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I. INTRODUCTION[1]

Alternative water projects and policies are central social and political phenomena because any one will impact unevenly on society. Some social groups are advantaged at costs to others. While economic techniques for determining the general magnitudes of dollar "costs" and "benefits" of alternative water programs are relatively well developed, the assumption has been generally accepted that the entire population will be affected in a roughly equal manner. This assumption is rarely tenable. The well-being of some groups is almost always damaged more than others—esthetically, politically, and socially. Many significant social costs are not reflected in marketplace exchange—dollar values simply fail to reflect true costs—and most such non-market costs have not been amenable to systematic analysis. It is the purpose of this paper to:

A. Briefly state some of the most significant problems which must be confronted when attempting to address non-market social well-being considerations;

B. Present an analytical approach to the definition of social well-being that copes with the problems;

C. Illustrate the approach by presenting an analysis of four resource management alternatives conducted on a U.S. Forest Service planning unit identified here as "Big Vista Divide."[2]

II. THE PROBLEMS OF ANALYZING SOCIAL WELL-BEING

The problems of defining and measuring social well-being have been complex, intractable, and, for the most part, skirted by the social scientist who leaves the value judgments up to the

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1. The procedures described in this report are the product of work accomplished over the preceding two and one-half year period in conjunction with, and with support of, the River Basin Programs Staff, Area Planning and Development Branch, Division of State and Private Forestry, and the Office of Multiple Use/Environmental Quality Coordination, Region 2, U.S. Forest Service. Specifically, I wish to acknowledge the assistance of Coryell A. Ohlander and Peter Ashton, without whose help this exercise could not have been completed.

2. The actual planning unit upon which the analysis was conducted will not be revealed.

public or other responsible authorities. Yet, it is impossible to sort out alternative natural resource program impacts except in the context of some value criterion defining what is meant by social well-being. Analysis of social well-being presents problems because:

> A. Solutions for some groups are problems for others. To enhance social well-being of wilderness buffs undercuts the social well-being of snowmobilers, loggers, and other special-interest groups.
>
> B. There is the problem of intensity of gains and losses among groups. One alternative may spread small benefits to many people while imparting a large cost to a very few people. How much pleasure of the many gainers should it take to balance off the pain of the fewer losers? Although marginal economic analysis can suggest something with regard to this problem, there is no known methodology which can net-out pleasure over pain when all important values are not adequately reflected in the marketplaces—as is the case with much natural resource planning.
>
> C. People change their minds. Values and associated preferences are not permanent but can be fluid and unstable under changing circumstances. One's pattern of recreational preferences can be altered significantly by changing gasoline availability, real income levels, etc. Trying to predict what patterns of preference will hold in future decades for social groups in a rapidly changing society is a loose and hazardous exercise subject to great error.
>
> D. Social well-being is, in any case, not defined by what the majority of affected publics claims to prefer.

As Kenneth Arrow has demonstrated, where there are at least two choosing parties and three or more alternatives from which to choose, it is not possible to construct a decision rule which will yield stable results that can be identified with the peoples' maximal or optimal welfare.[3] For example, assume that the decision maker is faced with choosing among three alternative ways of using the land base and that each of the alternatives distributed some value differentially to affected parties as shown below:

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3. K. ARROW, SOCIAL CHOICE AND INDIVIDUAL VALUES (2d ed. 1963); *see also* Arrow, *A Difficulty in the Concept of Social Welfare*, 58 J. OF POL. ECON. 328 (1950).

Alternative	Payoff To A	B	C
1	3	1	2
2	2	3	1
3	1	2	3

If no side payments are allowed by which the parties might agree on an alternative and compensate the losers, thereby making everything come out equally, there is nothing in the structure of the situation that makes the social well-being mix represented by any one alternative more preferable than any other.

Furthermore, if we let parties A, B, and C choose the preferred alternatives by a majority vote, taking two at a time, we see that they end up selecting different alternatives as the best, simply as a function of the order in which pairs are compared. If alternatives 2 and 3 are first compared, 2 will obtain the majority vote; 2 when compared to 1 will be defeated leaving alternative 1 as the best choice. Yet, if the first pair compared is that of alternatives 1 and 3, then 3 will defeat alternative 1, and 2 will then be chosen over 3, resulting in a different definition of what the same group ends up choosing as best.

Thus, there can be nothing but despair for someone seeking to serve social well-being by learning what people prefer and then investing in those management alternatives which secure majority support. Serving majority preferences might be politically wise, but it has no necessary connection to social well-being. What is politically acceptable at any given time may undercut social well-being.

III. APPROACH TO THE DEFINITION OF SOCIAL WELL-BEING

Productive and useful analysis of social well-being must be approached by distinguishing between two levels of choice:

A. *Prescriptive Choice*: At which level does one encounter all the problems mentioned above? Prescriptive choice has to do with people prescribing choices for themselves and/or others. It is simply impossible to do a useful and defensible analysis by tapping into individual preference patterns of particular persons, groups, or organizations. There are no methodologies for determining that dollars spent to produce X acre-feet of water for agricultural use will generate more net social well-being than the same dollars spent to make Y acre-feet of water available for municipal use.

> B. *Context of Choice*: At which level is it possible and useful to determine whether a given management alternative will shrink, sustain, or expand the context of choice opportunities from which the publics may pursue and prescribe for themselves their particular and noncommensurable preferences? Decision makers are asked to view their land and water resources as setting contexts from which particular preferences can be met. The problem is to sustain and even increase the choice opportunities yielded by the land/water base. To broaden the context of choice is to serve social well-being—to undercut the context of choice is to damage social well-being. The decision maker is viewed as custodian and manager of choice opportunities. To get at the problem of analyzing what is happening to choice contexts as a consequence of implementing management alternatives, several analytical dimensions can be employed. One of these dimensions, the analysis of Futures Foregone, will be presented here.[4]

A. *Social Well-Being and The Analysis of Futures Foregone*

In sum, promoting social well-being is equivalent to promoting the context of choice which the planning area can afford to the diverse interested publics. One dimension of choice context is presented to measure whether the choice contexts will shrink more or less as a consequence of implementing different management alternatives. Who will be hurt and who will be advantaged if natural resource decision makers would choose to implement different management alternatives in designated planning areas? One key way to help and hurt people is to support or undercut futures for their activities on the land base. The part of social well-being which I wish to address here is that which has to do with who loses out on opportunities to act out their choices. A foregone future is an implementation of a management alternative that cancels out futures for incompatible choices or activities.

The idea of Futures Foregone is broken down into three measurable dimensions:

> A. *The scope of loss*: What proportion of people or things will lose a future for their activities on the land base if the designated management alternative is implemented?

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4. Analyses of other dimensions of the choice context are also under development and testing. They are presented in Freeman, Procedures to Display Effects of Land Management Alternatives on Social Well-Being, Dec. 1976 (prepared for the Division of State & Private Forestry, Area Planning & Development Branch, U.S. Forest Service).

B. *The intensity of loss*: How much will the lost future be missed in the planning area?

C. *The duration of loss*: What will be the length of time in years before the land base can sustain the foregone activities in their present condition after the proposed management alternative has been terminated?

A management alternative which foregoes futures for choice opportunities to a greater scope, with a greater intensity, and for a longer duration is a management alternative which is estimated to undercut social well-being, more than another management alternative which has lower futures foregone values associated with it.

B. The Meaning of Scope of Futures Foregone

Scope values indicate how much a choice opportunity for a future inside a given planning unit will be foregone if the designated management alternative is implemented. Scope values indicate the proportion of people or things affected by removing a future for a choice opportunity. (See Figure 1 for illustration of the scope concept.)

A. Scope values of (-)1.00 indicate that a future for some group or activity will be totally eliminated or foregone in the particular Planning Unit. For all practical purposes no group member can pursue a future for his activity on the Unit.

B. Scope values of (-).50 indicate that the future for some group or activity will be one-half foregone in the particular Planning Unit. This means that one-half of the hunters, elk, timber cut, etc., present can be sustained on that Unit if the designated management strategy is implemented.

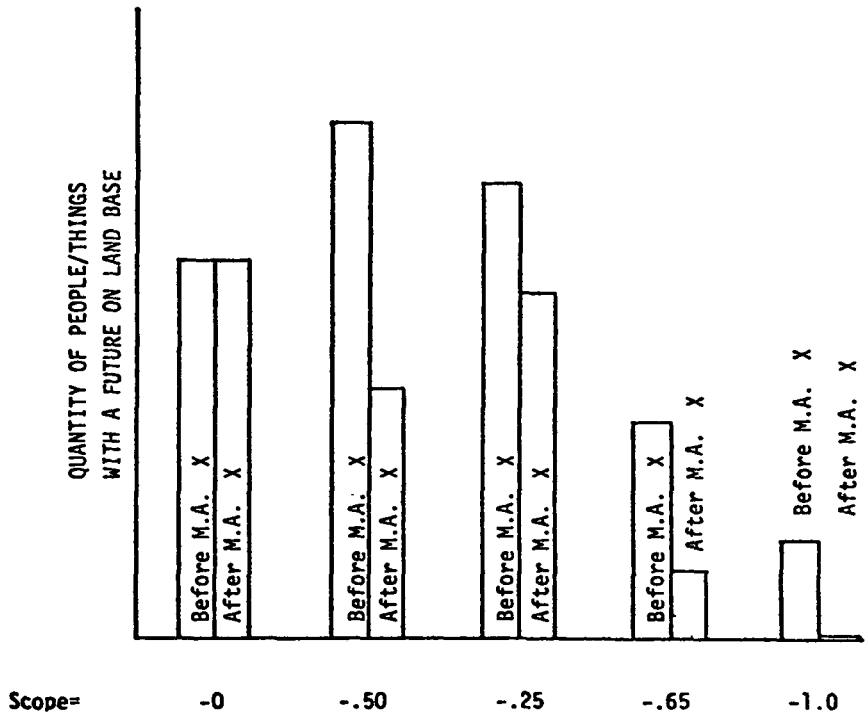
C. Scope values of 0 indicate that the future for some group or activity will be totally unaffected on a given Unit if the designated management strategy is implemented.

C. The Meaning of Intensity of Futures Foregone

Intensity values indicate the degree to which a foregone or lost future will be missed. Intensity values indicate the significance of loss. The key question for intensity is: Out of all the possible Resource Capability Units (RCU's) for sustaining a given future in the overall forest, how much will the lost future on the affected RCU's be missed if the designated management strategy is implemented? (See Figure 2 for illustration of the intensity concept.)

FIGURE 1

MANAGEMENT ALTERNATIVE—
SCOPE OF IMPACT

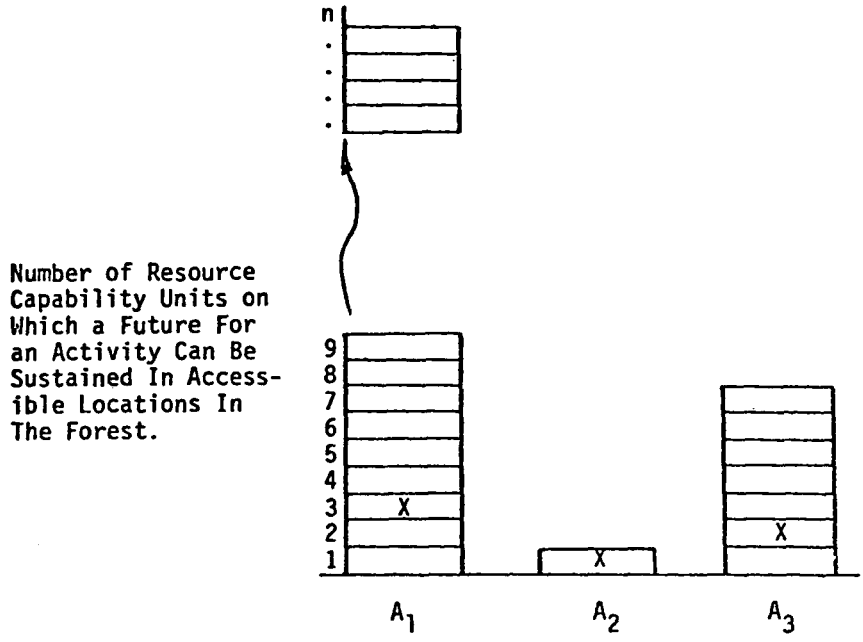


A. If the designed management alternative will undercut the possibility of a future for some group or activity, but that future is being sustained on many other RCU's, then the intensity of losing a future for that activity or group on the impacted Unit is low.

B. If the designated management alternative will eliminate the possibility of a future for some group or activity on a given RCU or set of units, but that future is being, or has been, foregone on many other units, the intensity of losing a future for that activity or group on the impacted unit is high.

C. People will miss a lost future choice opportunity more when that choice cannot be exercised elsewhere in accessible places.

FIGURE 2
MANAGEMENT ALTERNATIVE
INTENSITY OF FUTURES FOREGONE LOSS



To lose a future for group/activity "A_1" on one of many units would be a loss of low intensity.

To lose a future for activity "A_2" on the only unit left capable of sustaining it would be a loss of highest intensity.

To lose a future for activity "A_3" on one unit when only a few other units can sustain it would be a loss of moderate intensity.

D. *The Meaning of Duration of Futures Foregone*

Duration values indicate the length of time, in years, before the lost choice opportunity can be restored to its present condition after the proposed management alternative has been terminated. In other words, if decision makers should decide to terminate a given program, project, or policy, duration values indicate the number of years it is estimated to take to restore the land/water base to a point at which the previously foregone future for a choice opportunity can be exercised at present levels.

IV. THE METHOD AND PROCEDURE

A. *The Source of the Data*

Judgment is necessary as a source of data. However, since any given judge may start with a base of hidden biases, distorted information, fear of ridicule from peers, or reluctance to press views against strong personalities, it is important that the process of obtaining estimates minimize distortion factors and maximize the flow of information to the individual participant. To do this the Delphi technique is used.[5] The following steps are involved in the technique's operation:

> A. The list of items is presented to each participant who remains separate and anonymous from the rest of the group.
>
> B. Each participant writes down a judgment anonymously and passes it back to the coordinator.
>
> C. The coordinator, in turn, sets aside those areas on which substantial agreement occurs and passes back the items on which disagreement has been revealed.
>
> D. Keeping anonymity protected, each contributor gets to see any comments given as reasons for judgments made by the others and then proceeds to render once again a judgment, possibly revised, based on the anonymous inputs of the others.
>
> E. Within the course of three or four rounds, there typically is a convergence of judgment, and where judgments fail to converge, reasons for the differences emerge.

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5. For a detailed background in and discussion of the Delphi technique and its applications, the reader should refer to the following publications: N. DALKEY, D. ROURKE, R. LEWIS & D. SNYDER, STUDIES IN THE QUALITY OF LIFE: DELPHI AND DECISION-MAKING (1972); Pyke, *A Practical Approach to Delphi*, 2 FUTURES 143 (1970); Dalkey & Helmer, *An Experimental Application of the Delphi Method to the Use of Experts*, 9 MANAGEMENT SCI. 458 (1963); Pill, *The Delphi Method—Substance, Context, a Critique and Annotated Bibliography*, 5 SOCIO-ECONOMIC PLANNING SCI. (1969); Hill & Fowles, *The Methodological Worth of the Delphi Forecasting Techniques*, 7 TECHNOLOGICAL FORECASTING AND SOCIAL CHANGE 179 (1975).

The Delphi exercise is, therefore, a series of sequential interrogations based on opinion feedback at each step and focusing on areas of contention. It is an attempt to keep communication of informed judgments free from the biases of personality factors and social status, keeping the environment of judgment and communication as objective as possible.

A set of specific procedures has been developed for the purpose of obtaining data for the Futures Foregone portion of the analysis. These procedures have evolved out of extensive discussion and trials by the River Basin staff and limited field testing.

B. Interpreting the Data

The quantifications for Futures Foregone consist of ordinal values. Such values express the idea of "greater than" or "lesser than;" there is no standard unit underlying such scores. This means that when summing up all scope scores, for example, a value of -10 is not exactly two units greater than a value of -8; a score of -10 is merely somewhat greater than the value of -8. Ordinal measures only indicate the direction of social well-being impacts on each dimension, and alternative scores must be viewed as providing "greater than . . ." or "lesser than . . ." statements.

C. Panel Members and Their Characteristics

The group of judges participating in the exercise is small, not randomly selected, and is unrepresentative of the diverse affected publics in important ways. Participants were selected because:

A. Each has a background of experience with the Big Vista Divide Planning Area and a familiarity with the kinds of activities which take place on the unit.

B. Three Forest Service participants were selected not only because of their familiarity with the planning area but also because they possess technical backgrounds appropriate to the kinds of management issues being confronted.

C. Six citizen participants were selected from volunteers who had served as a Big Vista Divide land use study group —a group of private citizens who participated in a series of public involvement meetings conducted by the National Forest Service over the ten months preceding the Futures Foregone analysis.

It is important to note the hypothesis that participants need not be fully representative of all possible values or interests.[6] It is essential that participants be sufficiently knowledgeable about the planning area and the kinds of management strategies under consideration so that they can identify an impact on an activity or group even if they do not represent those interests. Similarly, it is reasonable to expect that knowledgeable judges can identify an impact on an activity or group even if they do not personally engage in that activity and are not members of that group. In fact, most judges quickly agreed on the nature of management alternative impacts on most items under consideration. In those cases where disagreement occurred, it was frequently reduced in succeeding rounds of the exercise and, when differences persisted after three rounds, discussion was carried out to uncover the nature of the outstanding differences of judgment.

The demographic characteristics of the judges are summarized in Table 1. Three foresters serving on the panel were joined by a real estate broker, a land-use planner, a city director of development, a resort owner-operator, and two county planners.

V. ILLUSTRATING THE FUTURES FOREGONE ANALYSIS ON BIG VISTA DIVIDE

A. *The Nature of the Management Alternatives Under Investigation*

The Management Alternatives evaluated for their impacts on social well-being are as follows:

> *Alternative A — Continue Present Management*
>
> Management emphasis is directed toward long term continuation of present uses and activities. Primary emphasis will be placed on maintaining endangered and threatened fish and wildlife habitats along with maintenance of historic and cultural sites. Dispersed recreational activities in a natural environment, protection and use of unique natural areas, and primitive types of recreation will also receive emphasis along with improve-

6. It is recognized that this is a major point and one on which specific empirical support has not been adequately developed. Discussions of this problem can be found in: G. WILLS, TECHNOLOGICAL FORECASTING (1972); Pyke, *A Practical Approach to Delphi*, 2 FUTURES 143 (1970); Hill & Fowles, *The Methodological Worth of the Delpi Forecasting Techniques*, 7 TECHNOLOGICAL FORECASTING TECHNIQUES 179 (1975); Helmer & Rescher, *On the Epistemology of Inexact Sciences*, 6 MANAGEMENT SCI. 25 (1959).

Table 1

Demographic Characteristics of the Panel Members

			Panel
I.	Age:	Under 25	0
		25-34	3
		35-44	4
		45-54	2
		55-64	0
		65+	0
II.	Sex:	Male	8
		Female	1
III.	Ethnic Group Status:		
		Anglo	9
		Chicano	0
		Black	0
		Indian	0
IV.	Education:		
		Professional (M.A., M.S., M.E., M.D., Ph.D., LL.B., etc.)	2
		Four Year College Graduate (A.B., B.S., B.M., etc.)	6
		1 - 3 Years College	1
V.	Gross Family Annual Income:		
		10,000-12,499	0
		12,500-14,999	2
		15,000-17,499	1
		17,500-19,999	2
		20,000-24,999	1
		25,000-29,999	2
		30,000+	1

ment of fish and wildlife habitats. Other resource uses and activities would be directed toward the protection of recreation and wildlife values.

On the west side of the Continental Divide emphasis is directed toward providing more intensive recreation and silvicultural opportunities which will contribute toward local economic and community stability. Thus, Alternative A would provide for a primitive, though non-wilderness area accomodating some forms of non-motorized recreation.

Alternative B — Maximum Wilderness

Protection and enhancement of amenity value will receive the primary emphasis. These amenities or intangible products and uses include: maximizing wilderness acreage within the definition of the Wilderness Act and Forest Service policy, fish and wildlife habitats, and protection of scenic and cultural features. Other resource uses and activities would be subordinated to the goals of environmental protection and maximizing wilderness. The maximum amount of wilderness within the definition of the Wilderness Act would be provided.

Alternative C — Recreational Diversity

Outdoor recreation would be optimized with primary emphasis on providing diversity of opportunities. Protection and enhancement of amenities and intangible values will receive emphasis. Fish and wildlife habitats will be protected and enhanced in support of optimizing recreation diversity. Alternative C would lie between alternatives B and D in the amount of wilderness provided.

Alternative D — Economic Development

Production of tangible forest products and resources would be optimized. Major emphasis will be placed on assisting local and regional economic growth and stability through development of high intensity recreation sites and utilization of renewable surface resources which include timber, forage, wildlife, and water. Resource utilization activities will emphasize maintaining compatibility of other resources, such as silvicultural practices, to improve water yields. Management emphasis will provide for maximizing economic values at minimal environmental costs. This alternative would provide the least amount of wilderness.

B. *The Overall Approach to Social Well-Being*

In sum, the approach to the analysis of social well-being is as follows:

A. to employ panels of judges selected for their knowledge and experience with the planning area under consideration;

B. to make estimates about the impacts of four different management alternatives on one dimension of social well-being —future choice opportunities foregone under each management alternative: Management alternatives which eliminate the fewest futures-for-choice opportunities and are judged to be superior from a social well-being standpoint.

What follows is the presentation of the data for each dimension of Futures Foregone.

C. *The Futures Foregone Data*

The Futures Foregone data is displayed in Table 2. Look-

ing down the page the reader will see the estimates of the panel for scope. Where the scope of a loss is a non-zero value, one will see accompanying estimates for intensity and duration values. The overall Futures Foregone summary score is computed as follows:

TABLE 2

FUTURES FOREGONE

Social Group Category	ALTERNATIVE A Cont. Pres. Mgt. Scope	Int.	Dur.	ALTERNATIVE B Max. Wilderness Scope	Int.	Dur.	ALTERNATIVE C Rec. Diversity Scope	Int.	Dur.	ALTERNATIVE D Econ. Dev. Scope	Int.	Dur.
Sawmills/Planing Mills	-.3	2	5	-1	6	4	-.5	4	5	0		
Logging Contractors	-.3	2	3	-1	6	2	-.5	4	5	0		
Cattle/Sheep Grazing	0			0			-.2	4	3	0		
Other Livestock	0			0			-.3	4	1	0		
Food Processing	0			-1	2	3	-.3	2	3	0		
Wilderness Recreation	-.3	7	100	0			-.3	6	50	-.7	8	100
Dispersed Recreation	0			0			0			-.5	8	3
Wildlife Recreation	0			0			0			-.3	6	1
Developed Recreation	-.3	4	2	-.8	6	5	-.3	2	5	0		
Minerals/Mining	-.2	3	1	-.9	7	3	-.5	4	5	0		
Watershed	-.2	6	5	-.4	6	3	-.3	6	5	-.3	4	5
Gas Stations/Auto Dlrs.	-.2	2	1	-.6	2	1	-.3	2	1	0		
Eating/Drinking Estab.	-.2	2	1	-.4	4	1	-.3	2	1	0		
Transport/Warehousing	0			-.5	4	2	-.3	2	3	0		
Personal Services/Repair	0			-.5	4	2	0			0		
Other/Retail	0			-.4	4	2	-.3	2	1	0		
Hunting - Game Birds	0			0			0			-.4	3	2
Hunting - Small Animals	0			-.5	4	1	0			-.4	3	2
Hunting - Large Animals	0			-.3	4	1	0			-.3	4	5
Camping - Remote	0			0			0			-.7	7	2
Camping - Developed	-.2	4	4	-.5	6	2	0			0		
Hiking	0			0			0			0		
Auto Sightseeing	-.3	4	5	-.5	4	5	-.4	2	1	0		
Skiing/Snow-Downhill	0			-.5			0			0		
Skiing/Snow, Cross Ctry.	0			0			0			-.4	4	1
Skiing/Water	0			0			0			0		
Swimming	0			0			0			0		
Fishing	0			0			0			-.3	4	1
Boating - Power	-.5	2	1	-1.0	1	0	-.3	1	1	0		
Boating - Non-Power	0			0			0			-.2	2	0
Housing	-.3	2	2	-1.0	4	2	-.5	3	1	0		
Business - Industrial	-.3	2	5	-.8	2	3	-.8	2	5	0		
Business - Agricultural	0			0			-.5	3	5	0		
Σ =	-3.6	42	135	-12.6	76	42	-6.9	55	101	-5.0	57	123
FF = (S) (I)+(-D) =	-286.2			-999.6			-480.5			-408.0		

Futures Foregone Ranking:

A-Cont. Pres. Mgt.	-286.2
D-Econ. Dev.	-408.0
C-Rec. Diversity	-480.5
B-Maximum Wilderness	-999.6

Note: Scores are outcome of Delphi Estimation Procedure. In those cases where there was not total consensus, the median score is employed.

$FF = (\Sigma S)\ (\Sigma I) + (\Sigma\text{-}D)$

Where:

FF = Futures Foregone for any single Management Alternative

S = Estimated Scope of Loss

I = Estimated Intensity of Loss

D = Estimated Duration of Loss (and where both scope and duration are entered as minus numbers).

In effect, this formula for computation of the FF score weights intensity as the single most important variable in the equation because scope can vary only between 0 and -1 while intensity can vary from 0 to 16. Duration, by adding it to the product of scope and intensity, has an important impact but not nearly as much as if the number of impact years were also used as a multiplier.

The logic is that higher scope and duration of losses can be tolerated where intensity of the loss is low, but when intensity of losses rises—because few or no alternative Resource Capability Units exist to support the activity in the surrounding area—then the foregone choice opportunity will be severely missed on the land base and that fact should be highlighted by an equation that makes intensity of loss a most significant determinant of the FF score.

The results of the Futures Foregone analysis are as follows:

Management Alternative		Futures Foregone Score	Rank Order
A.	Continue Present Management	—286.2	1
B.	Maximum Wilderness	—999.6	4
C.	Recreational Diversity	—480.5	3
D.	Economic Development	—408.0	2

Why do we find this pattern of outcomes? There are several points to be made:

A. Economic Development shows a second place finish in the Futures Foregone analysis because economic development in the Planning Unit is heavily recreation oriented as opposed to industrial, agricultural, or forest product oriented. In other words, economic development in this Planning Unit does not carry with it as much in the way of negative side effects, which would sound the deathknell of futures for many other activities, as one might think if one has the image of economic development as associated with intense industrial, agricultural, or forest product (timber) development.

B. Economic Development looks good as compared to Maximum Wilderness, not because of any inherent bias in the procedure against environmental quality and a wilderness man-

agement strategy, but because of the provisions of the separate alternatives. The Economic Development alternative provided for some wilderness area in the northern portion of the Planning Unit. The Maximum Wilderness alternative, on the other hand, provided for a much enlarged wilderness area to extend southward across the Planning Unit. Therefore, the management alternatives were constructed in such a manner that the Economic Development alternative provided for some wilderness while the Maximum Wilderness alternative failed to provide for many of the diverse activities which necessarily results in the loss of futures for many non-wilderness opportunities.

In other words, the Maximum Wilderness alternative emphasizing wilderness did not leave room for the diversity of activities which each of the other management strategies allowed for, and this fact is clearly reflected in the high Futures Foregone scores. Each of the other three alternatives provided for varying portions of wilderness in primitive recreation areas—thereby holding the wilderness losses down—whereas the Maximum Wilderness alternative did not provide as many opportunities for the other activities which the affected publics act out on the Planning Unit.

In sum, there is no inherent bias in the procedure against wilderness uses of the land base. The results obtained are an outcome of the manner in which the management alternatives were constructed. Had the Economic Development alternative not been so recreation oriented and had it not provided for a wilderness area in the northern portion of the Planning Unit, it would have drawn much higher Futures Foregone scores.

VI. CONCLUSIONS

Since demand for water and land resources is outstripping available supplies, it is critical that careful analysis of resource management alternatives be pursued before making irreversible commitments. Tool kits have been developed for constructing analyses of technical and economic aspects of such alternatives, but the toolbox labelled "Social Well-Being" has remained notably empty. This is no mere happenstance—the emptiness reflects the existence of tough conceptual problems which are outlined in Part II of this paper. No one knows how to solve these problems in any ultimate sense, but it is possible to construct a definition of social well-being which is subject to systematic analysis and measurement. The problems are sidestepped by moving away from the analysis of choices at the prescriptive level and by focusing on attributes of the context of choice offered by a given land/water planning unit. Whereas it is impossible to prescribe that there is any more net

human well-being in a municipal use of X units of water than in a recreational or agricultural use, it is possible to examine the effects of the alternative uses on the choice context which would be available to present and future generations of affected groups. Those mixes of water/land use which expand the choice context, or which reduce the choice context the least, contribute more to social well-being than those which foreclose more futures for choice opportunities. The Futures Foregone analysis has potential because:

A. It makes possible the quantitative comparison of natural resource alternatives before highly irreversible commitments are made. Too often social well-being implications have been discovered only in retrospect. By the time the negative impacts are felt, and groups are mobilized, the investments in an alternative have been so high as to make remedial action costly, difficult, time-consuming, and peripheral to the damages sustained by negatively affected groups.

B. The Futures Foregone analysis can be performed at low cost. Given the current state of the art, it is possible to conduct a Futures Foregone analysis at a small fraction of the costs of technical and economic analysis, and it has been established that the procedures can be phased into natural resource planning processes without creating disruption of existing technical and economic procedures of analysis.

C. The analysis can provide a framework for the coherent structuring of public involvement. Much current public involvement is diffuse, unfocused, and difficult to analyze. Before systematic analysis of public involvement information can be accomplished, it is important to have a set of well-formulated questions. It is insufficient to have found that some groups support and oppose given projects or policies. The questions to be answered always have to do with trade-offs among different mixes of advantages and disadvantages. The analysis of Futures Foregone has the potential of providing a framework within which each set of proponents and opponents can begin to systematically comprehend the social effects of a given land/water use alternative and begin to visualize the overall pattern of those effects on other affected parties. The systematic display of such information might operate to increase the meaningfulness of participation in public involvement sessions, and it should result in more constructive consideration of trade-offs among opposing groups who otherwise tend to make public involvement sessions a forum for non-negotiable conflict.

D. The Futures Foregone analysis of social well-being can supplement more traditional technical and economic analysis in a complementary fashion. The social well-being analysis of Fu-

> tures Foregone does not replace other technical and economic analysis, but it does open up new aspects of the resource allocation problem which have great significance to the quality of life. Alternative futures are a precious resource. Decision makers must husband, conserve, and expand them with as much consideration as any material resource.

It is impossible to prescribe particular choices in the name of social well-being today and for coming generations, but it is possible to think of serving others, including future generations, by retaining and expanding the context of choice as much as possible. To leave a legacy of expanded choice opportunities for others is to leave the greatest gift of all—it is what progress in social life is all about.