism they desire, so as to promote the principle of "beneficiary pay" as encouraged by the President's Water Policy Letter.

In proposing that a cap be placed on the contribution required of local sponsors for deep-draft navigation projects, we are attempting to place a substantial amount of responsibility for these costs on project sponsors while not unnecessarily disrupting existing trade patterns or existing competitive relationships among ports. The Army's legislative proposal, by not relying upon a nationwide uniform fee, also responds to the concern of low-cost ports that they not be expected to subsidize their competitors. It also meets the requirement of our international treaties that fees for harbor and channel maintenance reflect actual costs.

The deep-draft cost recovery proposal would require that about \$175 million of the \$423 million programmed for deep draft navigation work in FY 1986 be contributed by port authorities. The balance of \$248 million would continue to be appropriated by Congress. Of the \$406 million required in FY 1986 for the operation, maintenance, rehabilitation, and replacement of the inland waterways including work funded under the Flood Control, Mississippi River and Tributaries account and shallow-draft harbors and channels, about \$213 million would come from inland waterway user fees and shallow-draft project sponsor contributions. The balance of \$193 million would be appropriated by Congress.

It should be noted that the levels of cost recovery proposed for navigation are substantially less than those first proposed by the Army. This represents a compromise between the sound economic principle that the beneficiaries of these commercial activities bear their costs and the desire for an implementable proposal. Let me further add that, while we have worked

hard to develop proposals that are economically and politically sound, we are certainly open to other proposals that will provide for similar levels of non-Federal participation in the funding of the Federal Water Program.

#### FEASIBILITY STUDY COST SHARING

##### Two-Phase Process

The Department of the Army has adopted a two-phase planning process as a management device to insure that full preauthorization studies are completed only when there is a high likelihood that a recommendation for a Federal project will result. This process has been in place for the past two years; and, during FY 1985, we intend to complete the first phase, that is, the reconnaissance phase, of over 30 studies.

These reconnaissance investigations, funded at full Federal expense, define the problems, formulate and evaluate potential solutions, identify likely project sponsors, identify the Federal interest, and lay out the plan of study for the feasibility effort. If there is evidence of a Federal interest in a justified and implementable solution to the problem, the study would be continued with joint Federal and non-Federal funding on a 50/50 basis and with up to one-half the non-Federal share having potential for being in the form of in-kind contributions.

##### Implementation

Because the Appropriations Committees have indicated that we should not implement activities with increased non-Federal financing, we have not implemented study cost sharing. However, before proceeding with the second phase, that is, the feasibility phase, of the survey studies previously initiated under the two-phase process, we are asking the would-be project sponsor to agree to share in those study costs incurred after cost sharing is

implemented by the Department. These contributions would be provided only if the sponsor continues to view the investigation as productive and wishes to continue it. In return for this conditional commitment on the part of the local sponsor, we are funding both the Federal and non-Federal shares of the study cost to provide for efficient execution of the study. In other words, we have implemented the management process for the two-phase study program as if cost sharing were actually in place. This "market test" of the value of continuing the study eliminates the requirement for internal departmental review of the results of the reconnaissance investigations with its inherent delays, except in cases where there is a question regarding Federal interest in the proposed project.

#### Financial Ability

I have taken the time, Mr. Chairman, to review the two-phase planning process management because I know there have been questions raised about it. One concern that I have not addressed is the ability of a sponsor to raise its share of the study funds. In response, I would like to point out that if the sponsor cannot finance a study, it is unlikely that it would be able to participate financially in project implementation. I see the Department's proposal for study cost sharing as an effective device for insuring that Corps studies lead to projects which are cost-effective, responsive to local concerns, and in every way implementable. It is our earnest desire to go forward with full implementation of the two-phase study process by implementing feasibility phase cost sharing. We were pleased to see that both the House and Senate versions of the omnibus bill last year endorsed study cost sharing. We urge the Subcommittee to endorse this effort to increase the effectiveness of limited study funds.

## FY 1985 APPROPRIATIONS

### Report on Added Items

Prior to these hearings, I provided you a copy of a report, Mr. Chairman, that set out the current status of the disposition of the FY 1985 Appropriations. The report shows that, for the most part, we have been able to allot the increased or added amount, less savings and slippage, accomplish the requested action with a lesser amount, or allot sufficient funds for a study which will give us a basis for a decision on the desirability of proceeding. We would be pleased to address any special item of interest to the Subcommittee.

### Cost Reductions

Section 2901 of the Deficit Reduction Act of 1984 (P.L. 98-369) requires Executive Branch cost reductions through management improvements in five areas: motor vehicles, travel, public affairs offices, reproduction, and consultant services. The reduction assigned to the Corps Civil Works program was \$20.1 million for FY 1985. These reductions take the form of rescissions for FY 1985, which were transmitted to Congress with the FY 1986 Budget. The rescissions, by appropriation title, are: \$2 million from General Investigations; \$4 million from Construction, General; \$8 million from Operation and Maintenance, General; \$1 million from Flood Control, Mississippi River and Tributaries; \$1.2 million from General Expenses; and \$3.9 million from the Revolving Fund.

### REGULATORY REFORM

We continue to be very active in the area of regulatory reform, and the FY 1986 budget request of \$51 million is slightly higher than that appropriated for the last two years. Last October, we published final regulations which implemented the agreed to provisions of the lawsuit

settlement with 16 environmental groups. Included as part of the settlement was the requirement for the public to provide notification to the Corps when activities are undertaken under certain nationwide permits. In addition, large fills above headwaters and in isolated waters no longer qualify for nationwide permit approval and must now have individual permits. These requirements provide additional environmental safeguards but do not hinder our overall goal of streamlining the regulatory program.

This spring, we hope to publish more rules. We are attempting to consolidate some of our previous regulations and include some additional procedures to reduce delays. We are also providing more guidance on the use of nationwide permits and an expansion of the overall nationwide permit program. Under these nationwide permits, we are now authorizing tens of thousands of activities a year without the processing of individual applications. Later this year, we intend to issue some remaining regulations covering such items as enforcement and an improved permit form.

We have made significant improvements in our interaction with the States. This past year we transferred to the State of Michigan the Section 404 program outside traditionally navigable waters. Because of onerous regulations and procedures, a lack of resources, or applicable law, no State previously had been able to take advantage of this transfer provision of the Clean Water Act. We are also working with the States to modify our nationwide permits to meet their individual State requirements. Some States have expressed concerns over the nationwide permit program, but we have made important progress by improving the States' understanding of this program and by adding regional conditioning to many nationwide permits. We have also made significant progress in building on the permit programs of various State and local governments. In over 35 States, we have been able to issue "State

program general permits<sup>o</sup> which eliminate duplication that existed where the Corps and a State or local government had similar permit programs for minor activities.

#### OCEAN DISPOSAL

Dredging is essential to the Nation's economic well-being and it is imperative that this activity be conducted in a fiscally responsible as well as environmentally acceptable manner. I am particularly concerned about the trend to require disposal of dredged material at great distances in the ocean, in the absence of scientific evidence suggesting that there are benefits commensurate with the costs of such efforts. These cost increases can be quite significant. For example, over \$40 million additional would be required in deepening costs alone at Norfolk Harbor if an ocean disposal site only seven miles further out to sea were used in lieu of the historically used site. There are instances where it is proposed to move much farther out to sea than merely an additional seven miles. Unless there is a scientific or technical basis for doing so, we believe it is unwarranted to incur the added costs for disposal of dredged material further offshore. To do this means fewer dollars for navigation benefits. As General Heiberg will discuss, the Corps together with the EPA has agreed to base such decisions on scientific data and are working to improve their predictive techniques.

#### WORK FOR OTHERS

As the Government's largest engineering organization, the Corps has undertaken an array of work for other Federal agencies in the interest of Government efficiency, as well as for States and local Governments and other countries. With the support of the Administration, we are supplying needed planning and engineering expertise and construction management capability to help those agencies complete their scheduled workload. While the provision of these services helps those agencies meet their program objectives, the work

is important to the Army since it helps the Corps to retain, enhance, and broaden its technical expertise. I want to assure you that this supportive effort does not in any way distract from the Corps Civil Works mission, nor does it create inappropriate competition with private engineering firms. In all, we are devoting some 800 workyears of effort in response to the needs of slightly over 30 different entities.

#### PROJECTS OF CONCERN

##### Mount St. Helens

The Corps of Engineers is continuing to address the problems created by the eruption of Mount St. Helens. The feasibility report, addressing a permanent solution to these problems, accompanied by the report of the Board of Engineers for Rivers and Harbors and the proposed report of the Chief of Engineers, was distributed for State and agency review on January 11, 1985. The final report is scheduled to be forwarded to Congress this spring. The preferred plan consists of a single retention structure and associated downstream actions. Through continuous monitoring, additional information will be obtained, during the continuation of planning and engineering process, concerning the rate and future magnitude of sediment deposition. Adjustments to the preferred plan will be made as may be indicated by newly acquired information. Another solution may be selected, such as a staged single retention structure or dredging, but only if there is compelling and convincing new evidence for doing so. Accordingly, concurrent analysis and design of a single-retention-structure, a staged-single-retention-structure, and dredging alternatives are continuing during Continuation of Planning and Engineering studies, which are scheduled for completion in December 1985.

The Corps is continuing to dredge the lower Toutle River and perform minor levee rehabilitation to counteract the currently expected sediment deposition in the Cowlitz River and to continue to provide a 100-year level protection

to the communities along the Cowlitz River. Funds are requested to continue this effort in FY 1986. The construction of a permanent outlet tunnel at Spirit Lake is nearing completion, with the initiation of lake drawdown scheduled for early in the third quarter of this fiscal year.

#### Section 202 Project

Construction of the structural measures for Williamson, Pineville, and Barbourville in FY 1985 is on schedule, and all project activities are being fully funded as directed by Congress. A contract for construction of a pump station and levee in Pineville will be awarded this spring, and construction of the Williamson levees and floodwalls is scheduled to begin in FY 1986. Construction of the Barbourville cutoff and detailed engineering and design of the Barbourville levees and floodwalls are continuing. Unanticipated additional planning efforts have delayed implementation of non-structural measures funded in the FY 1984 Urgent Supplemental Appropriations Act, Public Law 98-332. However, the Corps probably will begin acquiring floodplain properties and floodproofing individual structures in Williamson during the fourth quarter of FY 1985.

Funds have been appropriated for this project at a rate far in excess of the Corps ability to spend them; we anticipate to end FY 1985 with an unobligated carryover of \$19.3 million. Pursuant to the specific instructions set forth in law, we are continuing development of a project costing hundreds of millions of dollars and which never has met the requirements of economic justification. All of this work, I might add, is being done at full Federal expense, unlike like other local protection projects in the nation, whether under currently proposed cost sharing of 35 percent or under traditional cost sharing where Congress has recognized that at least lands, easements, and rights-of-way should be provided.

### Lock and Dam 26, Second Lock

Construction of the Lock and Dam 26 Replacement project is proceeding in three stages, and is on schedule. Stage I consists of the first 6-1/2 bays of the dam, which will be completed this fiscal year. A contract for Stage II, the 1,200 foot Replacement Lock, was awarded last September 28th. Stage III, the closure dam tying the Stage II Replacement Lock into the Illinois shoreline, is scheduled to be awarded in January 1988 and would complete the authorized replacement project.

The January 1988 award date is critical because, if a Second Lock were to be authorized and built, it would be at that date that construction would logically have to commence; otherwise, the closure dam would be constructed to complete the authorized replacement project. In order to capitalize on a potential \$95 million cost savings (October 1983 price levels) that could be realized by not having to construct the closure dam and later remove it to accommodate a second lock, it would be prudent to undertake this month the engineering and design of a second lock which would have to be authorized. The engineering and design would have to be undertaken now in order to start work on the plans and specifications which would have to be initiated around July 1986, if the January 1988 award date is to be met. Engineering and design can be undertaken within available funds under the Construction, General, Appropriation, justified by the anticipated savings from incorporating the second lock into the current construction schedule. A letter advising the Congress of our decision to undertake engineering and design has been sent to the appropriate committees.

### Recovery of Past Water Supply Investments

We have made substantial progress in our initiative to increase the rate of recovery of past investments in municipal and industrial water supply

storage. As explained in last year's testimony, one part of this initiative involves a series of reforms to recover a larger share of the real value of past Federal investments within the authority of the 1958 Water Supply Act, while not imposing unfair burdens on any beneficiaries of Corps water supply storage. Most non-Federal sponsors of water supply storage have been very cooperative with us in this regard. Over the past year, final water supply contracts have been recovered from five sponsors and draft water supply contracts from an additional four sponsors; all of these contracts are in accord with the new policy.

Within the last year, the Army also embarked on a water supply marketing initiative in an attempt to accelerate sales of about 1.4 million acre-feet of constructed but unsold water supply storage Nationwide. The first report from the Corps for this effort listed seven projects where we expect to sign additional water supply contracts within the next few years. An additional five projects also have been identified where interest in purchasing water supply storage in the near future appears to exist. Preliminary results from the marketing initiative indicate that about half the existing unsold storage will be contracted for within the next 15 years. This would bring the total amount of water supply storage under contract to almost 8.5 million acre-feet, or more than 92 percent of existing Corps municipal and industrial water supply storage Nationwide.

#### CONCLUSION

Mr. Chairman, in reporting to you on the complex issues and accounting inherent in any budgetary presentation, I have no desire to shift the Subcommittee's focus from the reality of the water problems facing our Nation and the need to improve the Nation's infrastructure in an efficient and timely way.

Your actions will have important and far reaching impacts on this Nation's well-being, and many citizens anxiously await revitalization of the Civil Works construction program. We all share the awareness of the deserving communities and individual citizens who are awaiting flood protection, harbor improvements, and other valuable services that can be provided by water projects. If something is not done soon to break the logjam, the history of the program for the last decade or so will be read as a testament to the inability of the Government to respond to new challenges in timely and responsible way. There can be revitalization in the water resources program in spite of the current Federal budget crisis. We all know that the budgeted new construction start proposals demonstrate that non-Federal interests are willing and able to contribute substantially more than they have in the past to receive the benefits of effective water resources development, and that there are ways to substantially increase the efficiency of program execution. There is no good reason remaining for delay.

Many of our budgetary proposals require new authorizations. I would hope that Members of the Subcommittee will urge their colleagues to act on these. Meanwhile, we ask the Subcommittee to support our efforts to initiate the authorized new construction projects on the terms we have negotiated with local sponsors, and also to endorse our two-phase preauthorization study process, including study cost sharing. We need your help. We fully recognize that without your support we cannot move forward to address these critical problems. We also know that with your help we can move ahead to solve pressing water resource development problems.

**ARMY CIVIL WORKS PROGRAM**  
**FY 1983-1986 RECOMMENDED NEW CONSTRUCTION STARTS**  
**(\$ IN MILLIONS)**

R-11 February 1985  
 1004D -

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<u>PROJECT TYPE</u>	<u>NUMBER OF PROJECTS</u>	<u>FY 1986 BUDGET REQUEST</u>	<u>TOTAL CAPITAL COSTS 1/</u>	<u>FEDERAL COST-SHARE</u>		<u>LOCAL COST-SHARE</u>	
				<u>TRADITIONAL</u>	<u>PROPOSED 2/</u>	<u>TRADITIONAL</u>	<u>PROPOSED 2/</u>
FLOOD CONTROL	17	26.44	553.89	427.72	350.03	126.17	203.86
COMMERCIAL PORTS	5	8.55	242.11	201.01	102.90	41.10	139.21
HYDROPOWER	3	0.9	148.80	148.80	2.7	0	146.10
MULTIPURPOSE	3	6.20	259.10	230.70	113.65	28.40	145.45
INLAND WATERWAYS	1	1.35	370.00	370.00	111.00	0	259.00
<b>TOTAL</b>	<b>29</b>	<b>43.44</b>	<b>1,573.90</b>	<b>1,378.23</b>	<b>680.28</b>	<b>195.67</b>	<b>893.62</b>

1/ Costs are at 1 October 1984 price levels and include allowances for inflation through the construction period.

2/ Shares under the Proposed columns are based on assumption that funds from project sponsors, including port authorities, and the users of the Inland Waterway system will be paid on a "pay-as-you-go schedule as called for under proposed legislation.

**ARMY CIVIL WORKS PROGRAM**  
**FY 1986 RECOMMENDED NEW CONSTRUCTION STARTS**  
(\$ IN MILLIONS)

R-11 February 1985  
1004D -

PROJECT TYPE/NAME	FY 1986 BUDGET REQUEST	TOTAL CAPITAL COSTS <sup>1/</sup>	FEDERAL COST-SHARE		LOCAL COST-SHARE		
			TRADITIONAL	PROPOSED	TRADITIONAL	PROPOSED	
<b>FLOOD CONTROL</b>							
Ardsley, NY	0.48	5.67	4.77	3.68	0.90	1.99	
Chaska, MN	1.60	28.70	23.80	18.60	4.90	10.10	
Clear Creek, TX	2.00	119.35	94.80	77.58	24.55	41.77	
* Fountain Creek at Pueblo, CO	1.36	9.10	7.70	5.83	1.40	3.27	
* Lake Wichita, Holliday Creek at Wichita Falls, TX	1.50	30.50	17.80	16.40	12.70	14.10	
Moline, IL	1.88	24.33	23.00	15.81	1.33	8.52	
Revere Beach, MA	0.70	9.10	4.55	4.55	4.55	4.55	
* Tamaqua, PA	2.12	11.04	10.70	7.18	0.34	3.86	
Town Brook, Quincy, MA	1.50	36.10	35.60	23.50	0.50	12.60	
<b>SUBTOTAL</b>	<b>13.14</b>	<b>273.89</b>	<b>222.72</b>	<b>173.13</b>	<b>51.17</b>	<b>100.76</b>	
<b>COMMERCIAL PORTS <sup>2/</sup></b>							
Freeport Harbor, TX (Deepening)	2.00	75.92	66.60	33.92	9.32	42.00	
Ponce Harbor, PR	0.35	10.24	9.66	4.83	0.58	5.41	
* Sacramento Deep Water Ship Channel, CA	1.30	106.60	85.10	43.50	21.50	63.10	
* Savannah Harbor Widening, GA	2.50	22.75	14.65	7.35	8.10	15.40	
<b>SUBTOTAL</b>	<b>6.15</b>	<b>215.51</b>	<b>176.01</b>	<b>89.60</b>	<b>39.50</b>	<b>125.91</b>	
<b>HYDROPOWER</b>							
Town Bluff Hydropower, TX	0	20.00	20.00	0	0	20.00	
<b>MULTIPURPOSE</b>							
Little Dell Lake, UT	3.00	107.90	79.50	52.25	28.40	55.65	
<b>INLAND WATERWAYS <sup>3/</sup></b>							
* Gallipolis Locks & Dam Replacement, OH & WV	1.35	370.00	370.00	111.00	0	259.00	
<b>TOTAL</b>	<b>23.64</b>	<b>987.30</b>	<b>868.23</b>	<b>725.98</b>	<b>119.07</b>	<b>561.32</b>	

<sup>1/</sup> Costs are at 1 October 1984 price levels including inflation through the construction period.

<sup>2/</sup> Data under Proposed columns are based on Army's proposed 50/50 cost-sharing.

<sup>3/</sup> Data under Proposed columns are based on assumption that project is an increment to the existing Inland Waterway system and will be totally paid for by user fees under proposed legislation (30% Federal/70% non-Federal).

\* Project requires authorization.

**ARMY CIVIL WORKS PROGRAM**  
**FY 1983/84/85 RECOMMENDED NEW CONSTRUCTION STARTS**  
 (\$ IN MILLIONS)

R-8 February 1985  
 1004D

FISCAL YEAR	93/84/85 1/ PROJECT TYPE/NAME 2/	FY 1986 BUDGET REQUEST	TOTAL CAPITAL COSTS 3/	FEDERAL FINANCING		LOCAL FINANCING	
				TRADITIONAL	PROPOSED	TRADITIONAL	PROPOSED
	<b>FLOOD CONTROL</b>						
83	Kahona Stream, HI	3.0	23.9	17.6	15.5	6.3	8.4
83	Merced, CA	4.0	111.0	83.5	72.2	27.5	38.8
83	Virginia Beach Streams, VA	1.0	6.0	4.9	3.9	1.1	2.1
84	Bassett Creek, CA	2.5	37.4	31.8	24.3	5.6	13.1
84	Ellicott Creek, NY	1.0	22.9	13.8	13.8	9.1	9.1
84	Fairfield Vic. Streams, CA	1.2	28.1	15.1	15.1	13.0	13.0
84	San Luis Rey, CA	1.4	45.0	35.5	29.3	9.5	15.7
85	Pajaro River, CA	0.5	5.7	2.8	2.8	2.9	2.9
	<b>SUBTOTAL</b>	<b>13.3</b>	<b>280.0</b>	<b>205.0</b>	<b>176.9</b>	<b>75.0</b>	<b>103.1</b>
	<b>COMMERCIAL PORTS</b>						
83	Freeport Harbor, TX (No. Jetty)	2.4	26.6	25.0	13.3	1.6	13.3
	<b>HYDROPOWER</b>						
83	Bonneville Power Units, OR & WA	0.5	21.8	21.8	0.5	0	21.3
83	Strube Lake, OR	0.4	107.0	107.0	2.2	0	104.8
	<b>SUBTOTAL</b>	<b>0.9</b>	<b>128.8</b>	<b>128.8</b>	<b>2.7</b>	<b>0</b>	<b>126.1</b>
	<b>MULTIPURPOSE</b>						
83	Randleman Lake, NC	2.7	134.0	134.0	58.3	0	75.7
85	Cowanesque Lake, PA	0.5	17.2	17.2	3.1	0	14.1
	<b>SUBTOTAL</b>	<b>3.2</b>	<b>151.2</b>	<b>151.2</b>	<b>61.4</b>	<b>0</b>	<b>89.8</b>
	<b>TOTAL</b>	<b>21.1</b>	<b>586.6</b>	<b>510.0</b>	<b>254.3</b>	<b>76.6</b>	<b>332.3</b>

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1/ Projects designated FY 1983 were included in the FY 1983 new starts budget amendment submitted to Congress by the President on May 25, 1982.

2/ Two projects, Bradley Lake, AK and Bodega Bay, CA which were budgeted as new starts in prior years, do not appear on this list because local sponsors have elected to proceed with construction without Federal participation. In addition, Davenport, IA is not budgeted in FY 1986 due to lack of local support.

3/ 1 October 1984 prices inflated through the construction period.



# The Corps of Engineers: Planning To Meet the Financing Challenge

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*As state and local governments are asked to assume increased responsibility for funding water projects, they are also beginning to seek an increased role in planning and determining priorities for such projects. The effectiveness of these closer "working partnerships" will require modification of procedures and institutions both within and among federal and non-federal agencies.*

*The Corps of Engineers exemplifies growing awareness by a federal agency of the need to adapt to changing times. In this official, unedited Corps paper, General Wall formally charts a course of significant change for the U.S. Army Corps of Engineers.*

The Civil Works program of the U.S. Army Corps of Engineers makes a unique contribution to the development of our nation through water resources planning, development and management. Investments in flood control projects have prevented \$146 billion in property damages at a cost of only \$19 billion. Each year, 25,000 miles of waterways handle two billion tons of cargo, resulting in savings to consumers of about \$1 billion over the next best transportation alternative. Corps reservoirs provide 7.8 million acre-feet of municipal and industrial water storage, serving millions of people; associated hydroelectric plants provide over one-quarter of the nation's hydroelectric capacity and generate about one-half of the energy provided by all federal power plants (fossil, nuclear and hydropower). Nearly 4,000 recreation areas at over 600 Corps reservoirs provide recreation opportunities to citizens who make nearly 500 million visits to them each year.

**The development of new Civil Works projects is beset by a funding crisis — there are simply insufficient federal funds to start, finish and operate all needed projects.**

Despite these notable contributions and the potential for additional productive investment, the development of new Civil Works projects is beset by a funding crisis — there are simply insufficient federal funds to start, finish and operate all needed projects. In the future, those who benefit must pay a greater share of the costs.

Therefore, state and local governments are being asked to bear a higher proportion of the costs of project planning and construction and to provide these funds early—during the planning and construction periods. Local governments and other non-federal participants will consequently demand a larger say in project planning and priority setting. Although this greater participation may result in more locally acceptable projects, it will require changes in the Corps of Engineers' planning, design and construction processes.

## **Federal/Non-Federal Partnership for Water Development**

Initially, federal water development in the United States concentrated on navigation — to facilitate commerce and to "open the West." Over time, the federal role has broadened and now encompasses virtually all aspects of comprehensive water resource development. Federal water development provides widespread benefits, minimizes risks to human life, and achieves social and regional development goals.

Reprint from Water Management in Transition 1985, a special report by the Freshwater Society.

Due to limited financial capability of non-federal sponsors and the fact that water resource developments are typically long-term investments characterized by uncertainty in future conditions, demands and revenue potential, the federal government has traditionally assumed the financial risks of project planning and construction. Traditionally, local and state sponsors generally provided lands, easements and rights of way; reimbursed some vendible outputs like water supply and hydroelectric power; and assumed some project operation and maintenance responsibilities.

### **Funding Cutbacks**

Today we live in an era of limited federal funds, especially for water resources construction. Although the Corps' Fiscal Year 1985 budget is about the same as last year and larger than several years ago, funding for new project construction is about \$1.1 billion; this is only 37 percent of the 1980 level and 25 percent of the 1967 level after adjusting for inflation.

**Today we live in an era of limited federal funds.**

There are several reasons for this decrease. Although the last authorization bill was in 1976, this Congress has not agreed upon and the President has not signed a comprehensive water resources authorization bill since 1970. The growing federal deficit makes it unlikely that major new federally funded water development can be undertaken today. There are competing demands for limited federal dollars, including those funds needed for the operation, maintenance, repair, rehabilitation and/or modification of existing projects. It is also unlikely that the trend toward smaller federal investments in water development will be reversed. If urgently needed projects are to be built, the country requires new financing arrangements.

During the past decade, traditional water project cost-sharing and financing (sponsor-provided lands, easements, and rights-of-way; reimbursement for vendible outputs over the life of the project) have been subjects of intensive scrutiny and divisive debate. The milestone report of the National Water Commission in 1973 recommended cost-sharing policy changes. The Carter Administration reviewed cost-sharing in the Ford Administration's "Section 80" study authorized by the Water Resources Development Act of 1974 and proposed, depending on the nature of the project purposes, that non-federal project sponsors should provide an additional five to ten percent of project costs "up front." These proposals generated a great deal of controversy, and achieved no consensus on cost-sharing and financing.

**The period of turmoil may be about to end. An emerging partnership between the federal government and the state and local sponsors of water projects provides the opportunity to forge a new consensus.**

The era of turmoil characterized by a gradual loss of consensus between the executive and legislative branches on water priorities and federal responsibilities resulted in a virtual halt in the congressional authorization process for new water projects. Of the 106 ongoing construction projects in the FY85 Civil Works budget (down from 159 in FY 83), only six were begun after 1979. Meanwhile, there are about 200 projects involving about \$13 billion of construction costs eligible for authorization; hundreds of projects, involving about \$16 billion, already authorized, await funding for construction appropriations or de-authorization.

### **Policies for Project Cost-Sharing and Financing**

The period of turmoil may be about to end. An emerging partnership between the federal government and the state and local sponsors of water projects provides the opportunity to forge a new consensus.

President Reagan, in his January 1984 letter to Senator Laxalt concerning water development, said, "It is time to conclude the discussion and to establish a national water financing policy so that we can get on with the job of completing projects where commitments have already been made and undertaking new construction starts to meet the country's future needs."

The President also spelled out his cost-sharing and financing policies for water projects, and stated, *inter alia*, that the costs of project planning are to be shared with project sponsors. Consistency in cost-sharing for individual project purposes is to be sought, so that all sponsors are treated consistently and fairly; but each water agency is to negotiate reasonable financing arrangements with the sponsors of each project. Ultimately, Congress and the President together will decide cost-sharing, financing and cost recovery arrangements.

The Assistant Secretary of the Army for Civil Works, who oversees the Corps of Engineers Civil Works program, has recommended specific cost-sharing and financing policies to the Office of Management and Budget.

With respect to the sharing of planning costs, the Corps planning process has been divided into two phases. The policy proposes that the federal government will bear the full costs of an initial 12- to 18-month "reconnaissance" phase. Project sponsors would provide 50 percent of the cost of a follow-up two- to three-year "feasibility" study for those "reconnaissance" studies deemed "winners." Up to one-half of the non-federal cost may be services in kind.

With respect to project implementation, under Army policies, costshares for each project purpose are consistent among projects, and almost invariably exceed traditional costshares. Non-federal sponsors will provide their share during construction, rather than the traditional form of repayment with interest over the life of the project. We in the Army believe there should be set cost-sharing percentage formulas; however, there is a great deal of flexibility on individual, verifiable hardship cases for sponsors to extend their period of payment.

The Army recognizes that its proposed and currently voluntary cost-sharing agreements reached with sponsors would be superseded by water resources legislation. If a sponsor is not able to borrow at favorable interest rates, the Army will consider financing those outputs and require repayment at the Treasury rate. This rate is currently about 11 percent and should not be confused with the federal discount rate of 8-3/8 percent used in economic analyses of water projects. The Army is using these policies in negotiating voluntary agreements with non-federal project sponsors — with the explicit understanding that Congress will ultimately decide the cost-sharing issue.

### A Light at the End of the Tunnel

The time is right for cost-sharing — financing can be found! The 1986 budget proposals submitted to OMB by Robert Dawson, acting assistant secretary of the Army for Civil Works, and subsequently included in the President's budget, contain a total of 29 projects for which the Army has reached voluntary cost-sharing agreements with local sponsors. These projects include those for which the Assistant Secretary previously negotiated agreements in 1982, 1983 and 1984, as well as those negotiated by Corps field offices in 1985.

There is more good news. The Interstate Conference on Water Problems (ICWP), with the Corps, sponsored four regional financing workshops during the fall of 1984. Over 330 planners, engineers, financial consultants, investment bankers and government officials shared ideas, problems and success stories on water project financing. Topics included benefits and revenues, financing powers and limitations, financial planning, financial and economic analysis, creative financing techniques and financial implementation. Dialogue has begun at the action level, and there is genuine optimism for building a new intergovernmental partnership to break the water project funding logjam.

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More remains to be done to effect viable local, state and federal working partnerships.

## Challenges in Project Planning and Authorization

The sharing of planning costs, increased construction cost-sharing by sponsors and the participation of sponsors in financing during planning and construction will have significant impacts on the planning and authorization of Civil Works projects. The Corps has already made significant changes in internal planning guidance to accommodate such impacts, but more remains to be done to effect viable local, state and federal working partnerships. Faced with increased financial burdens and risks, project sponsors now fully expect that the planning and authorization process will yield cost-effective plans that meet minimum local requirements in a timely fashion. The Corps must adapt to this situation through pragmatic and flexible approaches to project planning and implementation. There are at least three major challenges:

1. Adapt the cost-shared planning process to allow greater sharing of planning tasks and a more specific focus on the needs of the sponsor and the financing community;
2. Address and alleviate non-federal concerns which differ from federal water development policy objectives;
3. Expedite review, administration approval and congressional authorization of feasible and financially sound project studies and projects.

**The Corps must be willing to examine and adapt its planning practices.**

## Managing a Joint Planning Process

Management of a joint planning process requires adjustments in cost accounting and agreements on planning and engineering standards. Planning partners must agree upon the valuation of planning services provided by each and must determine the services to be credited to each sponsor's planning cost share. Services in kind to be considered include data collection, surveys, projections, computer modeling, public involvement, hydrologic and engineering studies, participation in plan formulation, social and community impacts and financial analysis.

Sharing responsibility for construction of joint federal/non-federal projects could also affect the planning process. Frequently, local sponsors request that they be authorized to initiate construction of certain project features prior to congressional authorization of the project—with these expenditures being credited to the required local cost-share of the project.

**We need to take full advantage of the flexibility which is provided in the federal guidelines for water project planning.**

There are a number of ways that this might affect planning. Most require the consideration of ways to fix agreements made at the end of the feasibility planning process in order not to initiate a replanning cycle. If staged construction increases total project costs and/or affects the economic justification of the last stage by increasing its costs, it will be necessary to adapt evaluation practices and financial arrangements to enable agreements to be made on the merits of the total project at the completion of feasibility planning. This will allow local sponsors to proceed with construction with assurance that the total project will be built when authorized. There will be many similar issues and challenges which will require a policy-making environment in which frequent evaluation and reassessment is the norm.

Another difficult issue to be resolved concerns the appropriate planning, environmental and engineering procedures to be applied. The Corps must be willing to examine and adapt its planning practices in such areas as environmental protection or mitigation, public involvement, interagency coordination and degree of acceptable risk. It is important that planning partners agree on the scope and scale of planning components and all costs. The Corps will increasingly be asked to trade off among project purposes, and to formulate plans which are soundly engineered and financially viable from a local perspective.

Because public officials must demonstrate to their constituents that studies generate results consistent with needs and expenditure, Corps planners must quickly provide a limited range of acceptable alternatives so that potential sponsors along with the financing community can evaluate possible financing alternatives. During the reconnaissance and feasibility phases of planning it is important to document the interjurisdictional effects of projects having widespread benefits as these will likely require the development of new institutional mechanisms.

During reconnaissance planning, the states and the Corps will be called upon for data and advice on how multiple local interests can equitably share the costs of feasibility planning. This step is critical in assuring that affected interests pay fair costs and receive appropriate consideration in planning decisions. Therefore, even though the reconnaissance planning phase is done at federal expense, a close working relationship demands the seeking out of potential sponsors to cost-share the subsequent feasibility study.

During the feasibility phase, interjurisdictional considerations are equally important, as sponsors will be sought to share construction costs. This will require a detailed accounting of the benefit and cost distribution across geographic areas and over time. Although detailed accounting of benefit and cost incidence is difficult, it is important that this task begin early, as it is key to successful negotiation of joint planning and construction endeavors.

### Addressing Non-Federal Concerns

To fully address non-federal concerns without inappropriate deviation from the federal water development objective, we need to take full advantage of the flexibility which is provided in the federal guidelines for water project planning — Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, March 10, 1983. These are commonly referred to as the Principles and Guidelines or simply the P&G.

The federal objective of water resources planning is to contribute to national economic development, consistent with laws and executive orders concerning the protection of the nation's environment. The P&G require each water resource development agency to develop a National Economic Development (NED) plan—that plan which maximizes national economic development benefits. A major concern of local sponsors is the ability to levy taxes or assess fees to project beneficiaries in order to obtain revenues to finance projects.

Planning studies typically address complex problem sets; they involve multiple needs, opportunities, project purposes and jurisdictions. Frequently the comprehensive plans formulated in this environment result in projects which are beyond the capability of local sponsors to finance — because of jurisdictional limitations, scale of projects or vendibility of outputs. Additionally, there may be real disagreements over the value of certain elements of "federal" plans — for instance, those that provide mitigation for valuable or scarce national resources which may be locally abundant.

The solution to this dilemma lies in the flexibility of the P&G — which state that each plan, including the NED plan, be formulated "in consideration of" four criteria: completeness, effectiveness, efficiency and acceptability. The acceptability criterion includes acceptance of a plan by state and local interests. An acceptable project may involve considering a smaller scale, shorter design life, staged development of separable increments, enhanced use of mixed-strategy plans incorporating nonstructural and demand management measures, reduced environmental mitigation, increased emphasis on outputs creating regional or local employment of tax gains and the substitution of recurrent costs for capital costs. Acceptability considerations may also raise the issue of lowering costs by modification of engineering and environmental procedures without significantly increasing risk where legally possible.

The federal objective of water resources planning is to contribute to national economic development, consistent with laws and executive orders concerning the protection of the nation's environment.

One of the major criticisms of current federal water development is the inordinate time period between the beginning of planning and the completion of construction of a project.

**It is clear that the emerging new partnerships between federal, state and local governments in developing the nation's water resources provide the impetus and resolve for solving the significant challenges facing wise and needed water resources development.**

**The Corps is committed to rethinking our procedures. Planning responsibilities and planning costs both must be shared.**

In effect, these criteria are constraints upon the range of feasible solutions. Therefore, the NED benefits should be maximized within these constraints. Consequently, the development and screening of plans could focus not only on net economic benefits and environmental effects, but also on acceptability to the non-federal sponsors and their ability to finance the projects.

Sponsors' concerns include: restrictions on debt, taxation limits, deficit spending, the obligation of future appropriations, the co-mingling of funds and scheduling of referenda of support planning and construction. Because of uncertainty in the outcome of feasibility planning as it impacts on these concerns, sponsor(s) may also need to consider temporary arrangements to alleviate financial constraints from the start of planning until the time when firm funding commitments for construction must be made. The information needs of sponsors when considering such arrangements will need to be anticipated as part of the planning process.

The P&G also enable the Corps to develop alternatives to the NED plan in order to address other federal, state, local or international concerns which are not fully addressed in the NED plan. If it can be shown that the concerns which led to the development of an alternative to the NED plan provide an overriding reason for selecting that alternative, the Secretary of the Army may select that alternative for recommendation to Congress.

### **Streamlined Review and Authorization**

A state or local unit of government committing funds to project planning must know that such expenditures will result in a quality project which can be built within a reasonable time. One of the major criticisms of current federal water development is the inordinate time period between the beginning of planning and the completion of construction of a project. This time period can easily extend to 20 years and results largely from lengthy reviews and sequential referrals to the Congress for authorizations and appropriations for each step of the planning, design and construction process. Adding the additional time to negotiate cost-sharing agreements with local sponsors can only lengthen an already unacceptably long process, unless a major revision of current practice occurs.

Precedents exist for congressional recognition of the need for speedy review and authorization. Under Section 201 of the 1965 River and Harbor and Flood Control Act, projects under \$15 million may be authorized by resolution of the House and Senate Public Works Committees rather than by enactment of specific project legislation. Also, under the Continuing Authorities program, the Chief of Engineers has the discretion to plan and construct small projects (for instance, less than \$4 million federal costs for flood control and less than \$2 million federal costs for navigation) without referring to Congress or the committees for approval. Finally, Congress has also authorized the Corps to continue planning and engineering for projects which have been submitted for authorization but not yet authorized, although this authority has limited application.

Other alternatives have been proposed to streamline the development process. These include resuming the use of Section 201 which was discontinued in 1978, expanding the dollar limits of the Continue Authorities program, providing for concurrent authorization of projects and appropriation of funds, authorizing the Corps to review and participate in implementation of plans developed by non-federal governments, much as in the fashion of the Soil Conservation Service, and providing for concurrent and shared review of plans by local, state and federal partners. Streamlined planning and construction is perhaps the most difficult and yet the most important issue to be faced if the new cost-sharing partnership is to succeed.

## Meeting the Challenge

It is clear that the emerging new partnerships between federal, state and local governments in developing the nation's water resources provide the impetus and resolve for solving the significant challenges facing wise and needed water resources development. We believe that all partners are willing to critically examine existing relationships and methods for financing the planning and construction of needed water projects.

Together, as we establish closer working relationships, we will build a new and wiser consensus for meeting tomorrow's water needs.

The Corps is committed to rethinking our procedures. Planning responsibilities and planning costs both must be shared. We will more flexibly apply the standards and criteria which have evolved over the years. We will apply uniform cost-sharing formulas, but will assure equitable financing arrangements based upon need and ability to pay. We will continue to work closely with non-federal sponsors in finding ways to formulate the "right" project and to develop financing packages. These include critical analysis of criteria, provided an acceptable balance between risks and safety is maintained, and sizing projects to facilitate cost-sharing.

The Administration and Congress will need to work together to determine the exact cost-sharing percentages by project purposes. In the interim, the Corps will continue to adapt to changing times and through its decentralized organization will work closely with the units of government with which it shares water development responsibilities. Together, as we establish closer working relationships, we will build a new and wiser consensus for meeting tomorrow's water needs.

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