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Comments on Current Issues

Editor's Note

In addition to being outstanding scholars in their fields, the authors of this paper have served as expert witnesses for the United States and/or Indian Tribes in a number of Indian water rights cases. Given the importance of the issues raised here for the on-going development of water law, the *Journal* is planning a later issue which will more fully develop the debate as to how one "appropriately" measures economic feasibility, involving scholars who have considered this problem from divergent points of view.

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The "New" *Arizona v. California*: Practicably Irrigable Acreage and Economic Feasibility

I. INTRODUCTION

The *Arizona v. California* case was reopened for the purpose of adjudicating water rights for omitted and boundary lands on the several Indian Reservations. The Master's Report in this case has been submitted to the U.S. Supreme Court.¹ While the Court has yet to act on specific recommendations in the Master's Report, principles for interpreting the practicably irrigable acreage rule for quantifying the Indian's reserved (Winters) water rights adopted by the Master are of interest given their potential for establishing important precedent in water rights law. In this regard, and briefly stated, the Master concludes that: "For present purposes, a finding that annual benefits exceed costs *will suffice for a finding of practicable irrigability* (emphasis added)."²

Thus, economic feasibility is established as the means for demonstrating practicably irrigable acreage³ which, in turn, serves to quantify water reserved to the tribes. In setting this standard, the Special Master dem-

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1. In the Supreme Court of the United States, October Term, 1981, *Arizona v. California et al.*, Report of Elbert P. Tuttle, Special Master, February 22, 1982 (hereinafter referred to as Master's Report 1982).

2. *Id.* at 100; See also 94-100.

3. "... practicably irrigable . . . very nearly means economically feasible;" *id.* at 94.

onstrated (in our view) a remarkable facility in grasping the subtlety of relevant economic concepts in his analysis of testimony. Regretably, however, testimony from only one economic expert⁴ precluded his consideration of at least three important and controversial aspects of benefit-cost studies (most commonly used for measuring economic feasibility) which will surely be at issue in later cases. These aspects may be critical in choosing the structure of a benefit-cost study that will provide measures for economic feasibility which “. . . most nearly adhere to the law . . .”⁵ and include: the distinction between economic feasibility and financial feasibility; criteria which determine the scope of included benefits and costs; and criteria for discounting methods. In what follows we provide the reader with a brief sketch of issues relevant for those topics.

II. FINANCIAL VERSUS ECONOMIC FEASIBILITY

The Special Master had little trouble in recognizing the general distinction between economic and financial feasibility; thus, we have but a few clarifying comments to offer. Among his several observations in this regard,⁶ in discussing the interest rate the Master concludes: “Because this was an economic analysis, the goal was not to determine the interest rate at which money could actually be borrowed. The United States, I believe, chose the correct approach, because the question of practicable irrigability turns upon economic rather than financial analysis.”⁷

Thus, in looking to economic feasibility—as opposed to financial feasibility which centers on the repayment issue—as indicative of a “practical” irrigation project, the Master follows the long-established precedent in U.S. reclamation policy wherein the assessment of a project’s economic feasibility is an issue separate from (and first in priority to) issues related to repayment.⁸ Thus, Leavitt Act provisions (for Indian projects) and “excess” power revenues (for non-Indian projects) are relevant for repayment considerations but are *not* relevant for the assessment of economic feasibility.⁹ Unfortunately, our earlier exposition concerning the appropriate role of Leavitt Act provisions in feasibility analysis¹⁰ was seemingly unclear, leading the Master to conclude that our theme sug-

4. *Id.* at 141.

5. *Id.* at 95.

6. *See, e.g., id.* at 95–96 and 141.

7. *Id.* at 167.

8. This point is developed in § 3 of Burness, Cummings, Gorman, and Lansford, *U.S. Reclamation Policy and Indian Water Rights*, 20 NAT. RES. J. 807–26 (1980) (hereinafter Burness): “. . . it was clear that reimbursement was *not* to be used as a criterion for project feasibility” at 814.

9. *See* the Master’s rejection of the use of subsidies for purposes of demonstrating economic feasibility in Master’s Report 1982, *supra* note 1, at 95–96.

10. Burness, *supra* note 8, at 824.

gested the use of Leavitt Act deferment provisions as social benefits to offset project costs.¹¹ It is important that this issue be clarified. Use of Leavitt Act provisions (or "excess" power revenues) in an assessment of economic feasibility has *no* foundation in theory or precedent, ". . . such assessment is independent of repayment considerations."¹²

III. THE SCOPE OF BENEFITS AND COSTS

In terms of the scope of benefits and costs to be included in a study of economic feasibility, the most important issue is whether or not "secondary" benefits (and, it is to be understood, costs) are to be included. As distinguished from "primary" benefits (also called "direct" and/or National Economic Development, NED, benefits), usually measured as the increase in net farm income attributable to the irrigation project, secondary benefits are the *increases* in income and employment in other sectors of the economy that result from (for example) the increase in the project farmer's purchases of household items as well as machinery, equipment, fertilizers, etc. As long as the economy is not fully employed, such "secondary" increases in income that are induced by primary benefits may be regarded as every bit as much a social benefit as primary benefits and, properly measured, are included in the analysis of economic feasibility. Obviously, if the economy is fully employed, the project farmer's purchase of, for example, a tractor would not result in the economy's production of another tractor—the farmer's purchase would simply displace (at a likely cost in inflation) some other farmer's purchase of a tractor. In the case of full employment neither secondary nor primary (in many cases)¹³ benefits would attend the project—resources would simply be shifted from one use to another with no net gain in employment or incomes.

Secondary benefits were apparently not included in measures for economic feasibility put before the Master in the new *Arizona v. California* case, and the rationale for their exclusion involves an interesting issue for Indian water rights cases. Prior to 1973, direct and secondary benefits were used in all economic feasibility studies for reclamation projects. On the average, secondary benefits accounted for some 40% of agricultural benefits claimed for BuRec projects during this period.¹⁴ Referring to Table 1, only six of the 28 projects built during this period in the Rocky

11. Master's Report 1982, *supra* note 1, at 96 n. 17.

12. Burness, *supra* note 8, at 824.

13. Primary and secondary benefits can result in the full employment case when resources are shifted to higher valued uses, as in the case of primary benefits where land is put under irrigation. In a strictly technical sense, this would not be the full-employment case inasmuch as some resources—water—were not fully employed.

14. Burness, *supra* note 8, at 819, Table 2.

TABLE I
Historical Measures for Benefit-Cost Ratios

Project	Direct Agricultural Benefits Only	Direct and Secondary Benefits
Angostura	.36	.90
Bluff	.45	1.45
Boysen	.77	.78
Canyon Ferry	.59	1.46
Crow Creek	.34	.76
East Branch	.95	1.93
Eden	.53	1.17
Ft. Clark	.41	.73
Garrison	1.15	2.26
Glendo	1.51	1.47
Hanover	.43	1.74
Heart Butte	.61	1.42
Helena Valley	.59	1.42
Lyman	.60	.79
Navajo	.31	1.03
Oahe	1.32	2.20
Owl Creek	.49	.94
Preston Bench	.34	.34
Provo River	1.08	1.88
Rapid Valley	.32	1.58
San Felipe	1.87	2.71
San Juan—Chama	.55	1.02
Seedskadee	.52	1.54
Shadehill	.57	1.11
Shoshone	.39	1.34
Vale	1.80	2.33
Weber	.96	1.50
Yellowtail	.51	.92
AVERAGE	.72	1.38
(Number of Projects)	(28)	(28)
RANGE:	.31—1.87	.34—2.71

Source: Data from studies prepared by the Bureau of Reclamation; values in these studies are adjusted to constant 1978 dollars.

Mountain and Pick-Sloan regions would have passed the Master's test for practicable irrigability *without* the inclusion of secondary benefits.¹⁵ In 1973 the Water Resources Council (WRC) published its principles and standards for analyzing the economic feasibility of water and land-related projects,¹⁶ and the general policy of the United States attorneys has been that prevailing WRC guidelines are to be followed in preparing measures for economic feasibility. Secondary benefits are not included in benefit-cost measures under the WRC's 1973 (and later amended)¹⁷ guidelines and, therefore, were not included in measures put before the Master in this case. The exclusion of secondary benefits from WRC-mandated benefit-cost measures results from a critical assumption—recognized by the WRC as “somewhat arbitrary”¹⁸—required by the WRC for benefit-cost studies, *viz.*, one must assume that the economy is fully employed.¹⁹

The relevance of the above for the rule by which economic feasibility implies practicably irrigable acreage is then immediately apparent: what scope of benefits is appropriate for demonstrating economic feasibility? Prior to 1973, during which the bulk of Western waters were developed, full employment was *not* assumed and economic feasibility encompassed secondary benefits; between 1973–1982, full employment became a required planning assumption and secondary benefits were excluded from measures of economic feasibility. Oddly enough, the economy was more fully employed during the 1960–1973 period, when the average unemployment rate was 4.9%, than after the time at which the full employment assumption was required—the average unemployment rate between 1973 and 1980 was 6.8%. With the planned dismantling of the WRC,²⁰ planning standards for 1982 and the future may or may not require the full employment assumption; at this point, standards are simply unclear.

Given, as shown above, that planning standards change from time to time, and that the effects of such changes *vis-a-vis* the substance of benefit-cost measures may not be trivial,²¹ the equity implications of measuring the feasibility of a right which is “reserved” through time with standards

15. Of the 28 constructed projects, eight fail the test *with* secondary benefits when values are adjusted to 1978 dollars; in current dollars, however, most projects had benefit-cost ratios greater than 1 when secondary benefits are included.

16. Economic Feasibility Standards, 38 *Fed. Reg.* 24, 777 (1973).

17. Amendments to Economic Feasibility Standards, 45 *Fed. Reg.* Part II, Sec. 711.61 (1980).

18. *Id.* at 64,384; *see* response to Comment No. 202 at 64384.

19. 38 *Fed. Reg.*, *supra* note 16, and 45 *Fed. Reg.*, *supra* note 17; *see* particularly WRC response to Comment No. 127, at 64379.

20. 47 *Fed. Reg.* 12,296 (1982).

21. This point is forcefully made by comparing pre-1973 and post-1973 benefit-cost measures given in Table 1.

extant at a particular moment in time²² pose an (as yet) unanswered challenge in water rights law.

IV. DISCOUNTING METHODS

There is probably no topic in economics about which more has been written, and less understood, than the question as to how one chooses an appropriate rate of discount. In the case at hand, the United States' economist is reported to have stated that the federal discount rate is commonly used for economic analyses.²³ The term "federal discount rate" is ambiguous²⁴ and may refer to the Federal Reserve's discount rate, the OMB-mandated discount or, most likely, the discount rate required by the WRC which is, for obvious reasons, the rate commonly used for assessing federal projects. The fact that the WRC discount rate is commonly used for federal reclamation projects (indeed, its use for such purposes is mandated by Congress)²⁵ does *not*, however, make its use unequivocally appropriate for determining practicably irrigable acreage.

Given the space allowed here, we can only touch on this extraordinarily complex issue; we hope to give the subject more comprehensive treatment in a later work. However, the following are a few of the major issues relevant for considerations regarding an "appropriate" discount rate.

(a) the discount rate *must* be a real, inflation-free rate; as recognized by the WRC,²⁶ the WRC rate (used in the new *Arizona v. California*) is *not* a real rate.

(b) in cases where streams of benefit/costs affecting future needs across multiple, future generations are involved in an analysis of economic feasibility, serious questions arise as to the ethical implications of discounting.²⁷

(c) widely different ranges for "appropriate" social discount rates depend on one's assumptions as to whether consumption or investment is displaced by the project.

22. The WRC's 1973 standards made explicit that such standards were subject to change as the WRC determines that "... experience, research, and planning conditions dictate," 45 *Fed. Reg.*, *supra* note 17, at §716.6.

23. Master's Report 1982, *supra* note 1, at 167.

24. It is likely, and understandable, that the U.S. economist's precise jargon was slightly altered in the Master's Report.

25. Act of August 4, 1939, Pub. L. No. 76-260, 53 Stat. 1187 (1939).

26. U.S. WATER RESOURCES COUNCIL, OPTIONS FOR THE DISCOUNT RATE 15 (Nov. 1975).

27. As one example, see Schulze, Brookshire, and Sandler, *The Social Role of Discount for Nuclear Waste Storage: Economics or Ethics?*, 21 NAT. RES. J. 811-32 (1981). Indeed, the "future needs" dimension of reserved rights raises questions as to the appropriateness of benefit/cost analysis *per se* as a means for demonstrating feasibility.

(d) computational issues raise a host of other conceptual problems, not the least of which are those associated with the question as to how risk and taxes are to be treated in the selection of a social discount rate.