



**US Army Corps  
of Engineers**

Engineer Institute for  
Water Resources

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# **Proceedings Economic and Social Scientist Workshop**

**August 1986**

**IWR Report 86-R-3**

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PROCEEDINGS  
ECONOMIC AND SOCIAL SCIENTIST  
WORKSHOP

Hosted by the  
Civil Works Directorate  
of the U.S. Army Corps of Engineers

Days Inn  
Baltimore, Maryland  
27-30 May 1986

August 1986

IWR Report 86-R-3

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## PREFACE

The theme of the 1986 workshop was the role of the Corps economists and social scientists in financial and cost recovery analysis.

Our intention was to develop a better understanding of new policies regarding water project financing and cost recovery in the development of water projects. This gathering of Corps technical specialist and influential individuals representing non-Federal interests, provided a better understanding of the many and varied concerns, requirements and constraints which must be faced in the coming years.

While we could not address all questions, I believe we made significant progress in understanding our challenges. We must now take what we have learned and develop the procedures, plans or structure which will lead to solutions.

Special thanks go to Mr. Ken Cooper for his leadership in formulating the theme of the workshop. Mr. Ed Cohn who arranged for many of the distinguished speakers, and Dr. Jim Johnson, Mr. David Miller and Mr. Dennis Ward for their excellent speakers, and who also did an outstanding job in managing the workshop. As always, the ultimate credit is to the participants for the quality of presentations and stimulating discussions.

**SUMMARY OF PROCEEDINGS**

## OPENING REMARKS

by

COL Martin Walsh  
Commander, Baltimore District

Col. Walsh welcomed the workshop participants to Baltimore. The economists should be focused on the new challenge of cost sharing. He emphasized the importance of the NED criteria and the need for identification of all beneficial aspects of Corps projects. The new environment of cost sharing emphasizes financial analysis, more cost effective solutions and shared responsibility with the non-Federal partner.

## CONFERENCE OVERVIEW

by

Robert Daniel, Chief  
Economics Branch  
Planning Division, Civil Works

Mr. Daniel explained the theme and reason for the workshop was to provide a wide range of views on cost sharing so that everyone could better understand the benefits, requirements and pitfalls of the new cost sharing policies.

There were four theme panels: 1) origin and effects of cost sharing legislation, 2) communications between the Corps and non-Federal sponsors focusing on study cost sharing, 3) financing of non-ventibles and the changing Federal role, and, 4) the local sponsors perspectives on financing the actual project construction.

There were three "non-theme" panels: 1) risk and uncertainty, 2) recreation policy and analysis, and, 3) the evolution of project planning and evaluation since the Flood Control Act of 1936. While these were "non-theme" panels, each topic has generated much interest and discussion within the Corps during the past year.

In addition, there were several speakers on topics which have wide interest within the Corps.

## KEYNOTE ADDRESS

by

Lewis H. Blakey, Ph.D., Chief  
Planning Division, Civil Works

Dr. Blakey discussed "A Plan for Planning in 1986" which was needed because of the changed requirements due to study cost sharing. He stated that

cost sharing is here to stay and that cost sharing makes more efficient the planning of specific projects. This planning process will produce timely reports that will be implemented as planned. Equity between Corps and a local sponsor is enhanced by a team effort. The end result will be that projects are both acceptable and affordable.

He stated that NED benefits need to be explained in a way that the local sponsor can understand. The role of the Corps economists is not that of investment banker or bond analyst but to provide the data that these people can use. That is, the Corps economists need to show the local sponsor how the benefits can be turned into revenues.

### FINANCING BY LOCAL SPONSORS

by

George Friedlander, Manager  
Municipal Research Department  
Smith-Barney Company

The key words for the local sponsors are: feasible, financeable, predictable and timely. It must be demonstrated that the project will pay for itself over the life of the bonds and that the sponsor has an aggregate ability to pay. A high credit rating is important to reduce the cost of borrowing because there are scarce financial resources and municipal bond buyers are risk adverse.

He concluded that: 1) the Corps has to select projects that both sides can commit to, 2) the Corps must look at cost sharing as an evolving process, 3) the Corps must develop a system that captures all the benefits of what has already been done in understanding what works and what does not work, and, 4) we are at a low water mark for Federal involvement in infrastructure financing.

Additional items that the Corps needs to understand or take into account with increased cost sharing: 1) the Corps must not make major design changes after a project is reviewed by the local sponsor, 2) revenue financing is the most constrained kind of financing because of the need to pay, 3) non-revenue financing e.g. general obligation bonds, is less constrained but requires a timely implementing and has political implications, 4) net benefits are meaningless if the local sponsor can't raise the cash, 5) the Corps must help all participants understand their design and construction requirements, and the financial community needs to know that there is plenty of expertise, 6) the Corps needs to be flexible, and, 7) there is a need for certainty that what is agreed to will be carried out without undue delay.

**SESSION 1**

COST SHARING

WHAT'S NEW AND EXCITING?

## PANEL I

### Cost Sharing

Panel Moderator: Dr. G. Edward Dickey, Deputy for Program Planning,  
Review and Evaluation, OASA, Civil Works

Panel Members: Dr. Robert Leone, Vice President  
Putman, Hayes & Bartlett  
Mr. Harold Brayman, Asst. Staff Director  
Senate Environment & Public Works Committee  
Mr. Ronald Cogswell, Acting Chief, Water Resources Branch,  
Office of Management and Budget  
Mr. Alan Dickerman, Assistant Senior Economist, Bureau  
of Reclamation

I. TOPIC: Origin and Potential Effects of Cost Sharing Legislation

A. Dr. Robert Leone

Dr. Leone felt the origin of cost sharing was partly a result of the budget cutting but has its basis in the social sciences. Economists are infatuated with the price mechanism for allocating resources (manipulating things by varying prices are to economists as machine guns are to Rambo). Lawyers have an infatuation with fairness. Political scientists have an infatuation with process. All three of these ideals are served by the cost sharing process.

Dr. Leone sees the benefits of cost sharing as:

1. Better project choice. By involving the local sponsor you have the benefits of focus since the product choice is made at the consumer level.
2. Better timing of investments. The local sponsor has a better feel for when improvements in infrastructure are needed.
3. Better scaling of facilities built.

Possible adverse effects of cost sharing are:

1. Clear project bias. The services of public projects are not always easy to charge for such as wilderness areas versus high use areas.
2. It compounds the problem of institutional myopia. It emphasizes the economic prosperity of places rather than people -- resulting in a geographic myopia.
3. The idea of fairness resulting from users paying could lead to a false fairness or apparent fairness. Many times local costs are paid by the tax system, therefore, who really pays and who really benefits may not be the same.

4. Could adversely impact the political process. If cost sharing works, it will increase net gains to society but absolute gains will decline. Under the old system locals got 100 percent of gain. Now, since they have to pay something, the net absolute gain decreases and there is less political leverage to put together deals.

Dr. Leone concluded that cost sharing is a political reality as a result of budget cutting that is reinforced by the social sciences. He is concerned that while we might have built too many projects without cost sharing, with cost sharing we might built too few, therefore, the only real difference is the choice of inefficiency. He suggest that we should all do what we can to make cost sharing work so that its benefits may be exploited and its weaknesses exposed and then we will be in a "no lose" situation.

B. Mr. Harold Brayman

Mr. Brayman feels that cost sharing is vital to the survival of public works projects. Under the Johnson, Nixon, Ford, Carter and Reagan administrations the budget has been drying up. It is becoming very tough politically to fight for the Corps program. Politicians can get as many benefits for highway construction expenditures. Without cost sharing everyone gets a little something as is the case with harbor projects. Expenditures for improvements should be an economic decision. Cost sharing makes a local entity commit and take a chance with the opportunity to get something quicker. The Senate bill essentially says we are going to have to take a chance on the market place. Remember, "If you count on Washington for everything you will get nothing."

C. Mr. Ronald Cogswell

Mr. Cogswell sees cost sharing as a way to cut the Federal budget and keep the water resources program going. Cost sharing is becoming a substitute for economic justification or environmental acceptability. Cost sharing alone, however, is not sufficient to move projects ahead that are not economically feasible. OMB currently has a tough decision to make on 5 to 10 marginal projects. Also, if a project is primarily recreation then cost sharing alone is not sufficient to move that project ahead regardless of the overall economic feasibility. If the Omnibus Bill does not pass this year the Corps will have little if any program by 1989.

D. Mr. Alan Dickerman

Mr. Dickerman indicated that cost sharing is nothing new to the Bureau in that they have had it for about 80 years. There was a revolving fund until 1936 when irrigators could not pay. After 1936 M&I and power users paid the majority of the costs. There was not problem with 100% cost sharing when the interest rates were low. Now, however, it is a problem for rural areas since they do not generate income as fast as urban areas. The public and private sectors should not operate by the same rules. The agricultural sector has never yielded a rate of return equal to present day interest rates. In addition, the agricultural sector is being squeezed from other directions at the same time such as price supports and loans.

Mr. Dickerman sees two problems with cost sharing. How can the locals guarantee Federal performance and a partnership is needed in studies with a reasonable expectation of a project.

## PANEL II

### What's New and Exciting?

Panel Moderator: Mr. Kenneth Cooper, Chief, Economics Branch, SWD

Panel Members: Mr. Robert McIntyre, Economist, BERH  
Dr. Donald Taylor, President, SRM Corporation  
Dr. David Ford, Senior Engineer, HEC

#### I. Topics:

- A. BERH Perspective on Current Corps Economic/Social Planning
- B. Social Risk Management: A Successful Approach to Project Planning
- C. What the HEC is up?

#### A. Mr. Robert McIntyre.

BERH Perspective on Current Corps Economic/Social Planning.

Mr. McIntyre discussed two unique project analyses that have been reviewed by BERH recently. The first one was L&D 52 and 53. This report incorporated risk analysis into the evaluation and estimated probabilities of lock failure. The second unique analysis was for Portsmouth Harbor. In this report the underkeel clearance or deepening EC (EC 1105-2-118) was used and applied to a channel widening situation.

#### B. Dr. Donald Taylor.

Social Risk Management: A Successful Approach to Project Planning.

Dr. Taylor emphasized a grass roots data collection starting at the neighborhood unit to determine what things people of the neighborhood have in common to include why they chose to live where they do. To get a feel for an area you should frequent gathering places (bars, restaurants, barber shops, etc.). Try to identify who the key people or "caretakers" are. Aggregate up from the "neighborhood unit" to the "human resource unit" such as a county. Further aggregation would be to the "social resource unit" such as a regional area and then to the "cultural resources unit" such as the Great Plains.

#### C. Dr. David Ford.

What the HEC is up?

Dr. Ford was very interested in what HEC can do for everyone in the field. He briefly discussed some of the computer programs available at HEC.

All these programs have now been wired together in a systematic fashion for use on the Harris computer. In the future they will be trying to do the same for use on personal computers (PC). Their expected annual damage program is now in diskette form. HEC is continuing their activities in computer applications of planning programs, making every effort to downscale technology to the PC level, and continuing to provide training and support in economic and H&H programs.

**SESSION II**

Non-Federal Partners I

What's New & Exciting (continued)

## PANEL III

### Non-Federal Partners I

Panel Moderator: Mr. Ed Cohn, Chief  
Planning Division, NAD

Panel Members: Mr. William Romer, Special Assistant to the Commissioner, NY  
State Department of Environmental Conservation  
Mr. James Peck, Director, Water Resources Administration,  
State of Maryland  
Mr. John Gaston, Assistant Commissioner, New Jersey  
Department of Environmental Protection  
Mr. Robert Yowell, Program Director, Flood Protection  
Planning Board, Lock Haven, PA

I. Topic - Communication between the Corps and non-Federal sponsors to assure that Corps' reports are responsive to state and local requirements.

#### A. Ed Cohn

The first session was a four member panel chaired by Ed Cohn. The panel discussed the need for improved communications between the Corps and sponsors. In his introduction Ed noted differences in budget cycles of the Corps and its sponsors are enough to cripple the process due to uncontrollable slow downs and long lead times. Improved communications can be used to smooth and streamline the process, but both parties must work in joint anticipation of the formal study initiation. Success depends on establishing good information flow leading to early start, speed in the process and no stops along the way. If the process could be modified so locals could pay their share at the time the Chief's report was ready to release, the process might be made more consistent with its expectations, which are:

1. Projects ASAP.
2. Increased efficiency of the process.
3. Incorporation of local input.

#### B. Mr. William Romer

Mr. Romer pointed out that neither the state nor the Corps make policy, they only influence it. Cost sharing is seen by the locals as a "dumping". The rules are being changed without consulting. The state cannot afford the financial responsibility that is suddenly crashing down, and water projects are just a small part of the new demands on state funds. Sponsors are not a generic thing. They are all different and are often composed of a mix of public and private interests. Even though governments of states, counties, cities often show basic structural differences they all rely in some way on the legislature which has an annual budget cycle and can do little to promise long term or short notice support. In the New York experience the state had to deal with four Corps Divisions and five Corps Districts. New York has had a good measure of success with the Corps but he suggests the study process could be streamlined and the study cost reduced if we:

1. Dismiss all but the most likely alternatives very early in the process.
2. Solicit more local input.
3. Develop staff level and policy level communication from day 1 so sponsors are kept informed.
4. Involve the non-Federal bodies in formulation of agency regulations since they are expected to share in the cost.
5. Be more open to innovation.
6. Seek more local input to environmental mitigation.

C. Mr. James Peck

To him we shall attribute the quotation "Where you stand depends on where you sit". Changes in the Corps way of doing business are causing relationships to change and if the state or others are expected to be partners, more say so in the Corps process is needed. Equal partners implies equal decision making. The Corps does an excellent job briefing the locals but this is different than actually involving them. The Corps is always the agency requiring the shortest response time from all the agencies and our Districts need to think in terms of involving others rather than just informing them. Equal partners means just that! In this context others means not only the District and sponsor, but Division as well. Early mutual understanding of the Corps and sponsors rules and constraints are important because laws and regulations affecting both are different and will helpfully shape the product if they are recognized and incorporated early on in the process.

D. Mr. John Gaston

Complexities of state politics (a departmental staff of 3,000, a home rule state of 567 municipalities but the strongest legislature of all 50 states) needed to be overcome to be a successful partner. The Department assigned high level people to the study to make sure decision making would not be hung up in the bureaucracy. Their strategy included targeting areas needing immediate attention and systematically building a base of support and receptivity for the product. Corps budget cycles are a mystery to us. Reflections on success with the Corps emphasize communication between the sponsor and Corps is of utmost importance. Planning for future funding needs a "natural resources trust" as a broad based tax and benefits program. There is sincere commitment within the Corps and this has developed a cordial and positive relationship with the state.

E. Robert Yowell

Lock Haven is in a county of 29,000 people. The flood control project is controversial because its a \$70 million job. Since 1972, the project has survived four Boards of Commissioners, seven City Councils, and three Mayors. The various governmental bodies formed a Flood Protection Planning Board which

also included two major industries. He credits the Board with making suggestions that shaved \$25 million off the project cost and because of that the people are more accepting of the project. The Corps had a bad public contact at meetings but confidence in Corps professionalism that is apparent through the quality of answers provided to us. The Corps economic analysis is confined to a Federal perspective, and is unacceptable since the locals are expected to provide financial support. Local supporters are handicapped in marketing the provide to their constituents since the local view of the economic impacts is not apparent from the Federal perspective. A strong selling point at the local level is to identify where people employed in the benefit areas live. We need specific help in marketing the project. This is a way of creating awareness that local benefits also occur outside of the protected areas and is a good selling point. The Corps should worry as much about the type of plan and analysis the locals want at least as much as they worry about what is wanted by their own superiors -- since it is supposed to be a partnership arrangements.

## DISCUSSION

### I. Topic: Plan Formulation and Evaluation

#### A. Dr. G. Edward Dickey

His topic was the relationship of the NED plan to the partnership. Ed pointed out that the partnership is giving good reason to accommodate financial capability of the sponsor, and that there is no problem in the Administration with accepting something smaller than the economic optimum. NED is a bench mark of idealism which suffers from a dose of reality and in reality we would rather have smaller projects because of budget constraints. The B:C ratio will continue to be important because at any scale we still need to show we are making a good investment. The sponsors ability to cooperate will tend to downscale projects but this will mean more projects and the projects are likely to get a broader base of support. The challenge is to fall back from the NED scale in a graceful way, such as by functional output or financial criteria, but the key to any procedure will be to avoid the unreasonable and show that each phase or increment pays its own way.

The followup question and answer session is summarized below:

Q. Will cost sharing skew projects toward the rich?

A. Projects wanted by poor regions are typically very speculative and less likely to be fronted.

Q. Why then, should Feds be involved?

A. Because of our expertise in economics and engineering, not social programs.

Lunch Presentation by the Assistant Secretary of the Army for Civil Works

Honorable Robert K. Dawson

Assistant Secretary Dawson's remarks were very direct and there is not doubt we can look to a harder review of the economics and more demands for professionalism. Study cost sharing will assure planning is coordinated and responsive to local concerns, but the Feasibility Study should only be pursued when there is a high probability of NED benefits. Plan formulation based on NED must be insisted upon while keeping an open mind that the local may want something different. NED benefits are to be regarded as reflecting the Federal interest and the NED plan will be the basis of illustrating any tradeoffs.

Mr. Dawson emphasized the importance of NED economics by stating any study not in conformance with P&G will be returned by ASA to OCE. The role of economists will not only require knowledge of P&G, but the administration policy that effects it. Bad economics won't be accepted and the with-project condition will be a matter of concern in the review process.

Costs and benefits for all reasonable alternatives must be laid out in a clear concise manner so decision can be made from a base of well defined alternatives. Economists may be asked to suggest ways to collect revenue so that benefits can be turned into revenues for local sponsors. Identification of beneficiaries is therefore important.

Objective analysis will be expected and this includes analysis of alternative ways to increase NED benefits or decrease cost or both. The primary customer is the taxpayer who foots a major share of the bill. Customer care in this context of cost sharing means keeping sponsors informed of policy and status and strict adherence to it on our part. Properly done study cost sharing will put the locals to a test early and lead to good projects less distorted by the influence of subsidies.

In the follow-up question and answer session, Mr. Dawson noted USBR will also have to cooperate fully, and any differences discovered between the way the Corps and Bureau are doing business should be passed to the ASA level as he is committed to deal with resolving differences in the interest of consistency of Administration policy.

PANEL II (continued)

What's New and Exciting?

Panel Moderator: Mr. Kenneth Coopen,  
Chief Economics Branch, SWD

Panel Members: Dr. George Antle, Chief  
Navigation Division, IWR

Mr. Robert Selsor,  
Economist, Philadelphia District

Mr. Frank Incaprera,  
Ms. Gloria Appel,  
Ms. Shirley Fanuial, Galveston District,  
Mr. David Kerr, Economist, Military Construction  
Management Branch, ACE  
Mr. Robert Schmidt, Civil Engineer,  
Operations Division, Civil Works  
Mr. William Whitman, Chief  
Planning Program Management Branch, Civil Works

Topics:

- A. Update on National Waterway Study
- B. Multiport Analysis: A Case Study
- C. Multiport Analysis: Galveston-Houston
- D. Military Housing and Corps Planners
- E. Project Rehabilitation: An Operation Perspective
- F. Emergency Policy Issues

A. Dr. George Antle

"Update on National Waterway Study"

Dr. Antle reported on the status of the update of the National Waterway Study (NWS). He stated that MG Hatch had been the force behind updating the NWS. MG Hatch said that we have an inland waterway system and we need to get our act together so we can tell our story; thus the update of the NWS. Dr. Antle stated that in the update the NWS would be renamed and revamped. IWR was going to complete the update quickly and recommend that it be updated periodically.

Dr. Antle stated that a proposal had been prepared and staffed at Division level. Comments from ORD had expressed a need for more field input. A revised draft proposal has been prepared and will go to OCE the first week in June. The update is scheduled to be complete in July 1987. The updated NWS will use a 10-year planning horizon. Dr. Antle said that since we have a lot of old projects in the system, it is very important that we determine how much it is going to cost to maintain and rehab the system in the future. (There was a handout of the draft proposal.)

B. Mr. Robert Selsor

Multiport Analysis: A Case Study

Mr. Selsor discussed the methodology used in conducting a multiport analysis of the Delaware River System. The study area included the ports of Wilmington, Camden, and Philadelphia. Competing ports included New York, Baltimore, and Norfolk on the East coast and the Gulf Ports of New Orleans, Corpus Christi, Galveston-Houston, and Port Arthur-Beaumont. The multiport analysis considered three basic alternatives: (1) main channel deepening, (2) mid-stream transshipment at Big Stone Beach Anchorage in Lower Delaware Bay, and, (3) Port Island Facility at Big Stone Beach.

The methodology utilized interviews, data collection, and historical commodity flows. The analysis indicated that potential divertable commodities were coal, grain, iron ore, and petroleum. The multiport analysis included the analysis of various channel depths at the competing ports as well as in the study area. The cost of the analysis was \$175,000.

C. Mr. Frank Incaprera

Multiport Analysis: Galveston-Houston

Mr. Incaprera briefly discussed the analysis and introduced two of his employees who would make detailed presentations. He stated that the analysis had included both domestic and foreign ports. He said that we may be leaving benefits on the table if we do not analyze foreign ports.

Ms. Gloria Appel

Ms. Appel discussed the analysis of domestic ports. In the domestic port analysis, grain was the only commodity analyzed. The analysis used a network flow model developed by Texas A&M. The barge costs used in the model were developed by the Huntington District and the rail costs were developed by Texas A&M. Historical 1979-84 movements were compared to distribution created by the model and a difference of less than two percent was found. The study only looked at distribution changes and did not calculate benefits.

Ms. Shirley Fanuial

Ms. Fanuial discussed the foreign port analysis. This analysis also considered only grain. Competing foreign ports in Argentina, Brazil, Chile, and Canada were included in the analysis. The analysis used comparative delivery costs as the criteria diverting tonnage. The report should be complete about the end of June. (Copies of some tables were handed out.)

D. Mr. David Kerr

Military Housing and Corps Planners

Mr. Kerr discussed the Economic Analysis of Military Construction (MILCON). The Economic Analysis Section at ACE has been in existence for about four years. The section assists in performing military housing alternatives analysis both in the U.S. and overseas. The FY 86 military housing budget was \$1.3 billion. The types of projects on which the analyses are performed include barracks, training facilities, industrial facilities, hospitals, railroads, bridges, etc.

Mr. Kerr stated that the main purpose of his office was to try to educate the Facilities Engineer and Master Planners on installations in the methods of economic analysis. In attempting to accomplish this, they have developed a manual on Economic Analysis of MILCON and are trying to get it to the field in the form of a FM. There is also a training course on Economic Analysis of MCA in the PROSPECT course. There is also a computerized economic analysis

package called ECONPACK available. This model runs on the Honeywell system and is accessed through any modem or terminal worldwide. ACE is in the process of developing a PC version of ECONPACK.

Mr. Kerr said that almost all installations that have any military construction need help in economic analysis. It might provide some work for District economic personnel. Districts should contact installations near them and inquire about the needs for economic support.

E. Mr. Robert Schmidt

Project Rehabilitation: An Operation Perspective

Mr. Schmidt discussed the Major Rehabilitation program in the Corps. The Major Rehab program was established as a method for management of the maintenance program on existing projects. Its primary purpose was to avoid peaks in O&M. The ER for Major Rehab was developed in the 1930s. He indicated the economic requirement in the ER are very vague.

A major change in the economic requirement occurred in 1985 with the advent of risk analysis based on the probability of failure. In 1986 it was determined economic justification should be based on reduced O&M. The most current evaluation, being accomplished by the Rock Island District, incorporates reduced O&M and risk analysis. Mr. Schmidt concluded with a review of the current Major Rehab program and a projection of reduced future programs.

Question 1: Regarding safety of structure, is this parameter addressed in Major Rehab?

Answer: Yes. L&D 20 on the Mississippi River is an example of this.

F. Mr. William (Tom) Whitman:

Emergency Policy Issues

Mr. Whitman's presentation was twofold. First, he addressed current policy concerning determination of Federal interest in recreation, flood protection for single properties, and inland harbor improvements. Secondly, he focused on the current status of cost sharing and provided direction for implementation. The presentation was organized around nine vu-graphs.

Mr. Whitman identified nine emerging policy issues and proceeded to address each specifically. Concerning Federal interest in recreation, he presented a letter from the Director of Civil Works. In reference to flood protection for single properties, attention was called to a memorandum from the Assistant Secretary of the Army (Civil Works) to the Director of Civil Works. He stated an EC was being developed corresponding to this policy. He then cited another memorandum of and EC 1165-2-139 of 23 May 86 which addressed status of Federal interest in inland water harbor improvements.

Mr. Whitman presented administrative guidance concerning water supply and identified specific effects of HR 6 on the planning process. He indicated that an array of benefit-cost ratios should be developed. Examples were provided. Statistics relative to the current status of cost sharing contracts were presented. He then suggested a structure for the cost sharing negotiation team. Finally, he discussed identifying the locals' ability-to-pay and referenced a pamphlet being prepared by IWR, "Understanding Non-Federal Financing," which explains non-Federal financing capabilities. (A handout of the slides was provided.)

**SESSION III**

Non-Federal Partners II

Water Project Financing

Risk of Dealing with Uncertainty

## PANEL IV

### Non-Federal Partners II

Panel Moderator: Mr. D. E. Lawhun, Assistant Chief, Planning Division,  
Civil Works

Panel Members: Mr. Isaac Shafran, Associate Port Administrator, Maryland  
Port Administration  
Dr. Leonard Shabman, Consultant, OASA (CW)  
Mr. Tilford Creel, Deputy Executive Director, South Florida  
Water Management District

I. Topic: Recent and pending legislation, impacts on financing projects including non-vendibles, and the changing Federal role.

A. Mr. Isaac Shafran

Regarding legislative provisions that provide for added flexibility or new financing to implement projects faster, the Port perspectives, all of which are positive, are as follows:

1. The non-Federal role will be increased in the planning process and in project scope. The potential problems are that the feasibility report must include a firm construction schedule and a reasonable completion time. The construction schedule and priorities must be jointly established by the Feds and non-Feds.
2. Cost-shared project selection will required local participation, adding a new dimension. Construction will require not only a Federal appropriation but also a non-Federal appropriation. Non-Federal commitment of funds will require project progression in a reasonable time.
3. Non-Federals may undertake navigation projects and be reimbursed. Effective communications are essential in drawing up contracts. The Federal Contracting Officer may reject local recommendations. He has final authority.
4. Non-Federals may collect user fees -- Maryland does not intend to use this approach -- some non-Feds may. The benefit-cost analysis of the National Economic Development (NED) plan will not be sufficient. It is appropriate now to look at regional effects.

Summary: Cost sharing will alter the Federal-State relationship -- flexibility and cooperation are required. There is a new opportunity to improve project delivery. There is a new challenge: cost-effective, timely completion of projects.

B. Dr. Leonard Shabman

The following is the perspective of a University professor, not the perspective of OASA(CW):

Flood control benefits must be linked to repayment. The link between financing and benefit analysis often is not recognized. New techniques may be needed in the future.

Willingness to pay implies there is a revenue base. Willingness to pay derives from land-holding and the project-induced higher utility of land. Although flood control is non-marketable, the benefit can be capitalized in the increased land value. One who is risk-averse will hold land. But the land holder may be a risk-taker -- the land price may represent the value of flood control.

There is a gap between theory and reality. Willingness to pay is an abstraction. There are two techniques for measuring it: the change in net income and the avoided replacement cost. Avoided replacement cost is not always employed. Local levee districts built Mississippi River levees and taxed to recover costs -- five cents an acre in 1880. There was also an ad valorem tax -- \$10 then. There was a cotton production tax. The bases were land value increases and increased productivity. Rational screening of projects seemed to fail for other than main line levees.

In Ohio, for flood protection on the Miami River, differential benefit analysis was employed. An assessment was based on the increment in property value in 1913.

In the Muskingum River and Conservancy District projects, the depression intervened -- the financial burden was placed upon the Feds in the 30s. Reservoirs were accepted by the Corps of Engineers at this time. Benefit analysis was divorced from the increase in local land values.

Avoided replacement costs analysis is based upon hydrological analysis -- there is no translation of benefits to revenue recovery.

Improved precision of hydrologic and hydraulic analyses, benefit analyses, and other advances still leave out some benefits such as trauma benefits.

Conclusions: (1) Changing financial responsibilities may result in our thinking more broadly and suggest techniques to measure willingness to pay and translate this into cash flows. Avoided replacement costs analysis ignores risk preferences of land owners, measures created wealth but not revenues, is property-based only, assumes perfect knowledge, and ignores trauma. (2) Net income analysis applies only to commercial properties and has some of the same problems listed above. (3) Land prices measure wealth -- not cash flow. (4) With synthetic markets analysis, bias is another problem. (5) Bargaining and game theory are truly-revealing techniques and lead to negotiation.

We must cash in on flood control benefits and improve analyses. The Federal share of costs must be allocated among project purposes.

C. Mr. Tilford Creel

The following changes and trends are obvious: (1) Congress failed for nine years to pass an omnibus bill. (2) The focus on funding is shifting to the locals. (3) Willingness of government to subsidize implied the existence of willingness to pay. Gramm-Rudman-Hollings and tax reform will change Federal-non-Federal funding and impose restrictions on issuance of bonds. Locals must have access to the bond market. Federal grants have been severely cut back or have disappeared for water problems resolution. The environmental ethos remains unwavering, affecting the design of water projects.

Trend implications are that water resources institutions have felt shock waves: (1) Infrastructure needs rebuilding -- there are enormous demands. (2) Available revenues and capital resources are insufficient. (3) Federal moves body ill for water resources development. (4) Imposition of local impact fees will require the developer to pay for all social infrastructure -- roads, schools, etc. (5) Environmental demands are costly -- development is restricted -- management of water is demanded -- water (gray water) reuse will be required. (6) States and locals have less input into the direction of water resources development but greater costs -- tax-exempt bonds must be available.

New and more effective relationships are developing between the Corps and locals. Federal cutbacks mean that local budgets are under greater scrutiny. The issues are: (1) Streamline the planning process -- we are impatient and frustrated by the Corps' planning process, which is a "black hole". More emphasis must be placed on acceptability and financial feasibility. (2) Sound engineering practices will not be compromised. The Corps must become timely and streamlined. The Corps' multiple-review process is inefficient. The planning, design, and engineering capabilities of the Corps are recognized. But more local engineering capability is developing. There will be trade-offs between using Corps' resources, resources of local agencies, or AE's in planning and designing projects. The issue for the locals is timely completion, not raising money.

Environmental and Corps' constraints preclude the Corps' involvement in environmental restoration -- locals will use AE's. Locals will explore using resources other than the Corps' in the future. Locals will escrow funds when Corps' resources are used, with the locals accruing interest on the funds. Locals will fast-track projects and modify Corps' plans to move them to completion. The Corps is not the only game in town -- innovative, environmentally-sound solutions will be devised with completion scheduled within the local politician's term of office.

Question to Dr. Shabman (Cooper, SAD): Do you think that willingness to pay by the locals should be taken as an indication of the quality of the project, thereby lessening the need for review of the study by the Corps?

Answer: Corps review takes too long -- the Corps is not getting the job done. There must be established a confidence level at District or Division level to review and get a project underway.

## PANEL V

### Water Project Financing

Panel Moderator: Mr. Edward Cohn, Chief, Planning Division, NAD

Panel Members: Mr. Alfred Hammon, Supervisor of Harbor Planning, Port Authority of New York and New Jersey  
Mr. Don Williams, Consultant, City of Virginia Beach  
Mr. Timothy Weston, Associate Deputy Secretary for Resources Management, Pennsylvania Department of Environmental Protection  
Mr. Richard Konsella, Chief, Flood Control Projects Section, New York State Department of Environmental Conservation  
Mr. J. Stanley Payne, Director of Counsel, Virginia Port Authority

Topic: How the local sponsors for the new construction starts are arranging their financing and what the Corps economists did or can do to help

A. Mr. Edward Cohn

There is an AAPA notice on how to negotiate with the Corps. Locals should get a copy. The Corps should have standard LCA's for flood control, navigation, flood plain management, etc.

B. Mr. Alfred Hammon

Completion of one Local Cooperation Agreement (Involved in Kill Van Kull/Arthur Kill LCA's) makes one an expert! Regarding the Kill Van Kull LCA, tax-exempt revenue bonds support port activities of New York and New Jersey. Leases on port facilities provide revenues. Concerns about current proposed legislation are that the House bill has narrow allowances for user charges; the Senate bill is more liberal. Under the House bill, there can be no user charge if completion of channel deepening is held up; user charges can be implemented only upon provision of incremental channel depth. There is provision for a Federal port maintenance charge based on cargo value. There is hope for a broad-based user charge.

Wording in existing 221 agreements is different from wording in contracts. Generalized language is used which is not translatable to contracts. There are not words which bind the Federal government and no words which allow the local sponsor to withdraw. Sometimes other local agencies must fulfill the conditions which one local agency guarantees.

C. Mr. Don Williams

The Corps should establish that the planning project manager stays with a given project as the project moves through engineering and design, real estate, etc., through project completion. No schedule should be slipped without the local sponsor's knowledge. The Corps must coordinate with the local sponsor at each step.

D. Mr. Timothy Weston

In planning for a project to add water supply to a flood control lake for the purpose of salinity control in the river -- consumptive use and to control sea level rises -- four states and the Federal government are involved. How can water supply be financed? General obligation bonds are not appropriate. A user tax can be imposed. The states would tax all residents. Congress would grandfather some users. These are not the major beneficiaries. Some grandfathered interests agreed that their payments were logical. The Corps' least costly alternative reservoir was the measure of the benefit. It is not useful to allocate benefits among beneficiaries. Who will manage the project? How will costs be controlled?

"Trust us" says the Corps! Finance houses are concerned with risk outstanding, i.e., the need to replace a spillway. But issuing revenue bonds requires a commitment to complete the project. There is a cost of \$10 million of interest for each year's delay. The timing of the start of construction must be coordinated with the issuing of bonds -- there is an arbitrage cost to the locals of postponement of the start of construction.

The Corps should be creative and write contracts that fit -- model contracts don't fit a given project. The Corps should delegate authority to negotiate to the division or district level. Don't send draft contracts back and forth through the mail. Write the contract during negotiation sessions.

Local sponsors must have access to tax exempt bonds. The Corps must get some rulings. The Feds must support legislation to remove barriers (grandfathered users) on flood control projects. Successful examples of contracts should be supplied to all who need them. Be careful not to screw up tax exempt bonds for all needs, not just for water resources development.

D. Mr. Richard Konsella

(Involved in two LCA's -- one navigation, one flood control). States thought they have been cost sharing in projects all along! The state will bar the costs of lands, easements, rights-of-way, and relocations; locals will pick up all new costs in addition to traditional local requirements and O&M. For locals this is an incremental cost of 2500%! Many communities are at their legal bonding limits. The view of New York is that the Corps' civil works program is heading down; WES, CRELL, etc. are heading down. New York may forego Federal involvement and do planning, plans and specifications, and construction in steps on its own with leveraged equity.

The non-Federals must and will be equal partners. New York perceives that currently there is an organ grinder -- monkey relationship. Non-Federal expertise must be used in design, etc. The contracting officer must not be the only authority to review construction quality.

E. Mr. J. Stanley Payne

State appropriations will finance projects. State surplus allows for this. Any user fees imposed would be paid by suppliers in this buyers' market. Through the scrapping of old ships, the demand for deep draft channels will come about.

The basic principles of negotiation are as follows:

1. Never negotiate with someone who does not have the knowledge required to agree to terms.
2. If one is negotiating with someone without knowledge, approval of inconsequential changes takes forever.
3. When negotiating with someone who does not have full knowledge, the negotiations become increasingly adversarial.
4. Policy-level officials should negotiate -- use a team composed of HQUSACE, Division, District members.
5. Boiler-plate language is an obstacle to writing a contract.
6. Credibility is reduced by use of boiler plate language -- use contents of the study report to write the contract.
7. Incorporate a glossary into the contract for reviewers and laymen.
8. Be sensitive. Skip protocols. Forget "The Corps ...". The Corps means bureaucracy. We are equal partners now. Local sponsors in the past were nuisances -- locals are smarter today. If changes don't occur in the "partnership", port authorities will seek legislative changes in the writing of contracts.

Lunch Presentation by the Deputy Director of Civil Works

BG Patrick J. Kelly

Topic: Role of the Corps in assisting local sponsor with financial and cost recovery analysis.

Because Senator Abdnor is facing a primary election, the first conference on the omnibus bill will not occur until after 3 June.

Elements of the Mississippi River and Tributaries project will not be handled differently.

General Hatch's policy is to solve policy issues which have languished at OCE for many years. Bory Steinberg gets all policy issues.

General Hatch says cost sharing is the second cultural revolution (the environmental revolution was the first). Effectiveness impacts will be felt by the engineers. Acceptability impacts will be felt by the economists.

Engineering criteria are not sacrosanct. Safety is sacrosanct, but there must be flexibility in handling criteria. Affordability will determine criteria. No longer will there be such extensive soils investigations. We will pay now or pay later. If projects are delayed, it will be costly for the local sponsor. Timeliness of planning and design are important. Engineering, environmental, and economic acceptability will prevail.

The National Economic Development plan is not sacrosanct. The non-NED plan may be recommended. Phased construction may be recommended.

Education in financial analysis is important -- use tapes, seminars, and long-term training. Relate direct and indirect benefits to revenues. Use available computer models. For the Oregon Inlet Study, as well as for the Tennessee-Tombigbee Corridor Study, models were developed for measuring indirect and direct benefits. Communications will be the umbrella over everything.

These are the most existing civil works times in a long time. Workshop participants have a leading role. BG Kelly is ready to tackle the times -- he hopes we are too.

Question to BG Kelley: Will it be necessary to reorganize to accommodate the second revolution?

Answer: Yes, Planning will have to adjust.

## I. Topic: R&D and Training

### Presentation by -

#### A. Mr. James R. Hanchey

Mr. Hanchey began with an overview of the structure of IWR and surveyed the major areas of research, training, policy studies, and navigation data gathering and analysis. A couple of the newer areas of research have been in developing a contingent value methodology for assessing recreation benefits and in the area of risk assessment, -- at first related to dam safety, but now also focusing on planning applications. Mr. Hanchey stressed the importance of users and field feedback in helping IWR to be responsive.

The research needs survey found the following topical areas to be mentioned most often:

- |                                   |            |
|-----------------------------------|------------|
| (a) Cost Sharing and Financing    | (11 times) |
| (b) Flood Control                 | (9)        |
| (c) Navigation Analysis           | (7)        |
| (d) Local/Regional Impacts        | (6)        |
| (e) Recreation/Small Boat Harbors | (5)        |

- (f) Risk Analysis (3)
- (g) Other (including Microcomputers in Planning, Water Quality Benefits, Customer Care Indexes, Macroeconomics for Mobilization, Social Impacts of Flood Reduction on Small Farmers) (5)

In the area of Flood Control, the number of requests for research in areas of non-structural benefit analysis was surprising. Mr. Hanchey noted extensive work done some 10 years ago should be referenced. In the area of cost sharing were requests for guidelines for financial analysis studies. Local and regional impact research as related to cost sharing and distribution of project outputs was identified. Navigation research requests included the topics of multiport analysis, waterway impact on rail rates, and coordinated commodity projections. Risk analysis research needs were identified related to safety and underkeel clearance, probability and impacts of component failure, and a risk assessment methodology.

Thirdly, Mr. Hanchey reported the results of the training survey. Most of the suggested courses are currently offered and two more -- Financial Analyses and Cost Sharing, and Risk Analysis -- are planned. Major problems noted in the training program include the high cost, expense of travel, and requirement for registration too far in advance. Suggestions to regionalize training have negative impacts including a high cost to the training sponsor. Other suggestions include shorter courses (3-4 days), and a more practical (case study) emphasis.

Several questions and the discussion following the presentation centered on the need for navigation commodity projections on a national level. The desirability of this idea was discussed in conjunction with the likely very high cost and reluctance of divisions to give up control.

## PANEL VI

### Risk of Dealing with Uncertainty

Panel Moderator: Dr. Leonard Shabman, Consultant, OASA(CW)

Panel Members: Dr. G. Edward Dickey, OASA, CW  
 Dr. David Moser, Economist, IWR  
 Dr. David R. Ford, Senior Engineer, Hydrologic Engineering Center  
 Mr. Robert Daniel, Economist, CW

I. Topic: Incorporation of Risk Analysis into Water Resources Plan Formulation

A. Dr. G. Edward Dickey

Dr. Dickey traced the history of risk and uncertainty in water resources planning guidance beginning with the 1973 edition of the Principles and Standards (P&S). The distinction between risk and uncertainty (defined as an absence of definable probability) was noted in the 1973 document, in addition to a requirement to net project returns of all predictable risk. Dr. Dickey observed that he never saw a report that reduced benefits because of computed risks, however. With publication of the 1980 version of the P&S and 1979 Manual of Procedure, a dissatisfaction with the risk and uncertainty guidelines was noted. An intended effort to publish detailed procedures in 1980 never materialized. The Principles and Guidelines (P&G) preserved the P&S sections non risk and uncertainty, except they were elevated from procedures to the standards. This implies risk analysis is to be applied to all project aspects, not just economics. Current guidance clearly displays a preference for risk reduction while still being open to trade-offs involving risk and project output. There remains little concrete direction for dealing with risk and consequently planners would rather avoid the issues. The Corps need more commitment to risk analysis. Perhaps, with cost sharing, the focus on risk analysis will increase as design standards and project outputs become more crucial to local interests. Assessment of risks and uncertainties should be displayed in reports in a clear manner for use by decision makers. Presently, risk is usually presented as either near zero or almost 100% (as in a report recommending a replacement or major rehabilitation). This is not acceptable. A notion of the realistic degree of risk is needed.

B. Dr. David Moser

Dr. Moser presented an overview of risk analysis. He began by noting that risk analysis is something of an octopus, with many possible directions in which to proceed. Dr. Moser then discussed several aspects and types of risk assessment. He noted two general types of problems, -- voluntary individual risk and involuntary risk. Several aspects of individual risk taking were noted: individuals make conscious or unconscious trade-offs for taking risks; individuals use subjective judgments, often without full information; and, individuals have preferences in risks they will assume. Three alternatives for individual risk preference were discussed. It may be assumed people are risk neutral, risk averting (those willing to give extra to reduce risk), or risk preferring (those willing to give up something to assume risk). In the arena of benefit evaluation the P&G assumes that individuals are risk neutral.

Involuntary risk is the type created externally - i.e., by risk-taking of others. Technology imposes risks in such areas as dams (safety), nuclear plants, and toxic waste. Risk assessment involves determining the source of risk, response to risk and response if the risk occurred. Questions that surface in risk analysis related to balancing risk and cost, possibility of achieving zero risk and what risk is "socially acceptable." Difficulties in risk analysis include measurement of uncertainties, difficult mathematics, and the tendency to foreclose options. Risk analysis is a process leading to a

decision. Decision makers are not risk analysts. The analyst must note foreclose choices about appropriate risk management, but must present choices in a way that is understandable by the public and by decision makers.

C. Dr. David Ford

Dr. Ford provided an engineer's view on risk analysis. He noted the widespread attack on design standards, and chose not to debate them. Rather, he noted risk analysis is not new to the engineering profession. However, engineers have historically tended to use a point or line to define the most probable output. The appropriateness of confidence limits on a rating curve, for example, is not questioned, but rather how to use them once they are defined. One way to deal with risk is to collect more data. In the engineering arena, the question arises: how many years of record and how many data points are needed? The initial conclusions lead us to think maybe we have overestimated our data needs. Rather, we may need to better use and assess available data.

D. Mr. Robert Daniel

Mr. Daniel reported on current activity in risk analysis. A commitment to developing a strategy for incorporating risk analysis in Corps planning was noted in a series of memoranda and letters between the Director of Civil Works and the Assistant Secretary of the Army. General Hatch, in a memo for the Assistant Secretary of the Army, proposed a two-pronged approach for making risk analysis a part of the planning process: (1) Formal Guidance; and, (2) Training and Methods Development. There will be a continuation of funding for planning-type risk analysis at least through 1989. In the immediate future, the research will focus on figuring out what kind of analysis we can do that makes sense to decision makers. There will not be much emphasis on developing techniques or methodologies in the near future, since past attempts to evaluate risk indicate sound theory and mathematics exist. The field needs to make their needs known if research is to be responsive. Risk analysis can be viewed as an opportunity rather than a problem. We need to get a proper perspective -- the perspective and viewpoint of the decision maker and the local interest.

Discussion

A comment was made that techniques on risk analysis are well developed and appear in textbooks. Perhaps more effort should be made to adopt the theory and technique to water resources.

A question raised the issue of defining the NED plan. Is the NED plan the one with greatest benefit and high risk, or lower benefit and reduced risk?

A questioner asked what the field should do while Washington studies risk analysis. Dr. Dickey noted that the Corps should anticipate and be sensitive to local concerns, particularly in regard to benefit uncertainties.

A final question related to whether we will build a dam that doesn't meet design standards in the regulations if risk analysis shows the safety margin isn't worth the extra cost, especially to the local interest. Mr. Daniel noted that in several instances design has already been modified for efficiency. Dr. Shabman concluded the session by asking, "Do you want to hold to standards and be out of business or do something significant for local citizens?"

**SESSION IV**

**Recreation Policy and Analysis**

**The 1936 Flood Control Act Revisited**

## PANEL VII

### Recreation Policy and Analysis

Panel Moderator: Mr. William Hansen, Economist, Institute for Water Resources

Panel Members: Dr. Jay Leitch, Scientific Advisor, OASA, Civil Works  
Mr. Clem Bribitzer, Fisheries Economist, National Marine  
Fisheries  
Dr. David Moser, Economist, Institute for Water Resources

I. Topic: Strengths and weaknesses of Corps recreation evaluation procedures. The three methodologies are, TCM (travel cost method), CVM (contingent value method), and UDV (unit day value method).

A. Mr. William Hansen

According to a recent Presidential Commission, 95% of all Americans participate in outdoor recreation and 75% use resource areas at public parks or other public facilities. The Corps is the first or second largest provider of these facilities, (depending upon how use is measured). Why recreation? It will be around in the future in Corps activities even though its analysis and priority has changed.

B. Dr. Jay Leitch

Dr. Leitch spoke for himself, suggesting that the private sector should be relied upon to produce the "garden varieties" (generic rather than unique) of recreation projects the Corps produces. Recreation benefits are not accurately measured by current P&G methods. One reason that the current administration does not give recreation a high priority is because the P&G analysis techniques are not well understood. The seven (7) other project purpose benefit analyses measure the area under the price line, so why does recreation measure willingness-to-pay above the price line?

Dr. Leitch noted that, in the P&G, there is more information on recreation than any other purpose and that the recreation methodologies have gained academic momentum. He suggested that the part of the P&G dealing with recreation be eliminated. Recreation is a service oriented industry with important regional benefits and multipliers for income and employment that are higher than in other sectors.

Dr. Leitch proposed that the TMC will work when:

- the site to be valued exists.
- no reasonable substitutes exist. (There are a lot of substitutes for the generic recreation provided by Corps projects.)
- trips to recreation sites are single purpose. (As distance traveled increases, this become less true.)
- recreation activity is site specific. (Visitors should pass through a gate.)
- there is a variability in travel distance between users.

Dr. Leitch proposed that the TCM is contrary to the law of supply and demand -- someone living on a lake would not be willing to pay the same to fish in his own "backyard" as a fisherman traveling hundreds of miles to the lake. The CVM is conceptually good but is expenditure - and difficult to apply. The UDV is the best procedure in the &G but has no basis in economic theory.

In review of several Corps studies, Dr. Leitch noted that:

- there were numerous spelling errors.
- "determine" was used (incorrectly) rather than "estimate".
- "need" was used rather than "want".
- there is only "excess demand" where there are price controls.
- visitors can go elsewhere and pay the price.
- different scales of similar projects are often referred to as "alternatives."
- some studies contained conflicting arguments.
- some projections were not rounded to significant numbers.
- the TCM should not be used for urban sites.
- several reports contained obvious errors.

In conclusion, Dr. Leitch suggested that recreational analysts:

- don't use old Corps studies ad models.
- be brief but complete.
- be logical and conceptually complete when being creative.

There is not a Federal interest in recreation. Also, the evaluation techniques currently used to estimate benefits are flawed. A good model should be replicable and the Corps models are not. We need tools that are acceptable to academicians, practitioners and policy makers.

Q. Is it you job to tear up recreation studies?

A. I see many studies and agree that P&G guidance is being followed. P&G is flawed.

Q. What is a better evaluation method for recreation?

A. I am working on an expenditure-based method, but don't have details yet.

C. Mr. Clem Bribitzer

Mr. Bribitzer's remarks were based upon his experience during a year of cross-training with Board of Engineers for Rivers and Harbors (BERH). He stated that recreation analysis appears to be quite weak in the Corps. This is due, in part, to the poor support for recreation from the current administration. The field is not enthusiastic in analyzing something that is not supported. Research to enhance recreation analysis quality is insufficient.

Contrary to Dr. Leitch's remarks, the P&G are not so bad. When the literature agrees that the TCM is not good, then change it (but this is not the case and TCM is the best available). Two changes that would improve the P&G are:

- eliminate the valuation of time spent at the site.
- allow the evaluation of a willingness to accept. This may be better measure than WTP as income constraints would be removed. It would be a good measure where recreation has been removed or replaced.

The use of estimating models seems to cause the greatest problems. Many of the concepts used are based upon activities unrelated to recreation. For example, the valuation of the cost of time is based upon commuter studies but the recreation drive may be considered a (positive) part of the whole experience. Also, multiple purpose trips pose an estimation problem. Mr. Bribitzer proposed that the TCM and CVM are evolving but need further work. Congress should support research efforts to advance the theories and eliminate the existing problems with the methodologies.

Unit Day Values are arbitrary but could be improved by calibration through study comparison. They are generally about 1/2 of what they should be.

Mr. Bribitzer made three recommendations in his conclusions:

- The Corps should increase its research into recreation analysis.
- We should continue and improve training programs in analytical techniques.
- We should formally establish a center of expertise in the Corps to perform some of the research and provide assistance to the field.

D. Dr. David Moser

Dr. Moser cited theoretical disagreements with Dr. Leitch. He noted that the CVM is applicable to things the Corps does. The CVM is worthwhile and the field applies it correctly. However, there are pitfalls in the CVM, notably that the authors of the P&G downplayed willingness to sell or accept where projects cause lost recreation opportunities.

Dr. Moser suggested that the context in which CVM questions are asked is probably the most important determinant of the validity of results. Asking non-theoretical questions in a familiar setting will result in consistent and accurate answers. It is likely to work best in a familiar, generic local or regional site. People are familiar with the payment concept used in the CVM because they do have expenditures are used to thinking along those lines. Therefore, at Corps recreation sites, the CVM will work best.

Developing the sample and administering the questionnaire can be problems in the CVM. The survey administrator must make inferences from the sample survey to the population of interest. Personal interviews or phone interviews are difficult because the population of interest cannot always be identified. To get at the population of interest, computer lists of residents and boater registration information is necessary.

## PANEL VIII

### The 1936 Flood Control Act revisited

Panel Moderator: Mr. Robert Harrison, Multinational Business Services, Inc.

Panel Members: Mr. Nathaniel Back, Chief, Center for Economic Studies,  
Institute for Water Resources (IWR) (Retired)  
Mr. James Tozzi, Multinational Business Services, Inc.

I. Topic: The evolution of the Corps planning process and the major policy and economic issues that have influenced that evolution.

A. Mr. Robert Harrison

Mr. Harrison discussed four themes which have dominated the evolution of Corps economic planning. One recurring theme is the issue of defining the area of interest: should the planning process focus on local, regional, or national effects and issues? In the 1950s and 1960s, the focus was at the regional, or basin-wide, level; in the 1970s the national focus dominated; and now, with cost-sharing, it appears that local issues will play a greater role.

A second theme is the consideration of project purposes, and the relative emphasis on primary, secondary, or incidental, purposes. The comprehensive basin-wide planning conducted in the 1950s and 1960s included virtually all project purposes; with concern about current Federal deficits there seems to be a narrowing of purposes deemed appropriate for Federal involvement.

The third issue concerns the appropriate discount rate to be used in water resource planning. This issue has never been satisfactorily resolved, and could become more confusing as discussions concerning the appropriate rates for financial analysis develop.

Finally, the timing of input of economic data into decision-making remains a problem. It is important that economic information is developed early enough in the planning process to have a favorable impact on plan formulation.

In concluding, Mr. Harrison warned that the Corps must be careful to avoid "response planning" that is overly sensitive to current and perhaps temporary issues and problems. It is important to direct planning efforts at developing comprehensive analyses of solutions to water resource development problems.

B. Mr. Nathaniel Back

Mr. Back reinforced many of the ideas discussed by Mr. Harrison. He voiced concern that the move to cost sharing will result in "tail-wagging the dog" planning; that economic analysis will be made subordinate to financial analysis, rather than the basis for financial analysis.

Land and water resources are national treasures, and should be managed for all. River basins are ecological units, and cannot be neatly subdivided into areas based on a local governments ability to meet cost sharing requirements. The focus of cost shared planning may be too local, may neglect broader, more comprehensive needs and purposes, and may lead to a more narrow definition of the geographic area of interest and project purposes.

The focus of planning efforts to swing like a pendulum between broad and narrow definitions of Federal responsibility. In the past, planning efforts were (perhaps too) broad and comprehensive. Current policies may swing back too far, and limit Federal involvement and the Federal interest too much.

C. Mr. James Tozzi

Mr. Tozzi discussed the economists role in the Corps planning program. For Corps policymakers, economists provided a screening tool through the benefit cost ratio. Policy decisions are not based on economic efficiency, i.e., the benefit cost ratio, but projects must have a benefit cost ratio greater than 1.0 to receive funding consideration. Economists provide a similar screening tool for the Office of Management and Budget; but OMB's major objective is to limit the backlog of authorized, feasible projects via benefit cost criteria.

Mr. Tozzi's major concern under cost sharing is that economists and social scientists will not be involved in cost sharing discussions; that ability and willingness to pay will become the major justifying criterion. A major challenge for economists will be to develop concepts and information on "benefit sharing" as a cost sharing justification.

GENERAL DISCUSSION

The floor was then opened for general discussion during which the following points were made by various panel and audience participants:

- Financial analysis, by emphasizing cash flows and rates of return, can lead to short-term exploitation and long-term neglect of natural resources. Economic analysis recognizes that real economic gains can occur that cannot be readily converted to cash; it is important not to neglect these gains simply because they cannot be included in the financial analysis.

- It should be remembered that a public sector exists because there is a distinction between public and private goods/services. Public goods exist because it is inefficient and/or impractical to convert the economic gains of public goods to cash.

- The Corps has ignored the private, of entrepreneurial, perspective in its planning process. Expanding the planning process to include business and financial perspectives will help "sell" Corps projects (especially under cost sharing) and can improve the planning process if the national economic perspective is not lost in the process.

- Corps projects have helped spur regional economic development in less affluent areas of the nation. Cost sharing may reduce the opportunities for less affluent communities who do not have the ability to meet cost sharing obligations, and may eliminate the important regional economic development role the Corps has played in the past.

## OUTLOOK

### Dr. Bory Steinberg

Dr. Steinberg began by distributing a handout comparing the House (HR6) and Senate (S1567) versions of a new water resources projects bill. He remarked that the bills were very close for flood control projects, and mentioned that these projects have the support of the Assistant Secretary of the Army for Civil Works because of their cost sharing attributes. Eight projects for which local cooperation agreements have been completed are being held up by OMB because the principal output is recreation.

Dr. Steinberg pointed out that higher cost sharing requirements had resulted in the phasing in of project construction and the construction of smaller projects. Smaller projects usually lessened the level of environmental controversy associated with projects. In addition, cost sharing results in more of a Federal-local partnership because of the cost and scheduling sensitivities associated with financing arrangements, timing and receipt of funds.

He mentioned that OCE has an interdisciplinary review team for LCA's. and commended OMB reviewers for the fast turnaround time on LCA projects. He stressed that any changes in LCA's made through the OCE/Assistant Secretary of the Army/OMB review process should go back to divisions and districts for coordination.

Finally, Dr. Steinberg repeated policy guidance provided by Tom Whitman on Thursday, 29 May, and emphasized the field responsibility to assess financial capabilities. The field needs to confirm project affordability and recommend plans that are implementable.

## CLOSING

### Mr. Robert Daniel

Mr. Robert Daniel thanked all participants, and particularly Baltimore District staff, for contributing to an excellent program. He felt that the workshop accomplished its major objectives, and looked forward to the next workshop in two years.

**APPENDIX A**

**List of Attendees**

Antle, George  
WRSC-Institute for  
Water Resources

Appel, Gloria  
Galveston District

Arnold, Thomas  
Jacksonville District

Ashley, Calvin  
Vicksburg District

Back, Nathaniel  
WRSC-IWR (retired)

Bartel, Robert  
Norfolk District

Belcher, Owen  
South Atlantic Division

Bergmen, Bruce  
New York District

Berinano, Sandy  
Mobile District

Blakey, Lewis  
OCE - Civil Works

Bogue, John  
South Pacific Division

Boire, Kenneth  
North Pacific Division

Brayman, Harold  
Senate Environment & Public Works

Bribitzer, Clem  
National Marine Fisheries Service

Buff, Ralph  
Sacramento District

Burke, Robert  
Vicksburg District

Burnes, John  
Philadelphia District

Carlson, Oscar  
Smith-Barney Company

Carr, John  
Rock Island District

Casbear, Larry  
Charleston District

Cogswell, Ronald  
Office of Management and Budget

Cohn, Edward  
North Atlantic Division

Copper, Kenneth  
Southwestern Division

Creel, Tilford  
South Florida Water  
Management District

Daniel, Robert  
OCE-Civil Works

Dawson, Robert, Honorable  
Civil Work

Dickerman, Alan  
Bureau of Reclamation

Dickey, Edward  
OASA - Civil Works

Dunnigan, Diane  
North Atlantic Division

Durden, Susan  
Nashville District

Eberhardt, Betty  
Ohio River Division

Eickhorst, Anson  
St. Louis District

Fascher, Ronald  
Wilmington District

Ford, David  
Hydrologic Engineering Center

Fox, Jessica  
New Orleans District

Friedlander, George  
Smith-Barney Company

Gardner, Homer  
Lower Mississippi Division

Gaston, John  
New Jersey Dept. of Environmental  
Protection

Gerald, Melton  
Charleston District

Giba, Dennis  
Chicago District

Gjesdahl, David  
Missouri River Division

Glanz, Christopher  
North Central Division

Grady, Dan  
North Central Division

Guido, Ronald  
Buffalo District

Hammon, Alfred  
Port Authority of New York & New Jersey

Hanchey, James  
WRSC - Institute for Water Resources

Hansen, William  
WRSC - Institute for Water Resources

Harnisch, Arthur  
Seattle District

Harrison, Robert  
Multinational Business Services, Inc.

Incaprera, Frank  
Galveston District

Johnson, Nahor  
North Atlantic Division

Jones, Joe  
Pittsburgh District

Keeny, Ron  
Huntington District

Kelly, Patrick, BG  
OCE-Civil Works

Kels, Dale  
Huntington District

Kerr, David  
OCE - Civil Works

Kilgo, Larry  
Lower Mississippi Division

Kleckner, Jeff  
Louisville District

Konsella, Richard  
Flood Control Projects  
Section NY State Dept.

Kovalic, Joan  
Interstate Conference on Water Problems

Kowalski, Lou  
St. Paul District

Lartigue, Honore  
Memphis District

Lawhun, D.E.  
St. Paul District

Lawson, Edgar  
North Atlantic Division

Leitch, Jay  
OASA-Civil Works

Leone, Robert  
Putnam, Hayes & Bartlett

Lew, James  
San Francisco District

Lewis, David  
Sacramento District

Luisa, Peter  
Savannah District

Maguno, Richard  
New Orleans District

Mansfield, Mark  
Norfolk District

Mantey, Joseph  
Los Angeles District

Marlott, Lyle  
Kansas City District

McDevitt, Ian  
Memphis District

McDonald, George  
Mobile District

McDonald, Jesse  
Lower Mississippi Division

McIntyre, Robert  
Board of Engineers for Rivers & Harbors

Miller, David  
Baltimore District

Miner, Richard  
Omaha District

Montgomery, Larry  
Louisville District

Moraldo, Richard  
New York District

Moser, David  
WRSC - Institute for Water Resources

O'Conner Maureen  
New York District

Patchell, David  
Wilmington District

Payne, Stanley  
Virginia Port Authority

Peck, James  
Water Resources Admin.  
State of Maryland

Perulfi, John  
St. Louis District

Piken, Stu  
North Atlantic Division

Plazak, David  
Forth Worth District

Prather, Larry  
Ohio River Division

Revicki, Cathy  
New York District

Roberts, Ronald  
Missouri River Division

Romer, William  
New York State Dept.  
of Environmental Conservation

Rooney, Jody  
St. Paul District

Rossman, Edwin  
Tulsa District

Samuel, Shirley  
Galveston District

Schmidt, Robert  
OCE - Civil Works

Selsor, Robert  
Philadelphia District

Shabman, Leonard  
Dept. of Agriculture  
VA. Tech.

Shafran, Isaac  
Maryland Port Administration

Sherwood, James  
Tulsa District

Shoudy, Harry  
South Atlantic Division

Soyke, Paul  
Rock Island District

Sparlin, John  
Tulsa District

Steinberg, Bory  
OCE - Civil Works

Stone, Dearl  
Little Rock District

Summitt, William  
Southwestern Division

Taylor, Donald  
SRM Corporation

Thelen, Howard  
Omaha District

Thorpe, Phil  
North Atlantic Division

Tosi, Samuel  
New York District

Tozzi, James  
Multinational Business Services, Inc.

Wagner, Dennis  
Portland District

Walsh, Martin, COL  
Baltimore District

Welling, Charles  
Alaska District

Weston, Timothy  
Resources Management, PA

Whitman, William  
OCE - Civil Works

Wickboldt, Gary  
North Central Division

Williams, Don  
City of Virginia Beach

Woodley, Donald  
Detroit District

Workman, Charles  
St. Paul District

Young, Douglas  
Memphis District

Yowell, Robert  
Flood Protection Planning  
Board, Lock Haven, PA

**Appendix B**

**Agenda**

Department of the Army  
Corps of Engineers--Civil Works  
Economic and Social Scientist Workshop  
27-30 May 1986  
Days Inn -- Baltimore, Maryland

AGENDA

TUESDAY 27 MAY

0800	Registration	Mr. David Miller Chief, Economics Branch Baltimore District (NAB)
0900	Opening Remarks Introduction by Dr. James Johnson Chief, Planning Division, NAB	Col. Martin Walsh Commander, Baltimore District (NAB)
0930	Conference Overview	Mr. Robert Daniel Chief, Economics Branch Planning Division, Civil Works (CW)
0945	Coffee Break	
1015	Keynote Address Role of Corps economists and social scientists in cost recovery and financial analysis	Dr. Lewis H. Blakey Chief, Planning Division, Civil Works (CW)
1115	Conference Housekeeping	Mr. Robert Daniel
1130	LUNCH--Financial house speaker will discuss how financing is arranged and what the local sponsor needs to provide (How can Corps help)	Mr. George Friedlander Manager, Municipal Research Department, Smith-Barney Company
1330	Cost Sharing Panel	Dr. G. Edward Dickey (Mod) Deputy for Program Planning, Review and Evaluation, Office of the Assistant Secretary of the Army (OASA), Civil Works (CW)

Topic: Origin and potential effects of  
cost sharing legislation.

Panel Members:

Dr. Robert Leone, Vice President,  
Putnam, Hayes and Bartlett  
Mr. Harold Brayman, Ass't Staff Director,  
Senate Environment and Public Works  
Committee

Mr. Ronald Cogswell, Acting Chief,  
Water Resources Branch,  
Office of Management and Budget  
Dr. Alan Dickerman, Ass't Senior Economist,  
Bureau of Reclamation

1500 Coffee Break

1530-1730 Concurrent Sessions

Microcomputers Workshop

Mr. John Bogue (Mod)  
Chief, Economics  
Branch, South Pacific  
Division (SWD)

What's New and Exciting Panel

Mr. Kenneth Cooper (Mod)  
Chief, Economics  
Branch, Southwestern Division  
(SWD)

Topics:

1545 BERH Perspective on Current Corps  
Economic/Social Planning

Mr. Robert McIntyre  
Economist, Board of Engineers  
for Rivers and Harbors (BERH)

1615 Social Risk Management: A Successful  
Approach to Project Planning

Dr. Donald Taylor  
President, SRM Corp.

1645 What the HEC Is Up?

Dr. David R. Ford  
Senior Engineer, Hydrologic  
Engineering Center (HEC)

**WEDNESDAY 28 MAY**

0830 Non-Federal Partners I - Panel

Mr. Edward Cohn (Mod)  
Chief, Planning  
Division, North Atlantic  
Division (NAD)

Topic: Communications between the Corps  
and non-Federal sponsors to assure  
that Corps' reports are responsive  
to state and local requirements.

Panel Members:

Mr. William Romer, Special Assistant  
to Commissioner, New York State Dept.  
of Environmental Conservation  
Mr. James Peck, Director, Water Resources  
Administration, State of Maryland

Mr. John Gaston, Assistant Commissioner,  
New Jersey Department of Environmental  
Protection  
Mr. Robert Yowell, Program Director, Flood  
Protection Planning Board, Lock Haven, Pa.

1000	Coffee Break	
1030	Plan Formulation and Evaluation Discuss the relationship of the NED Plan for the Corps, ASA, and OMB and the financial feasibility needs of the non-Federal partner	Dr. G. Edward Dickey, Deputy for Program Planning, Review and Evaluation, Office of the Assistant Secretary of the Army (OASA), Civil Works (CW)
1130	Lunch with Assistant Secretary of Army for Civil Works Introduction by Mr. Robert Daniel	Honorable Robert K. Dawson Assistant Secretary of Army for Civil Works
1330- 1730	Concurrent Sessions  Microcomputers Workshop (cont)  What's New and Exciting Panel (cont.)  Topics:	Mr. John Bogue (Mod) Chief, Economics Branch, South Pacific Division (SWD)  Mr. Kenneth Cooper (Mod) Chief, Economics Branch, South Western Division (SWD)
1330	Update on National Waterway Study	Dr. George Antle Chief, Navigation Division, Institute for Water Resources
1400	Multipoint Analysis: A Case Study	Mr. Robert Selsor Economist, Philadelphia District (NAP)
1415	Multipoint Analysis: Galveston-Houston	Mr. Frank Incaprera Ms. Gloria Appel Ms. Shirley Fanuial USACE, Galveston District (SWG)
1500	Coffee Break	
1530	Military Housing and Corps Planners	Mr. David Kerr Economist, Military Construction Management Branch, Office of the Assistant Chief of Engineers

- 1600 Project Rehabilitation:  
An Operations Perspective Mr. Robert Schmidt  
Civil Engineer, Operations  
Division, Civil Works (CW)
- 1630 Emerging Policy Issues Mr. William Whitman  
Chief, Planning Program  
Management Branch, Civil  
Works (CW)
- 1900 Informal Sessions Mr. John Bogue (Mod)  
Software exchange (Rm TBA) Chief, Economics Branch,  
South Pacific Division (SPD)

**THURSDAY 29 MAY**

- 0830 Non-Federal Partners II Panel Mr. D.E. Lawhun (Mod)  
Asst. Chief, Planning  
Division, Civil Works (CW)

Topic: Recent and pending legislation,  
impacts on financing projects  
including non-ventibles and the  
changing Federal role

Panel Members:

Mr. Isaac Shafran, Associate Port Administrator,  
Maryland Port Administration  
Dr. Leonard Shabman, Consultant, Office of the  
Assistant Secretary of the Army (OASA), Civil  
Works (CW)  
Mr. Tilford Creel, Deputy Executive Director,  
South Florida Water Management District

- 0930 Coffee Break

- 1000 Water Project Financing Panel Mr. Edward Cohn  
Chief Planning Division,  
North Atlantic Division (NAD)

Topic: How the local sponsors for the  
new construction starts are arranging  
their financing and what the Corps  
economists did or can do to help

Panel Members:

Mr. Alfred Hammon, Supervisor of Harbor  
Planning, Port Authority of New York  
and New Jersey  
Mr. Don Williams, Consultant  
City of Virginia Beach





