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## Equity and Cost Sharing- A Neglected Opportunity for Improving Water Policy

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EQUITY AND COST SHARING -- A NEGLECTED  
OPPORTUNITY FOR IMPROVING WATER POLICY

By

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Equity and Cost Sharing -- A Neglected  
Opportunity for Improving Water Policy<sup>1,2/</sup>

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Abstract

Historically, the concept of equity in jurisprudence has meant the tempering of what may be lawful by the application of mercy, fairness in procedure, fairness between persons, preventing irreparable harm before it occurs and the like. For economists it has too often meant those factors that could not be included neatly in an efficiency analysis. Not often enough attention has been given to income distribution, externalities, common property and public goods problems, particularly as they relate to building consent for projects. Cost-sharing rules should be reviewed to consider how they may be used to achieve more broadly supported results by the application of concepts of equity. This should be accompanied by attracting different participants to bargain in different arenas stimulating different outputs from water programs.

The courts, the water agencies, the Congress, all play a part in equity attainment. And perhaps the planning and evaluation arrangements for water such as river basin commissions that facilitate state participation will play more of a role. Certainly the politics of water development has changed in ways that suggest more effective consideration of equity in the future.

(Key Terms: Water resources policy, public participation, public administration of water resources, roles of public agencies, governmental reform, river basin administration, inter-governmental relations.)

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  - 3/ Respectively, Director, Institute of Government Research, University of Arizona and Professor of Resource Economics, Cornell University

### Introduction

It hardly does equity justice to examine it in the context of water resources policy making. It is even less fair to limit it to the little studied aspect of cost sharing. The concept of equity embodies rich and variegated political ideas developed during a long history in Anglo-American jurisprudence. It has gained further substance from other social science disciplines. So far, water resources policy has inherited a meager share of equity and incorporated only a few of its precepts. In this paper we intend, first, to impart a feeling for the role that equity serves in law by briefly recounting its origin. Second, the paper offers some basic building blocks, from the economics and politics of water resources -- some of the fundamental functions and values the application of equity could serve. We cannot be complete. Thirdly, we relate some concepts of equity to water resources policy and note that the failure of policy makers to take some classes of costs into account has limited the application of equity. Fourth, the paper examines some leverage points for change: the courts, the administration, and the Congress. Finally, when the overall picture for the application of equity is considered, the domain remaining for cost sharing is at least partially identified.

This paper was stimulated by recent Congressional interest in re-examining cost sharing. Section 80c of the Water Resources Development Act of 1974 directs the President to review cost-sharing policies in conjunction with planning objectives and the discount rate. A task force, led by Steven Dola, long time civil functions policy analyst for the Secretary of the Army, was established by the Water Resources Council to carry out this directive. The most detailed identification of federal obligations for water and related land resources management by purpose, agency and region (using FY 1974 data) has been produced. At this writing it is undergoing review and finalization of recommendations. At the same time, a Senate Interior subcommittee chaired by Senator Frank Church of Idaho is reviewing the Water Resources Planning Act of 1965 which establishes the Water Resources Council and authorizes basin planning commissions. This review includes the Title III program of federal grants to facilitate state participation in basin planning (Ingram, et. al., 1974).

These come at a time when the Congress still has before it, and has not chosen to act upon, the recommendations of the National Water Commission (National Water Commission, 1973). After a five-year study covering a wide variety of water policy areas it concluded that cost sharing for water management should emphasize beneficiary payments through vending the outputs to users. Or where that was impractical, to employ beneficiary charges that would approximate what users would pay if public expenses could be recovered through output sales. If a willingness to pay criterion was good enough for benefit estimation it should be good enough for cost sharing seemed to be the reasoning. Public subsidy was seen as justified only when some overriding social objective was to be served and the Commission's report only identified some aspects of outdoor recreation and a short term gap in waste treatment facilities as meeting this criterion. The Commission's report reflected one view

of equity in arriving at these recommendations (Ingram, et. al., 1973). Obviously this view is at considerable variance with the net result of over a century of incremental evolution of cost-sharing practice.

We do not pretend to an analysis that will settle this or any of the other issues. Indeed, we expect to do no more than help with an already good beginning for the debate.

### The Origins of Equity in Law

Equity grew up separately from common law and to a large extent acted to ameliorate the impacts of common law which sometimes seemed harsh, unjust, and not in the public interest. Equity added a universal element -- the rights of any person -- to the application of common law. In the days of Edward I, at the end of the thirteenth century, three great courts came into existence: the Kings Bench, the Common Bench or Court of Common Pleas, and the Exchequer. At the head of the Chancery of the Exchequer stood the Chancellor, usually a bishop; he kept the king's great seal and handled a great deal of court-related business in the king's name. In the fourteenth, fifteenth, and sixteenth centuries the work of the Chancery developed into a law of equity (Maitland, 1936, pp. 4-11).

The Chancellor administered cases which escaped the meshes of common law courts. Very often a person petitioning equity from the Chancellor required a remedy he or she could not obtain under ordinary law. The person might have been old or sick, or the adversary rich and powerful and likely to intimidate or bribe jurors; perhaps by some accident or trick the adversary might have achieved some advantage which the common law court, with its formal procedure, would not remove.

An old rhyme spelled out the jurisdiction of the Chancellor:

These three give place in court of conscience: fraud, accident, and breach of confidence.

The Chancellor had the power to redress mistakes made by regular courts. If a judgment was obtained by fraud or in breach of trust, the Chancellor could enjoin it. By an injunction addressed to the party, not to the courts, the chancellor could decree that it would be inequitable to enforce a judgment and that it was not to be enforced. Through this process the court of equity came to have the last word over common law courts.

The rules and procedures of the Chancery were less bound by precedent, much less formalized, and more flexible than those practiced under common law. While in common law courts juries had to determine questions of fact, the Chancellor could subpoena a defendant to be examined under oath and decide questions of fact as well as questions of law.

The Chancellors were ecclesiastics and, through the medium of canon law, borrowed heavily from the Catholic or universal elements of

Roman law. On the whole, though, with some idea of naturalistic fairness in their minds, they decided cases without much reference to written authority. Now and again Chancellors made use of some analogy drawn from common law or of some great maxim of jurisprudence which they borrowed from the Canonists or the civilians. Unlike common law judges, Chancellors felt themselves little bound by precedent.

The court of equity, when it acted most usefully, took advantage of its flexibility to serve a higher notion of justice. It could cut through the impersonality of the common law to recognize the special attributes of the persons involved. If there were real distinctions of rank and power which made the parties unequal before the bar, these were taken into account. Chancellors insisted upon a more general fairness outside the specific case. To get equity, a plaintiff had to have acted equitably -- he had to have clean hands. If precedent led common law courts to a judgment at odds with the public interest, the courts of equity recognized the ill effects of the judgment and rendered it unenforceable.

In the course of time equity has come to be dispensed by the same courts as common law. While no longer separately administered, equity has brought along from its origin its supplementary function. It acts as a kind of appendix or gloss written around the law to keep it from being barbarous, unjust, or absurd. While common law embodies the rules of law, equity has carried forward from its ancient roots the spirit of justice.

#### The Functions of Equity in Law

Equity -- both historically and as it is presently practiced -- has a variety of meanings and a number of functions. Some of these themes will be discussed below. Together they do not make up a complete view of equity; no listing could. Equity is less a set of principles or functions than a process of tempering the law and imparting the bias of fairness to decision making. While in the abstract, all the aspects of equity are aimed at some higher notion of fairness, individually the meanings of equity are not always mutually consistent and compatible. For example:

1. Equity is whatever is most adequate given certain specified ends. A historic function of equity has been to prevent waste as fundamentally unfair and unjust. In this most utilitarian sense equity is very close to the idea of efficiency, whether from the point of view of technical maximization of output or from the economist's notion of maximizing the net between costs and benefits.

2. Equity is tempering justice with mercy. The tradition of the petitioners before the Chancellor was to couch their pleas in substantive aspects and to ask that a remedy be found for the love of God and in the way of charity. In this meaning equity is an act of conscience, for however justified something may be in legal terms, if it means great misery, it is not equitable.

3. Equity is fairness in procedure. It goes beyond what is provided by the regular legal system of orderly trials and hearings: it means a process reasonably designed to protect the dignity of the individual and to ascertain the truth. A water example might be to recognize that a program equally administered to all may not have equal results if some communities have more organizational capacity to take advantage of it than others.

4. Equity is fundamental fairness among persons, and in this sense it is social justice. John Rawls seems to capture this notion of equity in what he views as a fair distribution of rights and duties. This distribution would be agreed upon if decision makers like the blind symbol of justice were in a state of perfect and terrible ignorance. The people making decisions would not know anyone's social status, sex, religion, or race; nor would they know anyone's fortune in the distribution of natural assets. They would not even be aware of anyone's conceptions of the good or special psychological propensities (Rawls, 1971, p. 12). The inability of any participant in water resource development to live up to such an image of the selfless public servant must be recognized and dealt with by seeking shifts in the balance of participation.

5. Equity is preventing any irreparable harm to property or to person before it occurs. It is possible to enjoin certain activities on the grounds of equity; for example, a property owner can be kept from certain mining practices if those practices threaten subsidence on a neighbor's property. While a tenant for life may have a common law privilege to denude an estate of ornamental and shade trees, in equity the tenant is duty bound not to do so (Hohfeld, 1964, p. 18). Similarly, it may be equitable to halt a plant which will emit carcinogenic substances even before it goes into operation.

#### The Political Economy of Equity

For some years economists have tried to make the analysis of water problems more manageable by using the economic logic of efficiency in resource allocation. One alternative public action is to be preferred over another if it makes a larger return of benefits net of costs, other things being equal. Evaluation techniques that deal with problems of time preference, opportunity cost of resources and willingness to pay for benefits, risk and the like fill the literature. If performed properly, the analytics are intended to identify results where the gainers could bribe the losers into granting consent. This depends upon the losers being willing to act rationally and reasonably and neither holding highly differential bargaining power. A minority view among water practitioners has found this logic wanting on its own terms (Allee and Chapman, 1972; Schmid, 1972). But more to the point here, few analysts are reluctant to urge the results of such analysis as sufficient for policy making even though there is no analysis to suggest whether or not the losers actually are compensated by the winners or anyone else. The efficiency simplification is defended by pointing out that the application of the concept will provide more total income to be distributed as the policy makers see fit.

In a few cases economists have examined the income redistribution effects of water investments (Kalter and Stevens, 1971). But in many cases the techniques have been restricted to the consideration of transfers between income classes with little attention to other politically significant groupings (Allee, 1973). However, simple critiques of opportunity costs have produced insights into equity effects (Martin and Young, ).

It is significant that maximization of net benefits has never been a Congressional guideline, and certainly it has been given only limited attention by the agencies. Part of the explanation lies in our difficulties in developing acceptable estimates for non-marketed and/or intangible values. In fact, most values used in benefit-cost analysis involve the analyst in heroics of market simulation. The results are accepted more by tradition than irrefutable logic and measurement techniques. The point is that the function of benefit-cost analysis has been more to say "no" to unworthy proposals, to limit the field to something closer to a fundable total. Decision makers must build consent for their decisions among the many who hold veto power over their proposals. Conflict management has been more to the point than social justification.

There are several other economic efficiency concepts in resource management that may have as much or more utility in the consideration of equity. That social benefits should exceed social costs has a ring of reasonableness to it. So also do some of the economist's justification for public intervention into the market for resource development. Sometimes these are lumped together as "The Tragedy of the Commons," namely externalities -- third party effects such as pollution or developing a labor pool; common property problems -- where all are drawing from a common resource without good property rights specified such as limited ground water; or public goods -- where once provided and up to capacity, they are essentially freely available to all, such as with flood control or navigation. These arguments provide a basis for more regulatory approaches to water management where equity aspects can be considered. These arguments speak to the equity of what should be provided by and for whom. Given the intergovernmental arrangements of our system, they also say something about cost sharing. Different levels of government more effectively represent different interests in "The Tragedy of the Commons." And it can be argued that bargaining between these levels of government can more effectively result in a socially desirable outcome than where one level of government is allowed to dominate (Ostrom, 1974). Cost sharing becomes one of the major elements in such bargaining (Ingram, et. al., 1974).

This becomes clearer when the differential ability of interest groups to represent themselves politically is recognized (Olson, 1974). In almost every case where the "Tragedy of the Commons" operates, it means a lot to each of a small group to frustrate the attainment of a result that means a little to a lot of people. Values that are diffused, conjectural, intangible, non-monetized, or in the future tend to be discounted over values that are particular, immediate, concrete and easily expressed as income.



We may take some solace in the fact that every interest has some chance to be represented in our system, to become the client for and represented by some agency, at some level of government. But only a little thought suggests a dilemma for such an interest group theory. It does not produce an evenhanded result; yet what is the alternative? Philosopher kings aren't in style. Can we expect agency managers, elected officials, the media, the citizen groups, the professions, our planning methods, and public participation guidelines to do the job? Is there any choice? To paraphrase Winston Churchill, it may not be a very good system, but it is the best we have been able to think of so far.

### Equity Concepts in Water Resources Policy

Water resources policy has embodied only a small portion of the meanings of equity. The function of equity is to look beyond particular formal acts to the consequences of those acts and to mitigate whatever injustice may occur. The tendency in water resources policy is to gloss over injustices and to minimize adverse effects -- or to pretend that these things do not exist. Like the ancient common law courts, water resources policy makers have been blind to the indirect implications of their acts and, therefore, have often been insensitive and inhumane.

Natural resources policy has been dominated by what Ted Lowi has characterized as "distributive politics" (Lowi, 1964). When politics are distributive, there is a concentration upon rewards and benefits with little perception of costs. Those who may be hurt by an action are rarely made fully aware in the decision-making process that something is at stake. Whatever opposition may exist is dealt with not by enjoining some injustice before it occurs but by compensating the injured party with some favor which causes that party to forget the grievance, or at least convinces others that his interests have been adequately dealt with.

Our own work, among that of many others, has documented the operation of distributive politics in federal water resources policy. The benefits of water resources bills act as sweeteners, which either buy off or overwhelm anyone with perceptions of costs. The bills themselves are a composite of benefits to an assortment of interests; projects are strung together like beads on a necklace. For instance, the water development projects in the Colorado River Basin Bill actually had little hydrologic relation to one another (Ingram, 1964); and the demonstration projects funded in the 1972 Water Quality Amendments had little in common except that they all distributed money (Ingram and Ullery, 1975; and Mann, 1973). Flood control policy necessarily is a series of nearly unrelated programs, also distributing federal largesse with no one adequately charged to consider more than a few options at once (Allee, 1970).

Equity in natural water resources has been mainly a means-ends test which comes close to a highly bounded efficiency test. A variety of development schemes have been accepted as the most adequate means of achieving some end. Those few regulatory schemes which have been authorized in water resources have been modified by rather different efficiency

criteria. Matthew Holden (1966) illustrates how "what works" has affected water pollution control: the actual enforcement of regulations by water pollution control agencies is the result of a bargain between the most a polluter thinks it is possible to get away with and the most a pollution control agency can demand and still get compliance.

In general, mercy is granted to those adversely affected by water resources policy only when the victims have power, not when they are powerless. Electric generating plants are generally sited in backward, rural areas of the country which have little clout on the state or federal levels. It is doubtful that the major New York State Power Authority pump storage project on the Niagara River could have been located there if an Indian reservation had not been available. There are some abiding rules about who gets screwed in water resources development which can hardly be called equitable. In the Colorado River basin, the dubious prize of least equitable treatment goes to the Mexicans, whose costs are not taken into account unless -- when by chance -- the State Department intervenes. And then the cost of that intervention is transferred largely to the federal treasury (Kelso, *et. al.*, 1973). Next come the Indians, who are given deference only when all other demands have been satisfied. While Indians have symbolic unspecified water rights, there is little money for Indian water development projects. More important, few non-reservation water development projects are held up because their development may foreclose Indian options. Hardly more equitably handled are the urban dwellers, who end up paying higher taxes and water rates for many of the benefits which actually go to industrial and irrigation interests. Urban dwellers get screwed not so much because they are powerless, like Mexicans and Indians, but because they are distracted. With urban consumer prices rising for everything, consumers hardly notice a small rise in the water bill or in taxes.

There is some procedural equity in natural resources policy, but it is most primitive and rudimentary. For example, projects in water resource development must undergo a series of tests which demonstrate basic engineering and economic feasibility in order to qualify. Further, the geographic area where the project is to be built must be in line for benefits; it is not equitable to deny some claimant for water resources development forever. In time, the less advantaged states of Utah and Wyoming must get a few water development projects, just as California and Colorado have benefitted in the past; even the Indians have some place in line.

Past equity rules in water resources hardly have retained the concept of fairness inherited from the historic meaning of equity; little effort has been exerted to expose and ameliorate the true costs to be borne by persons and groups in development. As we have indicated, the tradition of water resources policy has been to ignore, or at least to minimize, costs; and in water development policy, indirect costs have usually been slighted in economic analysis, while the political momentum for achieving unity at the local level has served to quiet any inchoate opposition. If there were irremediable costs to persons or to property, there was little attempt to find out about them; if discovered, the costs have been minimized; and if injured parties cannot be ignored, every attempt is made to buy them off.

## Institutional Mechanisms for the Incorporation of Equity

Currently patterns of decision making in natural resources are in a state of flux (Ingram, 1972; Allee and Ingram, 1972). Perceptions of benefits from development are changing; for example, the expansion and growth attending the siting of a power plant, the building of a dam, or the opening of a mine no longer seems such a blessing, while benefits more closely related to the quality of human existence, health, leisure, esthetic surroundings, and culture are more attractive. There is also a growing sensitivity to costs: once it was possible to classify air pollution, degradation of water quality, and urban sprawl as "externalities" remote from the concerns of decision makers; today the publics which experience these burdens have become aware and activated and are seeking ways to force consideration of these costs in decision making. As a result of these changes in perception and sensitivity, water resources policy is becoming increasingly regulatory. That is, as Lowi (1964) has noted, many more "Thou shalt not ..." commandments are being imposed upon resource use. The recognition of the negative implications of water resource developments and the growing propensity for regulatory policy create an atmosphere in which equity can be much more fully considered. Within the governmental system, where are the decision makers who are most sensitive to equity issues and who can most effectively inject them into policy?

### Courts

U. S. Courts have generally been much more willing to grant equity relief to prevent irremediable harm to property than to persons subjected to environmental degradation. For a long time the principal barrier to court application of equity to water resources questions was a lack of judicable cases. Citizens were often denied "standing" to block environmentally harmful governmental action or to have pollution abated unless they personally faced loss or were suffering injury to a degree not shared by the general public. The landmark Scenic Hudson case, decided in 1965, established the important precedent of allowing conservation organizations to intervene in cases that raise environmental issues (Carter, 1971b).

In the last decade there has been an explosion of environmental litigation. Most environmental groups now have a legal staff, and special legal organizations, such as the Environmental Defense Fund, have been established to pursue their policy goals through the courts. One study indicates that environmental litigants have been quite successful, winning 50 percent of the time in the district courts and 45 percent of the time on appeal (Grunbaum, 1974). Just as the ancient Chancery did, courts have served to cut through the formalities of long established practice and administrative procedure. Victor J. Yannacone, Jr., formerly counsel for the Environmental Defense Fund, has said:

A court of equity is the only place to take effective action against polluters. Only in a courtroom can a scientist present his evidence free from harassment by politicians, and

only in a courtroom can the bureaucratic hogwash be tested in the crucible of cross examination. (Bengelsdorf, 1969, p. 7)

Some environmental lawyers believe that a concept in equity called the "trust doctrine" could become especially useful. This ancient doctrine holds that all land was once held in trust for the people by the sovereign who could not divest himself entirely of responsibility for the uses to which land was put. Now the government (which has replaced the sovereign) must maintain the same responsibility, even though most of the land has long since passed into private hands. The government must, according to the trust doctrine, see that no land -- public or private -- is abused or otherwise used in ways contrary to the public interest (Carter, 1971a).

One of the arguments against courts as a vehicle through which to incorporate equity into natural resources policy is very similar to that raised against the intrusions of the ancient Chancery. The Commons objected that the Chancellor's exercise of equity was law made by a person, not by a representative body, and that the person was part of the elite. Another argument is that court decisions can be overruled by legislatures, as in the case of the Alaska pipeline. In addition, courts are sensitive to public opinion, and while in the short run they may render decisions contrary to the prevailing political climate, in the long run their policies must reflect the opinions of the law-making majority. Finally, it is widely recognized that the courts have difficulty in marshalling a sustained application of technical analysis. Bureaucracies on the other hand, have the advantage in systematic procedure and follow through.

### The Administration

The erosion of support for many water resource agencies has caused them ever greater concern for equity issues. Agencies are strongly motivated to broaden the objectives of projects and to identify all the possible beneficial effects of proposed actions. For instance, as the farmers who once were the backbone of the clientele of such agencies as the Soil Conservation Service and the Bureau of Reclamation, lose numbers and influence, different interests -- urban water users, industry, recreationists and others -- must become clientele if the agencies are to survive and prosper. Agencies must offer a wide range of benefits and present a more full accounting of indirect and second order benefits to attract these more diverse interests (Allee and Ingram, 1972).

The increasing opposition to projects surfacing late in the planning process and disrupting the high level of agreement usually necessary to authorize water resources projects has also motivated agencies toward more serious concern with equity. Agencies prefer to have any negative perceptions of proposed actions expressed early in planning, so that these perceptions can be mitigated or the project can be modified or dropped.

The need to broaden project objectives and to get fuller accounting of project benefits and costs has resulted in several important changes

in agencies' planning procedures and project evaluations. Multiple objective planning and evaluation have replaced the single criterion of national economic efficiency for formally evaluating projects. As originally proposed by the Water Resources Council multiple objective evaluation had four accounts, one of which specifically identified social well-being as a national objective. Social well-being was eliminated as a mandatory, plan formulation criterion in the principles and standards as finally promulgated, but agencies are still required to account for social impacts. In fact, as a part of the preparation of environmental impact statements, agencies are by law -- also supposed -- to identify social impacts.

Broadened public participation has been seen as a means of finding equity. Public participation has hardly been lacking in water resources programs. Local support has been an essential element in their politics. Supporters have had to be willing and able to press for their project at many veto points through the intergovernmental system. But with the rise of concern for environmental values and disadvantaged groups, the pressure to provide more evenhanded procedures for participation has been significant. The environmental impact statement process has given this new significance. But by their nature the diffused interests involved have difficulty in finding the resources for sustained participation (Shabman, *et. al.*). While waiting 'til late in the planning process suits their resources, it leaves the agency with little room in which to accommodate them. The result is a process of unilateral accommodation where the agency and its supporters attempt to anticipate what the objections may be. Then the emphasis is on accommodations which participants other than the objectors will find to be an adequate accommodation of the objectors' interests (Cohn, 1974).

While agencies have both some motivations and some opportunities to consider equity issues in water resources development to a greater extent than in the past, there are some real barriers to their doing so. Friesema and Culhane (in press) have examined a large number of social impact assessments made by agencies in connection with environmental impact statements. In almost every case they have found them very limited and narrow. They stated that "The 'socioeconomic impact' section of the typical EIS is usually an assertion that economic benefits will be derived from the project, typically expressed as a claim that employment or gross regional income will increase as a result of the project, or that the project is designed to meet some economic demand ... Other types of impacts of agency programs on states, cultures or ethnic subgroups, or on the human community as a system, are rarely considered in EIS's."

Some limitations of agency social impact assessment relate to the state of the art of social impact analysis and to the skills of the analysts. Social scientists are just developing concepts, methodologies, and a literature in this area (Andrews, 1973). Even if social scientists could give agencies a better idea of what good social analyses should look like, it is doubtful that many could carry it out, since agencies lack experienced personnel in this area and since the backgrounds and inclinations of agency decision makers and their staffs are typically not in the social sciences but in the natural sciences (Shabman, 1972).

Another barrier to the consideration of equity issues by agencies in water resources is their political position. Distributive politics has long dictated that agencies act as if what they do is good for everyone. As Friesema and Culhane (in press) put it, "Discussion of certain political considerations and measures of the differential social impacts among states, classes or cultural groups would violate agencies' fundamental myth that their programs serve an undifferentiated public interest." While agency perspectives are changing the process of agency changes is typically slow and incremental.

#### A Role for Basin Organizations?

One incremental change which may commend itself to the participants in the process is to increase the role of river basin planning organizations to deal with some of the above problems. The point is that project benefit-cost analysis has major weaknesses from both a political and technical level that might be corrected somewhat through the participation of an analytical group at the regional level. When analysis is done, project-by-project, there are many things that seem to suffer. The cumulative effects of a series of projects is harder to establish and usually ignored. Even reaping the technical advantages of hydrologically linking projects becomes difficult -- especially between projects of different agencies. The show case character of the few projects where this was done in the Appalachian water plan make that point. Perhaps they would do better in a second plan. But evaluation of environmental, social and economic system effects is even more difficult. Also to be considered is the tendency for "ad hocery," ie., consideration of cost and output effects, beyond the most basic, only when it is to the advantage of the moment.

But perhaps the greatest need that might be served by stronger regional arrangements is the interaction between the technical and political aspects of system evaluation. Individual water agencies simply are hard pressed to develop the expertise to perform creditable environmental and social analysis or even analysis of the indirect economic effects. Part of the problem is that they do not have the perspective to see the inter-relations between water projects and other public actions or even between water projects themselves if they cross agency lines. Part of the problem is that with the increased potential for conflict in water projects, it is rational to start more planning studies and put less into each; yet evaluation of environmental, social and regional systems is most demanding of analytical capacity, calling for more resources, not less. Part of the problem is that we have not yet developed highly accepted measurement and evaluation methodology to show good cause and effect between projects and all the called for aspects of environmental, social and regional development systems, at least not comparable to that which is used in the engineering and national economic evaluation. The result is that the agency -- seen as an advocate for its proposal -- suffers from general suspicion of its analytics.

A basin agency with capacity to evaluate projects at the system level could at least critique and finally bless the analytics of the agencies. But if the scale economies of system analysis in environmental, social and regional development are as great as they seem at this time it may be advantageous for the basin agency to actually do this part of the project analysis and provide formulation guidelines for project plans. It should be remembered, however, that what is needed is not just more analytical competence judged by the experts, but also linkage to political capacity as judged by those affected by the projects. It is here that the interaction of cost sharing and analytical role is potentially important.

TVA and the more recent experience of the Appalachian Regional Commission compared with most other regional planning organizations suggest some further consideration. It may be necessary to build these organizations more completely into the budgeting and cost-sharing process. How are they to attract clientele support needed to produce different outputs than those now provided by the process? Supplementary cost sharing through basin organizations as practiced by ARC may be needed to cause other participants, both existing and potential, to take them seriously. This would depend upon willingness by the Congress to share some of its present role and rewards. It may be ready to do that in return for a larger role on the part of the basin organizations for state participation in consent building.

### Congress

Consistent with distributive politics, Congress has long handled many water resources policies by logrolling and by the rule of mutual noninterference (Ingram, 1969). Each legislator has spoken for the development interests in his district or state, and has fought for a place in line for federal project funds; every other legislator has assumed that the sponsors of individual projects have acted in the public interest of their own constituencies. Currently, at least in the field of water resources, these assumptions are being questioned (Ingram, 1972). Some groups who have found little sympathy among representatives in project areas -- such as environmentalists concerned with environmental degradation or Indians or other minorities whose lands may be involved -- have found spokespersons on the national level willing to intervene on their behalf. Today, Congressmen concerned with maintaining constituency support and the deference of colleagues are shying away from water development projects -- at least those upon which constituents are not united. Increasingly, we think the capacity for an aggrieved group to seek a form of redress through Congress is allowing a kind of equity for diffused interests to work itself out. But it is an important route.

However, just at a time when equity has begun to play a role in some water resources issues, problems in other natural resources areas have begun to occupy legislative attention. Today Congress finds itself overwhelmed by energy problems and hard pressed to develop new domestic energy sources as quickly as seems necessary. The temptation here is for Congress to sweep aside the equity issue of who is to pay the economic and environmental costs of this energy development and simply to

get on with the development. On matters such as strip mining, oil shale development, the siting of nuclear power plants, the Alaska pipeline, etc., the irreparable damage done to a minority -- and in some cases not to just a few people but to a whole region -- may be swept aside in the name of reducing dependence on Arab oil imports. The concept of equity has always fared poorly in a situation of crisis, real or otherwise.

#### Conclusion -- The Domain for Cost Sharing

Equity has performed an historic function in jurisprudence; it has served to make the law more fair, enlightened, and humane. The rule of equity has dictated that however important and justified some acts are, when they render irreparable harm or damage to some, they should be carefully considered and perhaps set aside.

Equitable water resources policies would reflect an accurate accounting of the true costs of these policies: a reliable assessment would be made of the more remote, second-order consequences which previously have been assigned to other policy arenas such as health, education, or public welfare; if some interest or group is to suffer irreparable harm, that harm should be recognized and dealt with; and if a policy implies great sacrifices by a few to obtain small gains for many which may be available other ways, that policy should be enjoined.

It is not clear that any single institutional mechanism or branch of government is best suited to espouse equity issues, since each has its own opportunities and limitations. However, regardless of the institutional context in which they operate, policy makers will need to be informed by incisive social analysis; thus, expanding the role of equity in natural resources is, in part, the burden of social science.

Clearly, cost sharing is not the only mechanism for the reflection of equity. Growing regulatory approaches, more participation through the courts, changes in public participation and other rules of the game, increased representation of disadvantaged groups by various agencies and in various procedures, access to a variety of public officials, all have a role to play. But some elements of the domain for cost sharing do suggest themselves.

Cost sharing as now practiced is contributing far less to the equity of the process than it could. The obligations of 25 agencies with 70 appropriation accounts participating in over 4000 projects in FY 1974 were reviewed by the Section 80 study. Some 185 cost-sharing rules and practices were employed in the provision of 32 types of outputs or purposes. Marked differences were found between regions and within agencies for the same purpose category. For many purposes, the range between the high and low non-federal share was from 0 to 100 percent of the implementation costs. It is possible that such variation reflects a concern for the application of equity principles, but there is little evidence of that to date. Disturbing is the emphasis on cost-sharing rules by means rather than purpose. Facilitating evenhanded access to alternative means to accomplish a given purpose would seem to serve equity by facilitating



the selection of means to fit the equity considerations of a given situation. But for this to be the result it is probably necessary to provide different arenas for interest accommodation and to further facilitate different participants. Old agencies need the capacity to provide new outputs and represent different clients differently.

Some efficiency considerations lend themselves to the task. Incentives through enhanced cost sharing for demand management approaches and nonstructural measures would provide opportunities for the choice of more cost-effective techniques as well as easing the access and the consent building process. Likewise, placing implementation and operation and maintenance charges on an equal cost share footing should enhance the selection of lower capital cost options which sometimes have preferable social and environmental values. Rather than blanket recommendations for beneficiary charges, selected user charges to balance overall equity considerations on a situation-by-situation basis commend themselves. Finally, partnership arrangements which bring together representatives of the various parties at interest with the capacity for more evenhanded bargaining need to be sought out. It is not likely that any small set of simple, overall cost-sharing arrangements will serve to apply equity principles. However, consideration of packages of different approaches combined with other policy changes should serve to illuminate the limitations of present arrangements.

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