EARLY FEDERAL GUIDELINES FOR WATER RESOURCE EVALUATION

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Federal guidelines for water resource project evaluation spring from the Flood Control Act of 1936 wherein the Congress of the United States (U.S.) directed that flood control projects should be undertaken "if the benefits to whomsoever they may accrue are in excess of the estimated costs, and if the lives and social security of people are otherwise adversely affected." The application of this legislative provision has been far wider than to just flood control projects. Either by statute or by administrative order, the general purport of this provision has been made broadly applicable to all water resources projects of the Corps of Engineers, Bureau of Reclamation, and the Soil Conservation Service.

The seeming import of this provision was to orient policy toward economics. The normative theoretical branch of the discipline of economics that had been developed up to then and has been subsequently further developed, known as "welfare economics," became the intellectual underpinning for this endeavor. Professor Pigou's "Economics of Welfare," first published in 1922, was the takeoff point in this general development of economic thought. The opportunity afforded by the Congress to apply this normative theory to the field of water and related land resource use and development was apparently welcomed by economists, and it has been substantially exploited by them within the federal government with outside support from academic economists.

The first interdepartmental product of this interest of economists in trying to implement the statute of 1936 was popularly known as the Green Book, a report of the Subcommittee on Benefits and Costs (B/C) of the Federal Inter-Agency River Basin Committee (FIARBC). Bearing the title "Proposed Practices for Economic Analysis of River Basin Projects," this report embodying Pigouvian theory was published in 1950 (green was the color of the cover). With slight additions and changes, a revised edition was published in 1958.

The "Proposed Practices . . . " set forth "criteria and principles" of "general economic welfare" for "application by agencies within the framework of their particular programs and responsibilities." Thus goals or objectives other than "general economic welfare," defined as economic efficiency from a "comprehensive public viewpoint," were still recognized as relevant. For example, the proposed practices were intended to apply to economic analysis within the 160-acre rule in Reclamation Law to implement the "family farm" concept. This rule, it was understood, reflected an objective other than "general economic welfare" as defined.

The "Proposed Practices . . . ," moreover, called for identification of all beneficial or adverse effects of a project in both tangible (i.e., monetary) terms or intangible terms. An "intangible" beneficial effect of a flood control project, an effect which the Congress clearly had in mind when it established flood control as a national, largely nonreimbursable project purpose, is the saving of human life. However, because of the subsequent great weight that has been given by the Office of Management and Budget (formerly the Bureau of the Budget) and the Congress to a B/C ratio in terms of tangible values (e.g., savings in property damage) and to a ratio of 1.0/1 or greater as the basic criterion of authorization and funding of a water development project, all other goals were made secondary. For example, regional development per se (that is provision of settlement opportunities or improvement of underdeveloped areas, a major objective of the Congress in passage of the Reclamation Act of 1902 and the Tennessee Valley Authority (TVA) Act of 1933) was made secondary to the goal of national economic efficiency.

The Green Book (1950 or 1958) was never adopted by the Federal Inter-Agency River Basin Committee or its successor committees, due to continuing interagency disagreements largely over inclusion of "secondary benefits" in Reclamation project reports. However, the basic philosophy and many of the criteria and principles of the Green Book, explicitly or implicitly, were embodied in Budget Circular A-47 issued by the U.S. Bureau of the Budget on December 31, 1952. Its most fundamental standards and procedures were these:

1. The most economical means of meeting needs in a region were to be set forth as an important consideration in reviewing of proposed projects.
2. The relative economy of alternative means available on a national basis for meeting needs was to be set forth for consideration.
3. Benefits and costs, in total and separately for each purpose, were to be set forth. Where benefits and costs could not be estimated in monetary terms, their relative significance was to be stated in as precise and quantitative terms as possible; and lastly, in the words of the circular itself:
4. "While it is recognized that a comparison of estimated benefits with estimated costs does not provide a precise measure of the absolute merits of any particular program or project, one essential criterion in justifying any program or projects will, except in unusual cases where adequate justification is presented, be that its estimated benefits to whomsoever they may accrue exceed its estimated costs."

In contrast to the Green Book, which called for the application of its criteria and principles within the framework of an agency's particular programs and responsibilities, "A-47" called for analyses of proposed water projects in terms of its standards and procedures by sponsoring departments and agencies and then an indication of where a requirement of law or official agency views were at variance.

The Bureau of the Budget attempted rigorously to apply "A-47" to all projects presented to it for review in the 1950s. This effort led to great dissatisfaction with "A-47" within the Congress beginning about 1956. Few, if any, in the Congress called for abandonment of benefit-cost analysis per se, but there was a widespread call for its "liberalization." Democrats in the Congress declared that the Eisenhower administration had a "no new starts policy."

"Policies, Standards, and Procedures in the Formulation, Evaluation and Review of Plans for Use and Development of Water and Related Land Resources," an interdepartmental agreement approved by President Kennedy for application by the federal departments concerned and the Bureau of the Budget, replaced Budget Bureau Criteria A-47 on May 15, 1962. Published by the Congress, the agreement became known as Senate Document 97. It was prepared by the Interdepartmental Staff Committee, ad hoc, U.S. Water Resources Council. The author was the chairman. Key participants were Eugene Weber and Nathaniel Bach of the Corps of Engineers, and Harry Steele of the Department of Agriculture. Weber and Bach, I believe, were involved also in preparation of the Green Book. Bach had transferred to the headquarters of the Army Corps of Engineers from the Bureau of Agriculture Economics of the Department of Agriculture.

The basic objective in the formulation of plans, according to Senate Document 97, was to provide the "best use, or combination of uses, of water and related land resources to meet all foreseeable short or long-term needs." In pursuit of this basic objective, full consideration was to be given to the following multiple objectives and "reasoned choices made between them when they conflict":

1. Development Water and related land resource development and management was taken to be essential to economic development and growth for all the various multiple purposes including outdoor recreation and fish and wildlife enhancement.

2. Preservation Proper stewardship of the nation's natural bounty was taken to require preservation in "particular instances" of open space; green space; wild areas of rivers, lakes, beaches and mountains; and areas of unique natural beauty, historical, and scientific interest. (Wild areas of rivers had already been officially proposed in the interdepartmental comprehensive study of the Arkansas, Red, White River Basin Study, at the urging of Irving Fox representing the Department of the Interior.)

3. Well-Being of People Hardship and basic needs of particular groups was to be of concern, but development for the benefit of the few or the disadvantage of the many was to be avoided. In accordance with this objective, socioeconomic policy requirements established by the Congress were to be observed (e.g., the 160-acre rule in relation to federal supply of water for irrigation and "preference clauses" relating to the sale of federal power to public and rural electric cooperatives). Also, "well-being of people" was an objective that could take into account the saving of life by a flood control project while savings from property damage would be taken to be a benefit in furtherance of the developmental objective.

Comprehensive river basin plans were to be formulated initially to include all units and purposes which satisfy national economic efficiency criteria in terms of tangible benefits and costs:

1. Tangible benefits must exceed project economic costs.
2. Each separable unit or purpose must provide benefits at least equal to its costs.
3. The scope of the development must be such as to provide the maximum net benefits.
4. There is no more economical means, evaluated on a comparable basis, of accomplishing the same purpose or purposes which would be precluded from development if the plan were undertaken.

The discount rate to be used in calculating the present value of benefits and costs was the weighted average of the "coupon rates" on outstanding long-term federal bonds. In the 1960s this about 3 1/4 percent.

Thus Senate Document 97 clearly provided that optimum plans in terms of criteria of national economic efficiency (assuming one agrees with the provision on the discount rate) were to be presented for consideration within the Executive Branch and to the Congress. In addition, however, such optimum plans were to provide baselines from which alternative plans reflecting intangible values reflecting different objectives could be judged, e.g., by determining the developmental benefits forgone if preservation of a scenic river is relevant as an alternative to multiple purpose development. And, according to Senate Document 97, when major differences arise among technically possible plans conceived as desirable for a river basin on the basis of intangible benefits and costs, in comparison to optimum plans based on tangible benefits and costs, alternative plans giving expression to these major differences are to be presented for consideration within the Executive Branch and to the Congress.

Regional, state, and local points of view or objectives were to be considered as well as national points of view in terms of criteria of national economic efficiency or other national policy. A comparison of differences arising from these various points of view was also to be included in reports.

Finally, Senate Document 97 provided that general and specific judgments were to be made upon comprehensive plans, programs, and project proposals as a basis for recommendation to the Congress. Review aimed at arriving at such judgements was to be based upon the provisions of Senate Document 97 itself, applicable laws, their legislative intent, and executive policies and orders as well as recognized technical standards. In contrast to "A-47" no requirement was set forth that projects, generally, must have a benefit-cost ratio greater than 1.0 to 1 as a basis for recommendation to the Congress. On the other hand, Senate Document 97 did not bar the Bureau of the Budget from adopting such a benefit-cost ratio requirement as its own administrative standard. And this requirement was the unwritten rule since the promulgation of Senate Document 97 on May 15, 1962.

Before President Kennedy approved the agreement published as Senate Document 97, the Council of Economic Advisors established a three man group of distinguished academic economists led by Kenneth Arrow to review the agreement. Approval was given subject to a committee to further study of the discount rate.

The Water Resources Council created by the Water Resources Planning Act of 1965 proposed in July 1968 to amend Senate Document 97 to change the formula for determination of the discount rate used in the calculation of benefits and costs. This precipitated a new congressional call for "liberalization" supported by various developmental interest groups. Raising the discount rate, which would be the effect of the formula change, would result in a lower B/C ratio and make infeasible borderline projects that formerly were considered feasible. After extensive consultation by the author with key members of the Congress and its staff and their implicit acceptance, the council adopted and President Johnson approved, in December 1968, a new formula for the annual determination of the discount rate based upon the "yield rate" on outstanding long-term federal bonds rather than the "coupon rate." This action initially changed the discount rate then from 3 1/4 percent to 4 5/8 percent.

After this action (and in view of the obligation of the Council under Section 103 of the Water Resources Planning Act of 1965 to promulgate its own "Principles, Standards, and Procedures" for application by all federal water and related land planning agencies and all reviewing agencies within the executive branch), the council began to direct its attention to this much larger task of replacing Senate Document 97 in its entirety.

Harry Steele, an Assistant Director of the Water Resource Council staff, directed this effort. The basic concept of multiobjective planning was retained but many changes were made. Several revisions of principals and standards for plans were developed. Many hearings were held both in Washington and the field. Various interest groups, the Bureau of the Budget, and the Congress expressed very divergent opinions.

Early in the 1980s, the Reagan administration abolished the active program of the Water Resources Council, including the Federal-State River Basin Commissions that had been created in the 1960s under the Water Resources Planning Act.

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