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MULTIPLE OBJECTIVE PLANNING:
REFLECTIONS ON THE CURRENT SCENE

BY

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The structure of this morning's program implies that planning for governmental activity should encompass several different and perhaps divergent goals. I believe recognition of this by substantial segments of informed citizenry is an important step forward in achieving a more systematic and improved public decision making process. However, a review of the current scene cannot help but impress one with the fact that all would not agree with such a statement. Among those who do agree, universal assent on how a multiple objective planning framework should be structured or what specific goals it should encompass is absent.

I have been asked to discuss these issues from the standpoint of economics. In some ways this is an all encompassing task since the economist is said to be limited only by what he does, or more narrowly by his ability to translate various phenomena into monetary terms. Thus, in addition to questions of national and regional growth, economic evaluation can include the social concerns relating to income equity between various classes, groups or regions. If environmental issues can be defined as externalities and quantified in common denominator units, they can be incorporated into either efficiency or equity evaluations. However, the other speakers can relax because I do not intend

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to hog the whole road. Just as it is obvious that overlaps exist in the topics to be discussed today, it is also obvious that all phenomena relevant to public policy cannot be reduced to monetary terms. The conceptual framework of economics does, however, provide a convenient and historically predominate reference point for us. Using this framework, I would like to reflect on how we arrived at this juncture in water resources planning. This somewhat detached review will hopefully set the current controversy in better perspective. However, conceptual issues do not dominate the current discussion. Rather more practical concerns have been highlighted. A review and somewhat partisan critique of these factors will conclude my presentation. Throughout I will try and touch on specific elements of the recent Water Resources Council's (WRC) recommendations for change in current planning procedures.²

The Theoretical Economic Backdrop

The literature of welfare economics serves as the basis for much of what we deem acceptable in the field of public investment evaluation. Speaking broadly, the objective has been to maximize social welfare by the systematic comparison of alternatives in light of conceptually meaningful criteria. Following Bergson, the economist has traditionally concentrated on the economic welfare of society rather than on a more general concept. It has been held that such an emphasis serves as a meaningful proxy for general welfare and is more susceptible to quantification and comparison.

However, other ethical or value judgments are also fundamental to the study of welfare economics. This stems directly from its em-

²Water Resources Council, Principles for Planning Water and Land Resources, July 1970.

phasis on the normative not the positive; the prescriptive not the descriptive. The most fundamental of these judgments is that each individual is the best judge of his own welfare (consumer sovereignty) and that the motivating force behind individual actions is the maximization of that welfare. Accepting this, the general welfare becomes a mere summation of all the individual welfare functions. Individual welfare is maximized under perfectly competitive market conditions, if one assumes that the distribution of income is given.

Private market failure, of course, becomes the rationale for governmental action--supposedly to restore or move toward an efficient allocation of resources. Thus, welfare becomes synonymous with income and national economic efficiency becomes the objective function to be maximized in pursuit of this end. Benefit-cost analyses of alternative governmental actions serve as the means. Narrowing the issues to this focus has concentrated disputes on issues concerned with the perfection of benefit-cost analysis within the bounds of received micro-economic theory. Thus, arguments turn on issues like the appropriate discount rate to utilize for efficiency evaluations and the methods required to estimate willingness to pay benefits from non-market goods provided by public intervention. That the former has had no satisfactory resolution is illustrated by the recent WRC recommendations. Conflicts over the latter can be seen in the recommendation to ignore water quality improvement per se in the calculation of efficiency benefits and the unsettled nature of recreation benefit estimation techniques.³

³Water Resources Council, Standards for Planning Water and Land Resources, July 1970.

But these issues only serve to hide a more fundamental issue. As implied above, it has always been recognized that efficiency evaluations accept the initial distribution of income as being in some sense "best" and assume that the costs of governmental intervention to correct a private market failure would be borne by beneficiaries in such a way as to retain that distribution. The unreasonableness of such assumptions in the real world needs no elaboration. Thus, welfare economics implicitly recognizes that social welfare, at least from an economic standpoint, is two dimensional in nature (that is, economic efficiency and various aspects of equity interact in the social welfare function.) This presented applied economists with a dilemma. If the concepts of welfare economics were to be utilized as guidelines for public decision making, assuming that the marginal utility of income was constant across all relevant classes was not satisfactory. Yet, if the ethical judgments concerning consumer sovereignty were to be retained, a measure of individual utility functions was required to permit weighting of income by beneficiary and this was beyond the realm of practicality. Introduction of explicit value judgments on equity questions seemed to be the only recourse.

In a search for a more scientific approach to issues of public policy, a series of propositions were formulated concerning how social welfare could be maximized or improved with no or, at best, limited recourse to the ethical considerations of distribution. The Kaldor-Hicks production-distribution dichotomy and associated compensation test, as well as modifications of it by Scitovsky and others, were attempts at isolating the distribution question so that the welfare implications of extramarket resource allocations could be assessed

in pragmatic (economic efficiency) terms. Thus, it was said that if the gainers from public action could (not would) compensate the losers, social welfare would be improved. Such attempts at providing an "objective" approach to the evaluation of public policy issues have been shown to be futile. Normative judgments on proposed governmental actions cannot be made without value judgments on distributional concerns. The net effect of attempts to provide an objective basis for welfare economics has been the obscuration of such premises.

In an effort to take cognizance of such charges, recent developments have relaxed some of the assumptions (but not the basic ethical judgments) underlying the efficiency model so as to permit incorporation of equity considerations. Thus, interdependence among individual welfare (utility) functions has been postulated. Income distribution questions can then be partially defined as externalities and incorporated into efficiency calculations like any externality. While this is a valuable concept, it obviously does not account for other distributional considerations nor does it account for the inability of individuals to agree on an appropriate distribution profile. Consequently, it is often suggested that the additional assumption of constant marginal utility of income among beneficiaries be relaxed to permit the weighting of willingness to pay benefits. This brings us full circle. For the issue is from whence cometh the weights? The underlying ethical judgments of consumer sovereignty and maximization of individual welfare require a knowledge of individual utility functions to ascertain the weights. Not only is this an empirical blind alley but it ignores the very real possibility that an individual may favor collective action that would be in contradiction to enhancement of his individual economic welfare.

Thus, welfare weights must be derived as values external to a model based upon individual welfare maximization. This must take place for no accurate proxy is available for differences in marginal utility of income nor, if there were, would it be sufficient for weighting components of a social welfare function relevant to collective action. The weights must be, by their very nature, value determinations made by individual participants in the political process. The ultimate tradeoffs between components of the social welfare function must be political decisions. To imply otherwise only serves to perpetuate the myth that received economic theory, and the evaluation methods stemming from it, can aid in assembling "objective" evidence about the wisdom of particular actions. Yet attempts at calculating marginal utility of income weights from extra-market actions continue. Applied to the real world, such a view results in continuing conflicts; not about the ethical judgments involved or the realism of assumptions but rather about the objectivity of participants in the process. Thus, positions taken on public policy issues or on restructuring the "rules of the game" for public decision making are often grounded on hidden propositions--namely, that the ethical judgments underlying welfare economics are in some sense the "best" for evaluating collective action. The argument over the best course of action is fought at the wrong level of inquiry. Rather than recognizing that a universally accepted framework to reconcile policy differences is impossible and that value free evaluations cannot take place, calls for the use of particular theories as the basis for evaluating alternative courses of action continue. Neither rigorous evaluation of the premises of such theories

nor the comparison with alternative formulations, however, is offered as a means of persuading acceptance.

Of what value, then, is formal welfare economics? With respect to ultimate public decision making its logic appears to break down because of the impossibility of making interpersonal comparisons of utility. It does serve a useful function, however, from a somewhat reduced position. That is, welfare economics serves first to highlight the economic components or goals relevant to a social welfare function. Efficiency and various forms of the equity question (including regional issues) are thrust forward. Secondly, given certain pragmatic assumptions, welfare economics provides a logical conceptual framework within which evaluation of all economic impacts can occur. Data is collected and organized to conform to this framework, and the result can be a systematic comparison of alternative policies. Third, welfare economics can affirm the need for value judgments when making final decisions on public policy. This sets the stage for what Nath calls ad hoc welfare economics--a situation where the weights between components of the welfare function are outcomes of the political process. As Steiner argues, this is not competitive with formal welfare theory, just broader and more encompassing. Moreover, it permits non-economic components of general welfare (which are not measured by commensurable units of value) to be incorporated in public investment evaluations. This, incidentally, is the course which the WRC recommendations appear to follow.

Practical Considerations

That an increasing number of economists are accepting the view taken above (that is, welfare weights being outcomes of the political

process) is, I believe, true. Whether such weights can then be articulated with respect to past decisions and used for ex ante evaluations is another matter. However, substantial opposition still exists to implementing any such framework for practical decision making. This opposition has been based not so much on the underlying concepts as on more practical grounds. Namely, the following three considerations seem to be important. First, the potential misuse of multi-objective evaluation is often cited. Second, the desirability of using water resource projects to meet an expanded range of social objectives is questioned, and third, it is argued that the appropriate tools do not exist by which the impacts on non-efficiency objectives can be measured. Let us consider these in turn.

Several economists and the conservation groups, in particular, have emphasized their distrust of the agencies in the use of the new procedures. Based upon experience with the implementation of benefit-cost techniques, they fear a loose application of the new procedures so that unjustifiable projects, from the multi-objective point of view, would be authorized. Because of the increased complexity of planning in a multi-objective evaluation framework, it is hypothesized that increased opportunity will arise and less of a check will be available to bureaucratic mishandling of evaluation procedures than under a single dimensional evaluation framework. A variation of this theme is that projects will be justified which are unable to pass the conventional economic efficiency criteria. Those who take the latter position either have not accepted the concepts of multi-objective planning as reviewed above (alas, all is lost) or question the value of water projects per se as a means of meeting other objectives. The latter falls under our second

problem area. First, however, what of the basic mistrust of the agencies? Although this mistrust is often based on historical performance, it needs to be recognized that the criterion of judgment has been unidimensional. This, however, cannot excuse agency performance. For even in light of multiple objectives, their actions cannot always be said to be rational, when judged against widely held value judgments on social welfare. Of more importance is the expectation of future outcomes resulting from a change in the rules of the game. Will control and other social interaction, which is admittedly lacking currently, be improved? One possibility is that multi-objective planning would result in internal change. That is, planners would become more aware of other social objectives, data would be collected and evaluated to point up project impacts on them, and the result would be a change in the mix and outputs of authorized undertakings. Interacting with or independent of such an effect is the distinct possibility that multiple objective planning will increase access and information flows to and from the planning system by external interest groups of all varieties. Being essentially political bodies, there is strong reason to believe that agencies will respond positively to such citizen involvement. Ecological and poverty issues are but two examples of society's concern which need to be heard when planning public projects. Forcing evaluation to take a unidimensional approach will only obscure these concerns (not reduce agency power) and will make the process of bringing agency goals in line with more accepted values of social welfare that much more difficult and time consuming. In other words, I believe that making certain tradeoffs more explicit by properly showing investments impacts

can ultimately reduce substantially the costs of public decision making. Failing to effect agency outputs in this way still leaves the wider political arena for concerned citizens to make their fight. Information for such an approach, structured along multiple objective lines, cannot fail to have a substantial impact for Congress and other responsive public bodies routinely act within this type of framework.

Two other comments are relevant to this discussion. First, the current process encourages what might be called veto politics. Seeing planning respond to only one goal forces adversely effected interest groups to use the "rules of the game" for purposes of delay and inaction. Witness the recent statements by those in the conservation movement. This results in apparent breakdown of governmental responsiveness and leads to the crisis of governmental leadership of which President Nixon spoke in his State of the Union address. Confidence in government is reduced as policies are planned to escape the veto power of certain groups rather than working with those groups and others to plan systematically for society's needs. The result of a change to multi-objective planning could be a reduction in the often ignored costs of making public decisions. This would appear to be one means of evaluating a change in evaluation procedures. Second, a related point has to do with the range of alternatives which the natural resource agencies can consider. Historically, this has been, according to statute, regulation and custom, relatively limited. Examination of a wider range of alternatives would better enable the nation's social and economic goals to be met. Multi-objective planning should encourage the examination of multi-means if, for no other reason, because of increased interest

group involvement in the process.

The second argument against use of multiple objectives is that water projects are not the way to achieve social objectives. In other words, more efficient ways exist to achieve desirable ends. This is a long standing argument of some economists. Of course the result is recourse to economic efficiency as the sole objective for use in water resources planning and evaluation, with only occasional attention being paid to other impacts. The point is, in my view, superficial. First, direct relationships obviously exist between such projects and societal concerns for issues like environmental quality. Moreover, the objective of maximum national economic efficiency and concern for nonquantifiable environmental quality factors are often in some conflict. Additional information on such tradeoffs need to be forthcoming from the evaluation process so that all appropriate alternatives can be weighed and rational choices can be made. As implied above, a wider range of alternatives should result from explicit consideration of all appropriate objectives. Second, although water projects are not the most efficient means of promoting certain goals like income equity, no one can deny that they affect such considerations--both favorably and unfavorably. Thus, projects do not need to be built expressly to meet a given objective to have an effect on it. Projects built to meet water needs do, for example, influence regional and personal incomes. It follows that alternative ways of meeting water needs should be compared with respect to their impacts on broader social objectives. If movements in this direction are not made, the result can be programs working against each other with respect to broader goals. Hiding such impacts under the benefit-cost umbrella only serves to obscure such considerations. Third,

water projects have been directed toward other objectives without explicitly measuring the effects on such objectives. Moreover, although direct transfers of income may be more efficient, they are not necessarily more effective. Direct monetary transfers are often infeasible for institutional and political reasons and, consequently, the provision of "income in kind" through public investment projects (not necessarily water projects) may be more desirable. In any case, the weight that one places on various objectives can vary and, thus, a low view of water projects with respect to a particular objective is not a valid reason to reject multiple objective planning. Individuals are free to weight objectives in any way they see fit, with respect to a particular action, and express their preferences in the political arena.

Finally, it is argued that sufficient techniques for implementation of the new procedures do not currently exist. This is an obvious straw-man. Methodology is quite clearly in a variable state of development. Benefit-cost techniques are highly sophisticated while ecological concepts are not. Yet we are still in the process of changing B/C techniques. Witness the suggested changes in benefit estimation techniques or the increased emphasis on externalities and immobile resources in the WRC recommendations. Lack of appropriate methodology did not inhibit passage of the 1936 Flood Control Act. Only by implementation will progress be made. The assistance and criticism of outsiders (such as academics) can lead to improved techniques but the process must be initiated by a bold break with the past. As an example, the case studies sponsored by the WRC have already lead to the publication of several techniques for handling personal income distribution questions and other issues raised by the new procedures. If implementation is begun, additional

efforts will be channelled and progress in this area should certainly follow rapidly. The concepts are not that difficult.

In conclusion, I feel the WRC's recommendations should, by in large, be supported. The economic objectives they suggest flow directly from welfare theory but the inability to reach "objective" decisions by the use of such theory is explicitly recognized. Coupled with an equal evaluation of relevant non-economic objectives, this approach to planning can do no less than have a substantial effect upon the mix and outputs of public investments. By providing additional information to the process it can reduce decision costs. Hopefully, both effects will correspond more closely to societal desires.