NATURAL RESOURCES JOURNAL

Volume 31
Issue 3 *Summer 1991*

Summer 2020

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ABSTRACT

The United States Supreme Court's recent grant of certiorari to consider the "Practicably Irrigable Acreage" (PIA) quantification standard for an Indian water right award has caused speculation about the continued viability of that standard. This article considers the use of the PIA standard in litigation, and draws several conclusions. First, the PIA standard cannot be understood as a method of effecting Congress' actual intent with regard to Indian reservations, both because the existence of actual Congressional intent to reserve water is problematical, and because of the unfairness of applying anachronistic technology to measure the water rights of modern reservations. Thus, the PIA standard must be understood as an expedient device designed to award water based on an objective characteristic of a reservation. The article concludes secondly, that the standard fulfills this description only where the trial courts apply a generally accepted economic feasibility analysis such as the principles and guidelines adopted by the United States Water Resources Council. Even where this is done, however, the article suggests the PIA standard is unsatisfactory because it does not directly address the real economic choices of the Indian people.

INTRODUCTION

On February 23, 1989, the United States Supreme Court issued a writ of certiorari to the Wyoming Supreme Court to address the following question:

> In the absence of any demonstrated necessity for additional water to fulfill [Indian] reservation purposes and in the presence of substantial state water rights long in use on the reservation, may a reserved water right be implied for all practicably irrigable lands within the reservation?[1]

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1. Wyoming v. United States, 488 U.S. 1040 (1989).

This grant of certiorari caused speculation throughout the West that the Court would address once again the issue of the quantification of reserved water rights on Indian reservations.[2] An evenly divided Court ultimately affirmed the case below without opinion, so that no changes were made in the law.[3] The extensive briefing of the case both by parties and various amici, however, as well as the Court's questions on oral argument, sharpened the issues surrounding this controversy. This article will discuss the quantification standard of "Practicably Irrigable Acreage" (PIA) used in the Wyoming case, and whether that standard properly quantifies reserved water rights for Indians.

I. BACKGROUND

In *Winters v. United States*,[4] the United States Supreme Court held that a federal reservation of land also explicitly reserved enough water to make that land "valuable or adequate" for the purposes of the reservation.[5] The water rights thus implied from federal action, referred to as "federally reserved rights," attach to each of the numerous federal reservations of land in the West.[6]

In addition, particularly where treaties are involved, the United States and tribe or tribes concerned have argued that the recognition of sovereign boundaries entailed a reservation of implied water rights by the *Indians* rather than by the federal government.[7] Whether reserved rights are reserved by the United States or by the tribes themselves, they have in most cases not yet been quantified. It is this question of quantification that was before the United States Supreme Court in the *Wyoming v. United States* case.

The quantification question is of critical importance to water users in the West. Because of the structure of western water law, large reserved right awards may cause drastic changes in water use. Under the water rights doctrine of prior appropriation, which has been adopted by most western states as the controlling water rights law, the first appropriator of the waters of a stream has priority over the other users, and therefore

2. *See* Arizona v. California, 460 U.S. 605 (1983).

3. Wyoming v. United States, 492 U.S. 406 (1989).

4. 207 U.S. 564 (1908).

5. *Id.* at 576.

6. In United States v. New Mexico, 438 U.S. 696 (1978), the Court discusses the potential size of the problem of measuring federal reserved rights, describing the "sheer quantity of reserved lands in the western states, which lands form brightly colored swathes across the maps of these States." *Id.* at 699. Enormous amounts of water, and thus wealth, are at stake in these quantification questions.

7. *See, e.g.*, Montana, *ex rel.* Greeley v. Confederated Salish and Kootenai Tribes, 712 P.2d 754, 758 (Mont. 1985); United States v. Winans, 198 U.S. 371 (1905); United States v. Abousleman, No. CIV 83-1041C (D.C.N.M. 1984), Response of the Pueblos of Jemez, Zia and Santa Ana to the Motion for Partial Summary Judgment by the State of New Mexico, filed June 17, 1988. These have been referred to as "Indian reserved rights."

the best right.[8] Thus, if there are two users on a stream, one of which appropriated water earlier than the other, the prior appropriator's right will be fully satisfied in times of shortage, even if the other user on the stream must go completely dry. This system means that the priority of a right is crucial to whether exercise of that right will result in actual water.

The priority of a federal reserved right is the date of the reservation.[9] These dates are frequently earlier than the priority dates of non-federal appropriators on the same stream. Moreover, the priority of an "Indian reserved right" may be aboriginal,[10] meaning that Indian priority would prevail over any other appropriator. Therefore, the award of a large reserved right, whether federal or Indian, may preempt present water users and entirely deprive non-federal appropriators of water upon which they have—possibly ill-advisedly—relied. As the Supreme Court recognized, an increase in federal reserved rights in a fully appropriated system would mean a "gallon-for-gallon reduction in the amount of water available for water-needy state and private appropriators."[11] Thus, until reserved rights are quantified many present water uses are uncertain, as present users cannot know if or when a reserved right will be adjudged to pre-empt them.[12]

The Supreme Court in *Winters* did not address the quantification problem.[13] The Ninth Circuit considered the quantification issue in a few cases early in this century, but reached no unequivocal rule.[14] It was not until

8. *See, e.g.*, Snow v. Abalos, 18 N.M. 681, 693, 140 P. 1044 (1914).

9. Winters v. United States, 207 U.S. 564, 577 (1908); Arizona v. California, 373 U.S. 546, 599-600 (1963). *Cf.* Veeder, *Indian Prior and Paramount Rights to the Use of Water*, 16 Rocky Mtn. Min. L. Inst. 631 (1971).

10. Under the "Indian reserved right" analysis, the right is held to have been reserved by the Indians themselves, rather than by the federal government on their behalf. United States v. Adair, 723 F.2d 1394, 1413 (9th Cir. 1983); *cert. denied*, 467 U.S. 1252 (1984).

11. United States v. New Mexico, 438 U.S. at 705.

12. The problem is also extensive in terms of the number of controversies. One commentator identifies fifty major disputes over water in the West between Indians and non-Indians. J. Folk-Williams, What Indian Water Means to the West: A Sourcebook, 30-31 (1982).

13. Winters v. United States, 207 U.S. 564 (1908) suggests, and later cases find, that the amount of water reserved is that amount needed to fulfill the purposes of the reservation. Cappaert v. United States, 426 U.S. 128, 138 (1976) [relying on Arizona v. California, 373 U.S. 546 (1963)]. This does not help much, however, as the purpose must still be determined. Furthermore, the amount of water appropriate to any given purpose is not easily determined in any obvious way. PIA, for example, is only one answer to the question of how water rights for an agricultural purpose could be determined. Alternatively, a court might award water on the basis of the percentage of lands similar to tribal lands which are presently under irrigation in the area, on the theory that Congress intended to put Indian and non-Indian irrigators on an equal footing. *See* April 25, 1989 Transcript of Oral Argument at 23-24, Wyoming v. United States, 492 U.S. 406 (1989).

14. The Special Master in the second Arizona v. California case remarked of the Ninth Circuit cases:

> Prior to the earlier proceedings in this case, courts had reached various quantification standards. The goal was undoubtedly to reserve enough water to satisfy the Indians' present and future needs. The accomplishment of that goal was met by various schemes. For example, a fixed decree giving the Indians an amount of water historically used

the first *Arizona v. California* case,[15] where the measure of Indian water rights was one issue among many in the determination of water rights in the Colorado river basin,[16] that the Supreme Court first provided guidance on the quantification issue left open in *Winters*. In this *Arizona v. California* opinion, the Court adopted the Special Master's recommendation, based on a finding that the Indian reservations in question had an agricultural purpose,[17] that federal reserved water rights should be measured on the basis of the PIA standard.[18] That is, the federal reserved right equalled the amount of water which was needed to irrigate all reservation lands which were practically susceptible of irrigation. The Court agreed with the Special Master that the PIA standard was "the only feasible and fair" standard, adding that a standard based, for example, on a projection of Indian population would require too much guesswork to be useful.[19]

In 1983, the *Arizona v. California* case reached the Court again.[20] The Court affirmed the PIA standard as *res judicata* and accepted the Special Master's recommendation as to the quantity of water which should be awarded. This quantity was based on the Special Master's finding that the practicably irrigable acreage analysis must include the "economic feasibility" of proposed irrigation projects.[21] In other words, land will be

was possible if circumstances clearly showed that the future needs will not increase. United States v. Walker River Irrigation District, 104 F.2d 334, 340 (9th Cir. 1939). Under other circumstances the Indians had been entitled to enough water to irrigate all irrigable reservation land. Skeen v. United States, 273 F. 93, 95-96 (9th Cir. 1921); United States v. Hibner, 27 F.2d 909, 911 (E.D. Idaho 1928). Indeed, courts had held that Indians may be entitled to such water as is required to meet present needs with the qualification that if their needs increase such Indians may apply to the Court for an increase in the decreed amount. Conrad Investment Co. v. United States, 161 F. 829, 832-35 (9th Cir. 1908); United States v. Ahtanum Irrigation District, 236 F.2d 321, 326-28 (9th Cir. 1956), on appeal from district court decision on remand, 330 F.2d 897 (1964). No standard was definitive for all cases.

February 22, 1982 Special Master's Report at 89, *adopted in pertinent part*, Arizona v. California, 460 U.S. 605 (1983).

15. 373 U.S. 546 (1963).

16. The amicus brief of the State of California and the Metropolitan Water District of Southern California (parties to the Arizona v. California cases) traced for the Wyoming v. United States Court the evolution of the PIA standard. These entities argued that the standard came about with very little analysis or argument, as it was a side issue in a highly complicated case the chief focus of which was the Colorado Compact, a subject only tangentially related to issues of Indian water rights quantification. These entities argued, therefore, that the adoption of the PIA standard was not a well thought out embodiment of either historical intent or federal Indian law policy, but an expedient standard arrived at in default of a thorough search for a more workable one. Brief Amicus Curiae of the State of California and the Metropolitan Water District of Southern California in support of Petitioner at 6-13, Wyoming v. United States, 492 U.S. 406 (1989).

17. *See, e.g.*, Conrad Investment Co. v. United States, 161 F. 829 (9th Cir. 1908); United States v. Ahtanum Irrigation Dist., 236 F.2d 321 (9th Cir. 1956), *cert. denied* 352 U.S. 988 (1957). *See also* Skeen v. United States, 273 F. 93 (9th Cir. 1921).

18. Arizona v. California, 373 U.S. 546, 600-601 (1963).

19. *Id.* at 601.

20. 460 U.S. 605 (1987).

21. February 22, 1982 Special Master Report at 94, *adopted in pertinent part*, Arizona v. California, 460 U.S. 605 (1983).

classified as "practicably irrigable acreage" if it can be shown not only that crops can be grown there, but that they can be grown there economically.

Following this pronouncement, litigation of reserved right claims for Indian interests took on a well-defined form. The first question revolves around the historical question of the purpose of the reservation. If the purpose is found to be agricultural, or to include an agricultural purpose,[22] the court will likely turn to the PIA standard. Under this standard, Indian tribes, and more typically the United States on the Indians' behalf, propose irrigation projects for allegedly irrigable land.[23] The trial court then subjects the proposed project to a benefit/cost analysis, comparing the likely costs of the project to the likely financial returns. If the latter outweighs the former, the project can be found economically feasible, and the underlying land "practicably irrigable," thus permitting a water award.

While this trial process developed, the Supreme Court addressed the federal reserved rights of non-Indian federal reservations and laid out what seemed to some observers to be circumscriptions of the federal reserved right doctrine. In *Cappaert v. United States*,[24] for example, the Court considered the federal reservation of water rights for a national monument. After noting that the implied reservation of water rights doctrine "applies to Indian reservations and other federal enclaves,"[25] the Court stated that the doctrine "reserves only that amount of water necessary to fulfill the purpose of the reservation, no more."[26] Further, the quantification of reserved water rights must be "tailored . . . to minimal need."[27]

Subsequently, in *United States v. New Mexico*,[28] which involved water rights for national forests, the Court again suggested that the implied reservation doctrine measures water rights by the minimum necessary to fulfill the reservation's purposes. The Court stated: "Each time this court has applied the 'implied-reservation-of-water doctrine,' it has carefully examined both the asserted water right and the specific purposes for which

22. Tribes and Pueblos have in some cases claimed a "homeland" purpose for the reservation. *E.g.*, *In Re* Rights to Use Water in Big Horn River, 753 P.2d 76 (Wyo. 1988), *cert. granted in part sub. nom.* Wyoming v. United States, 488 U.S. 1040 (1989), *aff'd without opinion by equally divided Court*, Wyoming v. United States, 492 U.S. 406 (1989). The quantification standard the tribe argued in that case, however, was still PIA. The United States and tribes argued that because agriculture is one of the uses possible to the tribe on its homeland, it should be accommodated. Water for other uses would be awarded over and above PIA.

23. *E.g.*, *In Re* Rights to Use Water in Big Horn River, 753 P.2d 76 (Wyo. 1988); State of New Mexico *ex rel.* Reynolds v. Lewis, Nos. 20292, 22600 (Chaves County 1956) (consolidated), United States v. Abousleman, No. CIV 83-1041C (D.N.M. 1984).

24. 426 U.S. 128 (1976).

25. *Id.* at 138.

26. *Id.* at 141.

27. *Id.*

28. 438 U.S. 696 (1978).

the land was reserved, and concluded that without the water the purposes of the reservation would be entirely defeated."[29]

Justice Powell dissented in *United States v. New Mexico,* on the grounds that the Court should have recognized a reserved water right for wildlife. He began this dissent with a characterization of the majority opinion: "I agree with the Court that the implied reservation doctrine should be applied with sensitivity to its impact upon those who have obtained water rights under state law and to Congress' general policy of deference to state water law."[30] *United States v. New Mexico,* therefore, has been cited for the proposition that federal reserved water rights should be quantified with "sensitivity" to the surrounding water rights on which it will have an impact.[31] If applicable, this analysis again suggests that a federal reserved water right award should be the minimal amount possible to support reservation purposes.

To many observers, the Court's statements in *Cappaert v. United States* and *United States v. New Mexico* are in conflict with the PIA standard.[32] The *Cappaert v. United States* and *United States v. New Mexico* cases speak in terms of the amounts of water "minimally" needed so that the purposes of the reservation are not "entirely defeated." The PIA standard has no room for considering the minimal need for water so that an agricultural purpose would not be entirely defeated, but instead, by including every irrigable acre on the reservation, awards the maximum amount of water that an agricultural purpose could justify.

One year later, in *Washington v. Washington State Commercial Passenger Fishing Vessel Association,*[33] the Court considered the quantification of an Indian treaty right to take fish both on and off the reservation. The Court first concluded that the Indians had a right actually to take fish,[34] as opposed to merely an equal opportunity with non-Indians to try and catch them, as the State of Washington had argued. The Court then turned to the measure of that right.[35] The Court approved the district court's procedure of dividing the available resource into treaty and non-

29. *Id.* at 700. The Court footnoted this statement with a discussion of Winters v. United States, Arizona v. California and Cappaert v. United States. This seems to indicate the Court's belief that the analysis described in the statement is appropriate to both Indian and non-Indian cases.

30. United States v. New Mexico, 438 U.S. 638, 718 (Powell, J., dissenting) [Citations omitted].

31. *See* In Re Rights to Use Water in Big Horn River, 753 P.2d 76, 111-12 (Wyo. 1988).

32. *See, e.g.,* Brief of Petitioner Wyoming, *passim,* Brief of New Mexico as Amicus Curiae at 7-10, Wyoming v. United States, 492 U.S. 406 (1989).

33. 443 U.S. 658 (1979).

34. *The Washington v. Washington State Commercial Passenger Fishing Vessel Association* [hereinafter *Washington Fishing Vessel*] Court equated the treaty language of "securing" fishing rights with the language of "reserving" rights in United States v. Winans, 198 U.S. 371 (1905), the case usually cited for the origin of "Indian reserved" water rights. *Id.* at 678. *See also,* United States v. Adair, 753 F.2d 1394 (9th Cir. 1983).

35. 443 U.S. at 674.

treaty shares, then reducing the treaty share because the Indians could not show a need for the full amount. The Court characterized this procedure as "consistent with our earlier decisions concerning Indian treaty rights to scarce natural resources"[36] and cited the seminal federal reserved water rights cases, describing them thus: "[i]n those cases, after determining that at the time of the treaties the resource involved was necessary to the Indians' welfare, the Court typically ordered a trial judge or Special Master in his discretion, to devise some apportionment that assured that the Indians' reasonable livelihood needs would be met.[37]

Later in the opinion, the Court reiterated its approval of the district court's placement of a ceiling on treaty rights, stating:

> It bears repeating . . . that the 50% figure (awarded to the Indians by the district court) imposes a maximum but not a minimum allocation. As in *Arizona v. California* and its predecessor cases, the central principle here must be that Indian treaty rights to a natural resource that once was thoroughly and exclusively exploited by the Indians secures so much as, but no more than, is necessary to provide the Indians with a livelihood—that is to say, a moderate standard of living.
>
> Accordingly, while the maximum possible allocation to the Indians is fixed at 50%, (footnote omitted), the minimum is not; the latter will, upon proper submissions to the District Court, be modified in response to changing circumstances. If, for example, a tribe should dwindle to just a few members, or if it should find other sources of support that lead it to abandon its fisheries, a 45% or 50% allocation of an entire run that passes through its customary fishing grounds would be manifestly inappropriate because the livelihood of the tribe under those circumstances could not reasonably require an allotment of a large number of fish.[38]

Like *Cappaert v. United States* and *United States v. New Mexico*, *Washington Fishing Vessel* seemed to many observers to conflict with the PIA standard. *Washington Fishing Vessel* ties an award of scarce natural resources tightly to the actual need of the Indian people, measuring that need by population and by economic choices rather than by the characteristics of the reservation or the commercial potential of the resource. The *Washington Fishing Vessel* Court even establishes a procedure to reduce Indian rights to a scarce natural resource where Indian need is

36. *Id.* at 685.

37. *Id.* at 685-86, (citing Arizona v. California, 373 U.S. 546, 600 (1963); Winters v. United States, 207 U.S. 564 (1908)). *See* United States v. Winans, 198 U.S. 371, 384. The Court's reliance on these cases strongly suggests that the Court believed that the *Washington Fishing Vessel* analysis applies in water rights cases, even though the natural resource at issue there was fish.

38. *Washington Fishing Vessel*, 443 U.S. at 686-87.

reduced by loss of population or a change in economic choices on the reservation. Such a procedure is in sharp contrast to the ordinary understanding of a PIA award, where water rights are measured by fixed features of Indian land rather than by the fluctuating needs of the Indian people.[39] Also in *Washington Fishing Vessel,* the Court implicitly described the creation of the PIA standard in the first *Arizona v. California* opinion as a particular Special Master's discretionary response to the Court's directive to fashion an apportionment that assured the Indians a reasonable livelihood. By this, the Court could be understood to be repudiating the suggestion that the Court itself had adopted the PIA standard as a universally applicable measure for Indian rights to water.[40] Further, the Court seemed to be saying that the overriding consideration in measuring Indian rights to scarce natural resources is the assurance of a "reasonable livelihood" or a "moderate standard of living." The PIA standard, which looks to the irrigability of reservation land without regard to the needs of the Indians living on that land is not tailored to address that consideration.[41]

39. In *Wyoming v. United States,* the Shoshone and Arapaho Tribes argued that the fact that the Court cited *Arizona v. California* in Cappaert v. United States, 426 U.S. 128 (1976), *United States v. New Mexico* and *Washington Fishing Vessel,* must mean that the Court did not see any conflict between the standards enunciated in those later cases and the PIA standard of *Arizona v. California.* Brief for Shoshone and Arapaho Tribes at 28-32, Wyoming v. United States, 492 U.S. 406 (1989). The tribes argued that the Court must have viewed itself as having made an implicit finding in *Arizona v. California* that PIA *does* address Indian need. It is hard to see how this could be so. *Id.* The PIA standard could give a large water award to a small tribe on a lush reservation, and a small water award to a populous tribe on a reservation unsuited for farming. There is no obvious nexus between the result of a PIA analysis and the characteristics of the Indian people asking for the water. At the *Wyoming v. United States* argument, one member of the Court remarked: "I mean, I find it difficult to believe that in 1868 Congress, no matter what the size of the Indian population that was contemplated to be on the—on the reservation in question, should be deemed to have said we're giving enough water to irrigate every—every inch of arable land. No matter how large the tribe they thought they were settling. . . ." (April 25, 1989) Transcript of Oral Argument at 36-37, Wyoming v. United States, 492 U.S. 406 (1989).

40. This understanding was also set forth by the Special Master in the second *Arizona v. California* case who describes the PIA standard and states:

> Although the Court did not necessarily adopt this standard as the universal measure of Indian reserved water rights, (footnote omitted) it constitutes the law of this case for the five Reservations under consideration.
>
> February 22, 1981 Special Master's Report at 90, *adopted in pertinent part,* Arizona v. California, 460 U.S. 605 (1983).

41. At this point in the analysis what may be the central political controversy concerning the quantification of Indian water rights arises—the question of what is meant by Indian "need." "Need" could be understood to refer only to that amount of water required for a tribe's own use on the Reservation, or it could refer to the amount of water required to support tribal commercial enterprises and serve as a direct source of tribal wealth. The sad reality is that many Indian peoples suffer from poverty, unemployment and other serious social problems. Thus the second, more expansive definition of "need" is attractive. The possession of a large, valuable water right could, if sale or lease of the water were permitted or if profitable irrigation projects were built, go a long way to alleviate these terrible circumstances. *See* Brief for the Shoshone and Arapaho Tribes at 46, Wyoming v. United States, 492 U.S. 406 (1989). Under this definition, the "necessity" tests of *Cappaert, United States*

Thus, *Cappaert v. United States, United States v. New Mexico,* and *Washington Fishing Vessel* use limiting language regarding reserved or treaty rights, and seem to point away from the PIA standard. On the other hand, *Cappaert v. United States* and *United States v. New Mexico* were not Indian cases, while *Washington Fishing Vessel* was not a water rights case. Therefore, although all three cases cite and discuss Indian water rights cases, none precisely addresses the use of the PIA standard. The opportunity to address the standard directly was presented by the grant of certiorari in *Wyoming v. United States.*

II. THE BIG HORN WATER ADJUDICATION

In state court, *Wyoming v. United States* followed the litigation pattern described above. A Special Master at the trial court level found that the reservations had a "homeland" purpose. This purpose "[i]ncluded an agricultural purpose," triggering the PIA standard. The Special Master then considered various proposed irrigation projects and made findings on their economic feasibility. On the basis of that analysis, the Special Master recommended an agricultural award to the Shoshone and Arapaho Tribes of the Wind River Reservation totaling 477,292 acre-feet per year, as well as smaller reserved right awards for non-agricultural uses.[42]

The Special Master's Report was submitted to the district court, which disagreed with the "homeland" finding, and instead found an exclusively agricultural purpose for the reservation, consequently rejecting reserved right awards for non-agricultural uses. In addition, the district court corrected acreage figures; rejected the tribes' claims to groundwater to satisfy their reserved right; refused to recognize surface rights not covered by the reserved right award; and imposed limitations on the reserved right.

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v. New Mexico and *Washington Fishing Vessel* would never conflict with a PIA award in the sense of limiting that award to minimal needs, as Indian need is not minimal.

There is, of course, another side to the argument. For one thing, *Washington Fishing Vessel* seems to preclude this analysis, as it ties Indian need for a scarce natural resource to population, implying that need is a matter of actual Indian use rather than the commercial potential in a resource. Further, to address the second definition of "need" in the context of water right litigation is arguably an unreasonable abdication of federal trust responsibility. Rather than addressing reservation problems directly as a matter of its trust responsibility, the United States attempts to provide a source of wealth to tribes by pressing large reserved rights claims. While the tribes may stand in great need of *money,* the issue in these quantification cases involves the need for *water*; that is to say, actual beneficial use by the tribes. To obtain water entirely for its value as a marketable commodity rather than for actual beneficial use subverts the most fundamental principle of western water law, that "[b]eneficial use shall be the basis, the measure and the limit of the right to the use of water." N.M. Const. Art. XVI, § 3. *See also* Ariz. Const. art. XVII § 2; Idaho Const. art. XV, § 3; Colo. Const. art. XVI, § 3; Utah Const. art. XVII, § 1; Wyo. Const. art. VIII, § 3.

For convenience, this article uses the word "need" to refer to actual uses, or uses projected to be actual Indian uses, as opposed to the use of water as a salable commodity.

42. December 15, 1981 Special Master Report and June 1, 1984 Supplemental and Final Special Master's Report, No. CIV 85-203 to 85-204, 85-217, 85-218, 85-225, 85-226, 85-236, (Wyo. 1977).

These limitations consisted of a prohibition on the export of water off the reservation, a subjection of the water to state law for administrative purposes, and required installation of measuring devices. Further, the district court rejected the Special Master's attempt to show "sensitivity" to non-Indian concerns[43] by a phasing-in of Indian uses at a rate no greater than 10% a decade. Instead, the district court addressed the "sensitivity" issue by requiring that Indian water uses be made from upstream storage rather than by direct flow diversions. This requirement was later deleted on reconsideration.[44]

The Wyoming Supreme Court upheld the ruling that the purpose of the reservation was agricultural, and to a great extent upheld the PIA findings. On the issue of whether the PIA standard should be applied at all after *Cappaert v. United States, United States v. New Mexico,* and *Washington Fishing Vessel,* the Wyoming Supreme Court, after acknowledging that those cases seemed to establish a "needs" test for water rights quantification, upheld the use of the PIA standard, pointing out that the PIA test had not been directly overruled and that there was a need for certainty in western water litigation.[45] The Wyoming Supreme Court agreed that groundwater could not be used to satisfy a federal reserved right. The Supreme Court also upheld state law administration of federal reserved rights, and agreed with the district court's ultimate decision that no adjustment of the PIA award to show "sensitivity" was appropriate.[46]

There were sharp dissents. Justice Thomas, for example, argued that the real purpose behind the establishment of an Indian reservation is a permanent homeland for the Indian peoples, and that the need for water on such a homeland will vary with the social evolution of those peoples. He refused, however, to recognize in the context of a quantification of reserved rights the use of water off the reservation as a salable commodity. He then criticized the majority's application of the PIA standard as not dealing with practical realities, stating:

> I would be appalled, as most other concerned citizens should be, if the Congress of the United States, or any other governmental body, began expending money to develop water projects for irrigating these Wyoming lands when far more fertile lands in the midwestern states now are being removed from production due to poor market conditions. I am convinced that, because of this pragmatic concern, those lands which were included as practicably irrigable acreage, based upon the assumption of the construction of a future irrigation

43. *See* United States v. New Mexico, 438 U.S. 638, 718 (1978) (Powell, J., dissenting), discussed *supra* at p. ___.

44. *See* Amended Judgment and Decree, *supra* at p. ___.

45. *In Re* Rights to Use Water in Big Horn River, 753 P.2d 76, 101 (Wyo. 1988).

46. *Id.*

> project, should not be included for the purpose of quantification of the Indian peoples' water rights. They may be irrigable academically, but not as a matter of practicality, and I would require their exclusion from any quantification.[47]

District Judge Hansam, sitting by designation, agreed generally with Justice Thomas' analysis, specifically approving the view that the purpose of an Indian reservation is as a permanent homeland. He disagreed only with Justice Thomas' assertion that homeland purpose could not properly be furthered by the use of water as a salable commodity off the reservation.[48]

No direct evidence was presented at trial on how much water the reservation might need to fulfill its purposes. Before the United States Supreme Court, Wyoming argued that the failure to employ a standard which addressed reservation need was contrary to the Court's rulings in *Cappaert v. United States,* and *Washington Fishing Vessel.*[49] In addition, Wyoming and various amici supporting the state's position argued that the PIA standard has not proven to be the "feasible and fair" standard that the Court in the second *Arizona v. California* case hoped, and should therefore be rejected.[50] Several amici supporting the petitioner suggested alternative standards,[51] and some argued that any award should be made with "sensitivity" to the competing needs of non-Indian users.[52]

The United States, the tribes, and various supporting amici argued that the PIA standard provided a fair and certain standard of quantification on which the parties could and had relied, whereas a new standard would plunge the West into uncertainty.[53] The United States, tribes and various amici also argued that a PIA standard properly fulfilled the needs of a reservation which, like the Wind River Reservation at issue in the Wy-

47. *Id.* at 119 (Thomas J., dissenting).

48. *Id.* at 135.

49. The *Wyoming v. United States* case also presented a related question of superseding congressional intent. In 1905, Congress passed a law which specifically directed the United States to obtain water rights on this reservation under state law. Wyoming argued that this direction by Congress superseded any federal reserved rights. Alternatively, Wyoming argued that the rights obtained under state law met the reservation's needs, so that no federal reserved rights were required. Because of the Court's summary affirmance, there is no way to know whether this 1905 law might not have been dispositive. This article, however, concentrates on the issue of the appropriateness of the PIA standard.

50. Brief for Amici Arizona, Idaho, Montana, Nevada, Utah and Washington at 10-18, Wyoming v. United States, 492 U.S. 406 (1989); Brief for Amici California and Metropolitan Water District of Southern California at 13-18. *Id.* Brief for Amicus New Mexico at 6. *Id.*

51. *See e.g.,* note 49.

52. *E.g.,* Brief for Amicus Salt River Project at 12, Wyoming v. United States, 492 U.S. 406 (1989).

53. Brief for the United States at 48, Wyoming v. United States, 492 U.S. 406 (1989); Brief for the Shoshone and Arapaho Tribes at 38, *id.*; Brief for the Shoshone Bannock Tribes at 22-27, *id.*; Brief for the Native American Rights Fund at 10, 29-30, *id.*

oming case, had been founded with an agricultural purpose.[54] Finally, these parties, addressing the question of "sensitivity," argued that the United States Supreme Court has specifically rejected employing equitable considerations in determining Indian water rights,[55] but that, if equitable considerations were taken into account, the amount awarded below was not inequitable in any way.[56]

Wyoming v. United States squarely addressed the gap in the Supreme Court reserved rights precedent by raising the issue of quantifying reserved water rights in an Indian context. Although the Special Master disagreed with the district court and the Wyoming Supreme Court on the purpose of the reservation, and on collateral legal and factual questions, all three courts upheld the use of a PIA standard. Based on the trial evidence of the economic feasibility of the irrigation projects proposed, all three courts awarded just under half a million acre-feet of water to the tribe. This amount was far in excess of the tribes' existing uses at the time of trial, and if fully used, may be taken away from non-Indian uses.[57] Thus, the *Wyoming v. United States* case provides an example of how a federal reserved right award under a PIA standard can greatly change the ownership and uses of water in the West. In the sense of providing an actual, certain, and final award that is likely materially to benefit the tribes, however, *Wyoming v. United States* represents a successful application of the PIA standard.

III. THE MESCALERO CASE

While *Wyoming v. United States* was being litigated, a state court in New Mexico was considering very similar issues in *State of New Mexico ex rel. Reynolds v. Lewis*,[58] (the *Mescalero* case). The PIA claims made by the Mescalero Apache Tribe of southern New Mexico were similar in

54. *See e.g.*, n. 52.

55. *See, e.g.*, Cappaert v. United States, 426 U.S. 128, 138-139 (1976). ("[A party] argues that the cases establishing the doctrine of federal reserved water rights articulate an equitable doctrine calling for a balancing of competing interests. However, an examination of those cases shows that they do not analyze the doctrine in terms of a balancing test.")

56. *E.g.*, Brief for Native American Rights Fund *et al.* at 16-21, Wyoming v. United States.

57. This is in contrast to the water at issue in the Arizona v. California cases, 373 U.S. 546 (1963); 460 U.S. 605 (1983), where the water was unappropriated at the time of trial. In the *Arizona v. California* situation, therefore, the federal reserved right award was not at least immediately to the detriment of other users. Some commentators have used that case to suggest that Indian water rights awards generally will not affect non-Indian users. *E.g.*, Chambers, *Indian Water Rights After the Wyoming Decision*, Harvard Indian Law Symposium (1989); *see et al.*, at 23-24, Wyoming v. United States, 492 U.S. 406 (1989). Such reasoning, however, not only relies inappropriately on the specifics of *Arizona v. California*, but also on the assumption that tribes will not be permitted to take water for which they cannot show a use. That proposition is not clear. At the very least, tribes may assert their federal reserved rights at the expense of non-Indian uses, for the purpose of preserving an in-stream flow. Precisely this controversy has now developed in Wyoming.

58. Nos. 20294, 22600, (Chaves County 1956) (consolidated).

form to those brought by the Shoshone and Arapaho Tribes of the Wind River Reservation, although the Mescalero Tribe claimed less water in a more water-short system. The Mescaleros claimed 17,705.4 acre-feet per annum of the flows of the Rio Ruidoso and Rio Hondo Basin, mostly under a PIA standard.[59]

The district court followed the quantification scheme of the cases discussed above. First, the Court ruled that the Mescalero reservation had a "homeland" purpose.[60] In *Mescalero,* like *Wyoming v. United States,* the district court then adopted PIA as the appropriate measure of federal reserved water rights for an Indian tribe. In contrast to *Wyoming v. United States,* however, the district court was not persuaded that the projects proposed by the United States and Mescalero Tribe were economically feasible. The district court rejected the tribe's claims to the extent they relied on PIA, ruling that the United States and tribe had failed to prove the economic feasibility of the proposed irrigation projects. The court awarded the tribe its existing water uses, and 950 additional acre-feet of water annually for future, non-agricultural uses. This latter award seemed to be factually based on a population projection submitted by the tribe and the United States, and stipulated to by the State of New Mexico. The United States and the tribe have appealed the District Court's decision to the New Mexico Court of Appeals.[61]

The *Mescalero* court's complete rejection of the PIA claims is an intolerable result for the United States and the tribe. Except for the population-based award of 950 acre-feet—arguably contrary to *Arizona v. California's* rejection of a population-based standard—the Mescaleros have *no* reserved right provision for future uses. This appears to defeat the *Winters* holding. Certainly this result belies the claim that the PIA standard provides any certainty about the extent of Indian water rights in the West.[62] Different Indian litigants under the same standard got half a million acre-feet for the one, and virtually nothing for the other. Such divergent outcomes increase the uncertainty surrounding Indian water rights, and may even encourage litigation. Yet because the economic feasibility of hypothetical irrigation projects is a question of fact involving witness credibility, the PIA standard always will carry with it the pos-

59. United States and Tribe's Proposed Findings of Fact and Conclusions of Law filed September 9, 1988, *id.*

60. State v. Lewis, Nos. 20294, 22600 (Chaves County 1956) (consolidated) (decision of the Court filed January 26, 1989).

61. State v. Lewis, No. 11718 (N.M. Ct.App. August 8, 1989).

62. *See* Brief for the Shoshone and Arapaho Tribes at 22, Wyoming v. United States, 492 U.S. 406 (1989) (where the need for certainty as a basis for retaining the PIA standard is discussed); *but see* Brief Amicus Curiae for the States of Arizona, Idaho, Montana, Nevada, Utah and Washington at 10-20, *id.* (where the widely varying results of the PIA standard are raised as a source of uncertainty in western water law).

sibility that witnesses opposing the feasibility of a project will be found credible, and a tribe will be awarded nothing. The only alternative would be to *require* the court to find economic feasibility in order to fulfill *Winters* right obligations, a requirement which would make a mockery of the entire legal procedure.[63] The *Mescalero* case represents a failure of the PIA standard, a failure which demonstrates that the standard itself is flawed.

IV. FLAWS IN THE PIA STANDARD.

Considering the *Wyoming v. United States* and *Mescalero* cases together, at least three actual or potential problems with the PIA standard are clear. The first is in the nature of a possible pitfall, which both courts avoided; that is, the use of historical analysis in a PIA case. Both because reserved rights are implied rather than explicitly historically established and because the purposes of Indian reservations—possibly by contrast to other federal enclaves—were historically varied or even contradictory, an historical analysis is unhelpful to the quantification issue. PIA should be considered not as an effort to reflect a problematical historical congressional intent, but as an expedient strategy to arrive at a number which is objective and certain.

When viewed in this light, the PIA standard encounters a second flaw. This second flaw is inherent in the economic feasibility analysis that the second *Arizona v. California* Court made a part of the PIA standard. An economic feasibility analysis by its nature is not the objective, scientific inquiry that the *Arizona v. California* Court obviously hoped for from the PIA standard. Instead, as the *Mescalero* case unmistakably illustrates, an economic feasibility analysis requires the guesswork as well as policy and equity considerations that the PIA standard was originally adopted to avoid. Controversies surrounding the proper discount rate for Indian projects and the proper accounting for opportunity costs, for example, are often simply cloaks for policy and equity arguments that could and should be handled directly. This flaw could be much ameliorated by standardizing the economic principles governing the feasibility analysis as, for example, requiring conformity with federal principles and guidelines for water projects. This cure, however, carries its own flaws, as it is extremely difficult to show economic feasibility under these guidelines.

63. The Mescalero Tribe comes close to asserting this in its Brief-in-Chief to the New Mexico Court of Appeals, where it argues baldly that the district court's refusal to grant water to the tribe for agricultural purposes was in itself error. Appellants Brief-in-Chief at 50, State v. Lewis, No. 11718 (N.M. Ct.App. August 8, 1989). This implies that the court had no discretion to find that the projects proposed were not economically feasible. If that is so, then the whole PIA trial approach is a waste. Why should we go through the form of examining a project for economic feasibility, if the court cannot find that it is not economically feasible?

There is a third, more central problem with the PIA standard. PIA does not address directly the Indian's real needs and choices. Thus, while the standard holds out hope of huge water awards which could be a source of great wealth as in *Wyoming v. United States,* the all or nothing nature of the benefit/cost analysis also carries with it the possibility of the *Mescalero* result. The standard is geared toward large-scale agriculture which may or may not be feasible on a given reservation, rather than toward a tribe's undeniably real need for water. Thus, the tribe is being asked to proffer what may be fictional irrigation projects in order to obtain enough water for those real needs. In doing this there is a genuine risk of obtaining nothing. All parties would be better served if the quantification process were directed more straightforwardly to the realistic economic choices and population needs of the various Indian reservations.

A. The Role of Historical Considerations in a PIA Analysis

The federal reserved water rights doctrine is one of implied, not express, rights.[64] The Supreme Court has recognized that the federal government, at the time it expressly reserved lands, must have intended to reserve the water without which the lands are useless.[65] This reasoning stands in an analytically difficult shadow world between history and policy. On the one hand, the implied intent purports to be historical in nature, giving rise to a particular priority date, for example. Thus, both the defenders and detractors of the PIA standard attempt to bolster their positions by reference to historical conditions at the time of the reservation.[66] On the other hand, because the intent is merely imputed—that is, its historical reality is irrelevant for purposes of establishing reserved rights—it seems strained to impute an historical definition to that imputed intent for the purpose of quantifying an extremely valuable right to a scarce resource. This article, therefore, concludes that the effort to inform the quantification of federal reserved rights with historical considerations is futile and should be abandoned.

The widely divergent views reached by different parties claiming to analyze the same implied intent illustrates the futility of the historical approach. For example, in *Wyoming v. United States,* certain respondents argued that the federal Indian policy at the time of the reservation Treaty was one of individual assimilation of Indian people into the mainstream of society, and that, therefore, Congress could not have intended to award significant rights to the tribe, as holding property as a Tribe would retard

64. United States v. New Mexico, 438 U.S. 697 (1978).

65. Winters v. United States, 207 U.S. 564 (1908).

66. *See, e.g.,* Brief for the United States at 11-13, Wyoming v. United States, 492 U.S. 406 (1986).

the assimilation process.[67] By contrast, the Shoshone-Bannock Tribes[68] argued that recent Supreme Court analysis "firmly establishes that contemporary resolution of Indian treaty claims to scarce natural resources must be grounded in a careful examination of relevant history," and sets out history surrounding the treaty-makers' intention that Indians be turned to an agrarian lifestyle and that they be kept on ancestral lands.[69] Thus, suggested this amicus, it is entirely appropriate to measure Indian water rights by the amount of agriculture possible on these lands.

As these differing positions show, the historical inquiry in reserved rights cases has suffered from a lack of focus. Because courts are dealing with an imputed intent to reserve, to which an actual intent, if any, is irrelevant, it is difficult to know what historical matters might be important to consider. So far, two historical questions have in fact been examined by the courts. Both of these examinations invite the conclusion that historical considerations generally are unhelpful to the issue of quantification. First, there is general agreement that the date of the reservation will serve as the priority date for a federal—as opposed to an Indian,[70] reserved right.[71] Obviously, if the water rights are held to have been reserved by the federal government, the date of reservation coincides with the date of the reservation of Indian land. This, while clear, does not inform the quantification issue. It also imports into the analysis difficult questions relating to the purposes of various withdrawals, and the possibility of varying priority dates for different withdrawals, playing havoc with the feasibility of an irrigation project spanning two or more withdrawals. Moreover, the assertion of *Indian* reserved rights, where the Indians are held to have done the reserving, throws even this very straightforward historical matter into doubt.

Second, there is also general agreement that in examining proposed irrigation projects for a PIA analysis, the courts will consider modern technology rather than trying to use nineteenth century technology to determine what irrigation projects were economically feasible at the time of reservation.[72] This is a very reasonable conclusion, but it again illustrates the uselessness of historical considerations. If the Court is unwilling to quantify a nineteenth century intent with nineteenth century technology

67. Brief for the Respondents Bradford Bath, *et. al.* at 5-11, Wyoming v. United States, 492 U.S. 406 (1989).

68. Motion for leave to file Amicus Curiae and Brief for Amicus Curiae Shoshone-Bannock Tribes in Support of Respondents, at 7-13, *id.*

69. The Treaty in the Wyoming case which forms the basis for the Winters right is the Second Fort Bridger Treaty. Treaty of July 20, 1867, with certain Hostile Tribes, 15 Stat. 17.

70. *See infra* notes 10-11.

71. Winters v. United States, 207 U.S. 564 (1908).

72. *See* December 5, 1960 Special Master's Report at 535(a), *adopted in pertinent part,* Arizona v. California, 373 U.S. 546 (1963).

and economics which would have informed that intent, then the Court has in effect abandoned history questions generally.

1. Historical Considerations and Priority Dates

The only place where the relevance of history seems clear is in the question of a priority date for federal reserved water rights. The date at which the water was reserved should be the same date as the reservation of land.[73] This seemingly straightforward proposition, however, creates difficulties with respect to the quantification of water rights. These difficulties arise because different dates of reservation sometimes correspond to different purposes for reservation.

For example, the land holdings of the Mescalero Tribe were reserved by Executive Order in several parcels.[74] These Executive Orders did not always specify the reservation purpose.[75] The district court found on the basis of surrounding historical documents that some lands were set aside specifically for grazing and agriculture and some for grazing only. The district court also found that these reservations were tailored to avoid and preserve the local holdings of non-Indians.[76] Non-Indian interests in that case argued that these historical facts made it impossible for a court to award reserved rights for agricultural uses of grazing land, or in such a way as to interfere with the protected non-Indian uses. Because the *Mescalero* court found that the United States and the tribe had failed to prove the economic feasibility of their proposed irrigation projects, the court did not reject any PIA claims on this basis.[77] The court's conclusions of law strongly suggest, however, that the court believed it could have done so.[78]

The PIA standard would thus be used to address a patchwork of congressional intent as to Indian land. If as in *Mescalero,* the purposes of successive reservations differ in different reserving documents, PIA might be appropriate on some reserved parcels, but not on others. This could

73. United States v. Winters, 207 U.S. 564 (1908).

74. Executive Order of May 29, 1873; Executive Order of February 4, 1874; Executive Order of October 20, 1875; Executive Order of May 19, 1882; Executive Order of March 24, 1883.

75. State v. Lewis, Nos. 20294, 22600 (Chaves County 1956) (consolidated). Decision of the court, Findings of Fact Nos. 6-13.

76. *Id.*

77. *Id.*

78. *See e.g.,* Conclusion of Law No. 30: "[f]ederal reserved water rights can be implied only to the extent needed to satisfy the contemporaneous purposes for which lands were withdrawn; if there are successive withdrawals, reserved water rights can be implied only to the extent needed to satisfy the purposes of each withdrawal." *Id.*

The United States and tribe have challenged these and similar findings, claiming that the priority date for the tribe's rights should be either aboriginal, based on the tribe's aboriginal occupancy of the lands, or from 1852, the date of a treaty which, the United States and the tribe claim, was the basis for the later Executive Orders. State of New Mexico v. Lewis, No. 11,718, (N.M. Ct.App. August 8, 1989) (Docketing Statement of the United States).

defeat the economies of scale which often underlie the economic feasibility of proposed irrigation projects, increasing the possibility of a *Mescalero* result rather than a *Wyoming v. United States* one. Further, courts will have to contend with the fact, recognized by the *Mescalero* court,[79] that Indian reservations were made for the purpose of protecting non-Indians as well as Indians, a purpose which is arguably defeated by a water award which destroys the value or adequacy of surrounding non-Indian lands.

Depending on which historical plane the inquiry is focused, the purposes for confining Indians to reservations were many: protecting them from non-Indians and vice-versa; allowing for western expansionism; 'civilizing' the Indians and ultimately integrating them into mainstream society; as well as the agricultural or grazing purposes sometimes specifically enunciated.[80] Furthermore, the separate parties to a treaty may have had very different purposes in mind for the reservation. The legal principle which states that treaty provisions should be construed as the Indians would have understood them at the time,[81] is violated by the unilateral imposition of the intent of one of the parties—Congress—in the quantification of a right granted under a treaty.

The United States and tribes in both *Wyoming v. United States* and *Mescalero* advanced the theory of Indian reserved rights, which has the virtue of avoiding the difficult question of determining congressional intent. Under this view, congressional purpose is irrelevant, because the tribe owns water rights due to its own reservation rather than congressional action. This seems, however, to sidestep the historical rationale for the PIA standard. If it is correct that Indian water rights are based on aboriginal occupancy of the land, then congressional or executive intent to turn the tribes to an agrarian lifestyle becomes entirely irrelevant. Thus, no agricultural purpose attaches for which PIA could be an appropriate quantification.

Yet the United States and tribes in both cases argued for a PIA standard, suggesting that because the tribes were free to choose agriculture as part of establishing their homeland, it is appropriate to do a PIA analysis, and then add to that award a further award for other homeland purposes. Such

79. State v. Lewis, Nos. 20294, 22600 (Chaves County 1956) (consolidated). Decision of the Court, Finding of Fact No. 7.

80. Brief for New Mexico as Amicus Curiae at 8, Wyoming v. United States, 492 U.S. 406 (1989). *See also* Colville Confederated Tribes v. Walton, 647 F.2d 42, 47-48 (9th Cir.), *cert. denied* 454 U.S. 1092 (1981); Comment, *Quantification of Indian Water Rights: Foresight or Folly?* 8 UCLA J. Envt'l Law & Pol'y 267, 284-85 (1989). This and other commentators have expressed the view that any quantification of Indian water rights will ultimately end in a reduction of those rights, on the pattern of congressional allotment policy for Indian lands. Comment, *The Winters of Our Discontent: Federal Reserved Water Rights in the Western States*, 69 Cornell L.Rev. 1077, 1091 (1984).

81. Jones v. Meehan, 175 U.S. 1 (1899).

case law as there is does not support this analysis. The few cases discussing Indian aboriginal or reserved rights indicate that those rights are properly quantified by a tribes' actual use, rather than by a standard like PIA which provides water for projected future uses.[82]

Of course, the United States and Indian interests are free to argue for a different result, especially in a field where the law is so scanty.[83] The important point, however, is that this position abandons any meaningful historical inquiry. Indian intent may be presumed to be that the reservation be as valuable as possible, which is not helpful for quantification of a water right. To rely on that intent would mean simply an award of all available water, without limitation to irrigable acres, as the reserved right is not limited to agriculture. A PIA analysis becomes a waste of time.

2. Nineteenth Century Intent Measured by Twentieth Century Technology

The second area of historical inquiry that has been addressed by the courts is the issue of whether the imputed congressional intent to reserve water on Indian reservations should be measured using the technology and economic analysis that might have been in the mind of Congress at that time. The Supreme Court in the first *Arizona v. California* opinion adopted that part of the Special Master's Report which rejected the use of nineteenth century technology and economics, and adopted standards which were up to date at the time of trial.[84]

There are excellent reasons to consider modern technology in assessing

82. *E.g.*, United States v. Adair, 723 F.2d 1394, 1413, (9th Cir. 1983) awarding "an aboriginal right to the water used by the tribe. . . ." In Adair, the court not only did not permit a quantification of future uses for aboriginal water rights, it limited the aboriginal Indian reserved right award to actual uses at the time of the litigation, despite the fact that actual uses at the time of the Treaty were likely greater. *Accord* State of New Mexico v. Aamodt, 618 F.Supp. 993, 1009 (D.N.M. 1985) (where the court finds an aboriginal priority and measures that right by the Indian's actual uses as of 1924, the date of the Pueblo Lands Act. *See also* Montana, *ex rel.* Greeley v. Confederate Salish and Kootenai Tribes, 712 P.2d 754, 764 (Mont. 1985) where the court would apply an aboriginal priority only to "uses that existed before creation of the reservation," and a date of reservation priority to uses begun on that date. There is no case law at present which suggests that Indian reserved rights with an aboriginal priority would be properly quantified by a standard which provides for an award greater than actual uses cut off at a certain date.

83. In United States v. Abousleman, CIV No. 83-1041 SC (1983), the United States and the Pueblos of Jemez, Zia and Santa Ana argue that it is the Pueblos which have reserved the reserving of rights; therefore the priority date of the right should be aboriginal. The Pueblos argue, however, that PIA is still the proper measure of Indian water rights. *See* Reply of the United States and the Pueblos to the Responses of the State of New Mexico and Certain Private Defendants to the United States' and the Pueblo Objections to the Report of the Special Master, filed December 5, 1988, *id.* Again, by this argument, the United States and Pueblos have abandoned any pretense that the PIA standard expresses a congressional intent, as congressional intent is irrelevant under the theory that it is the Pueblos which did the reserving. Instead, the United States and Pueblos rely simply on PIA as the standard set out by the Court, and thus the standard other courts must use, regardless of any historical context.

84. Arizona v. California, 373 U.S. 546 (1963).

proposed irrigation projects. For example, it would be absurd to conduct an evidentiary hearing on technological matters which ignores the technological advances of the twentieth century. Moreover, the Court would have to decide whether to conduct the feasibility analysis in the context of a nineteenth century economy, and using the nineteenth century economics. Most of modern feasibility analysis would itself be anachronistic, leaving the court with very little to guide it. In summary, it makes sense that an intent which is imputed rather than express should not be lent a spurious reality by using a quantification method based on nineteenth century technology available to build irrigation projects at the time of the reservation. At argument in *Wyoming v. United States* before the Supreme Court, the United States commented on these factors in the context of the Court's question about the historical nature of congressional intent with regard to quantification:

> QUESTION: If you go back to—if you talk about what the intent was back in the 19th Century, it would be hard to—hard to think that these projects would ever have been contemplated.
>
> MR. MINEAR (for the United States): Well, the projects might have been smaller, but there would have been much greater water usage. And I think there are three good reasons for using the current technology, in any event.
>
> Our first is a matter of precedent. This is what was done in *Arizona I*. And, in fact, this Special Master notes—I think that's at page 535(a) of the Special Master Report.
>
> Second, simply as a matter of the feasibility of proof. We can in fact get experts who can testify on the economics and the engineering aspects of present irrigation systems. And those matters can be proven. This is a matter that is, to use Wyoming's terminology, capable of proof. Trying to prove 1868 Irrigation technology would be fairly speculative and I think would probably make the—would decrease the accuracy of the actual water determination here.[85]

An award on the basis of nineteenth century technology might be necessary and appropriate if the federal reserved right doctrine depended upon the existence of an actual congressional intent susceptible to historic analysis. The courts do not look for positive congressional intent to reserve water, however, but merely infer that intent from the act of reservation.[86] This is so despite the fact that Congress' understanding of the prior appropriation system of the West was evident in contemporaneous acts of Congress,[87] so that Congress could be presumed to understand that the reservation of water was necessary to make Indian lands valuable or adequate. Yet no reservation was expressly made. Rather than conclude

85. April 25, 1989 Transcript of Oral Argument at 30-31, Wyoming v. United States, 492 U.S. 406 (1989).

86. Winters v. United States 207 U.S. 564 (1908).

87. *See, e.g.*, Desert Land Act of March 3, 1877, Ch. 107, 1, 91 Stat. 377, 43 U.S.C. 321.

that no reservation exists, however, the *Winters* Court imputes an intent to reserve. This decision means that the historical question of the nature of congressional intent becomes a little ludicrous—how much water would Congress have intended if Congress *had* intended water?[88]

There are any number of imaginative approaches to such an historical inquiry. One tactic might be to build an analogy between other resources and water. Thus one might say water is a reservation resource like oil or timber,[89] and should be so treated. Even in the nineteenth century, however, water was recognized as a unique resource under state law, to which Congress and the federal courts defer.[90] Water is a vagrant resource under state law, meaning that ownership of land does not, as it does in the case of oil or timber, imply ownership of water running over that land.[91] Indeed, even the common law of riparian rights recognizes that a riparian owner cannot unreasonably block a downstream neighbor's uses, as the uses connected to PIA projects are likely to do.[92] Thus, under neither prior appropriation law nor riparian common law can rivers which flow through a reservation be treated as if they were wholly-owned reservation resources.

As an alternative approach to the question of what Congress would have intended if it had intended anything, one might try to deduce from general precepts of federal Indian policy what would have been specific policy on this matter had it been fully considered. As the examples of amici arguments given above suggest, this endeavor can lead to highly divergent results. Another possible approach might be simply to imagine what the Congress might have said if someone had asked the question. This highly speculative exercise is not a very satisfactory basis for the quantification of a valuable property award.[93]

88. *See In Re* Rights to Use Water in Big Horn River, 753 P.2d 76, 90-93 (Wyo. 1988), where the Wyoming Supreme Court discusses congressional intent to reserve water, framing the discussion as a series of refutations of the State of Wyoming's arguments against congressional intent to reserve, rather than pointing to any positive expression of such intent.

89. *See* Amicus Brief for Native American Rights Fund *et al.* at 5, Wyoming v. United States, 492 U.S. 406 (1989).

90. California v. United States, 438 U.S. 645 (1978); United States v. New Mexico, 438 U.S. 696 (1978).

91. *See e.g.*, N.M. Stat. Ann. § 72-1-2 (Repl.Pamp. 1985).

92. *See* United States v. Willow River Power Co., 324 U.S. 499 (1944).

93. At the Wyoming v. United States oral argument before the Supreme Court, one member of the Court seemed to be using this method in implying that it was reasonable to think that Congress intended to put the Indians in the same position as their neighbors with respect to water, rather than in the superior position given by PIA:

> Question: . . .If you give somebody a certain amount of agricultural land, I assume you would think he'd have as much water as everybody else around him. . . . But not all the water and then whatever is left over is for everybody else. You [Mr. Minear for the United States] asserted as simply self-evident that if you reserve any water right, you reserve enough water not just to enable this tract of land to be irrigated as well as anything in the area is irrigated, but rather to have this tract of land irrigated a hundred percent even if everything around it has to go dry.
>
> April 25, 1989 Transcript of Oral Argument at 23-24, Wyoming v. United States, 492 U.S. 406 (1989).

The effort to lend an anachronistic historical substance to an imputed intent is strained and unjustified. Once the decision was made that the intent in *Winters* would not be treated as a literal historical reality requiring determination by contemporaneous evidence or quantification by contemporaneous technology, then historical considerations could not consistently be applied. No coherent basis exists for accepting an historical gloss in one area when it has been rejected in another. Unless the courts are ready to embark on rigorous historical analyses of actual evidence of congressional intent, and nineteenth century irrigation project technology, historical inquiry should be abandoned. The doctrine of reserved rights should be treated straightforwardly as a present question of quantification.

B. Practical Usefulness of PIA

If the effort to determine or construct historical intent is abandoned, PIA should be considered not on the basis of how accurately it reflects the historical intent of any entity, but purely on the question of whether the standard is an expedient objective means of measuring reserved water rights for tribes. The PIA standard should rise or fall on whether it is in fact a "fair and feasible" standard, as well as whether it is the "only" such standard.[94]

A PIA case is ordinarily a matter of expert testimony, a fact which implies that the questions are objective and scientific. This lends credibility to PIA as a standard, as if equitable questions of moral obligation could be bypassed in favor of cold facts about the reservation. Surely, it seems, a court can determine objectively how many acres of land on a reservation can grow crops. If the court uses that as a measure of Indian water rights, it avoids not only the equivocal issue of how history informs the reserved right, but also difficult equitable questions of federal Indian policy. Further, because a process which is based on ascertainable, unavoidable facts about the physical characteristics of the reservation seems less arbitrary than a guess about future Indian needs, it is likely to be more palatable to those whose water uses could be affected by a reserved right award. These hopes are what make PIA so attractive. If they were or could be made to be well-founded, they would constitute a powerful argument in favor of the standard.

PIA is not an objective standard, however, at least as presently used. This is so, not only because the standard bears inherent proof problems which perhaps any complicated factual inquiry must bear, but also because the task of determining economic feasibility necessarily entails the same ethical and equitable considerations that the PIA standard purports to avoid. Buried within the feasibility analysis are a number of social policy

94. Arizona v. California, 373 U.S. 546, 601 (1963).

decisions. In the *Wyoming v. United States* and *Mescalero* cases, the United States and tribes presented testimony from economists on such essentially social questions as the value of Indian self-sufficiency and culture and how to reflect that value in a feasibility analysis. Controversy surrounding the proper discount rate to be used for these projects provides a graphic illustration of the way in which a PIA case invites economists to make policy decisions.

This subjective evidence problem might be cured if the means of considering these policy questions were standardized. For example, the federal government has made many social policy decisions with respect to water projects in publishing guidelines for the economic feasibility analysis.[95] If these guidelines were followed, as the Court's partial adoption of the Special Master's report in the second *Arizona v. California* opinion implies that they should be, then the procedure might in fact provide an expedient measure of the practicable irrigability of reservation land. Even this approach, however, is flawed by the real possibility that *no* economically feasible project can be found on the reservation in question, and thus no award would be appropriate. This possibility may negate the usefulness of the PIA standard.

1. The Speculative Nature of PIA

As a preliminary point, in assessing the PIA standard's claim to be a feasible, fair, and objective alternative to the guesswork involved in a population-based standard, the complicated nature of a PIA trial must be understood. Because the PIA standard requires an economic feasibility analysis, it requires a court to make and rely upon unrealistically accurate findings about hypothetical irrigation projects. These inherent complications of proof, of course, do not by themselves preclude the use of a PIA standard. It is the job of a district court to make difficult factual decisions, even decisions on hypotheticals. The complications are formidable, however, and by their difficulty provide at least some argument against the PIA standard, if an equally valid standard which avoids them can be found.

A court, when applying a PIA analysis, does not simply look at reservation soils to see if they are suitable for farming. Rather, the court must make detailed findings on the likely attributes of unbuilt irrigation projects. The trial court must consider, for example, whether the proposed project is technologically sound; whether it will reach lands physically capable of growing crops; whether crop yields predicted by the various experts are plausible, either in terms of amount of yield or in terms of the mix of crops chosen; whether the prices proposed are reasonable, and

95. *See, e.g.*, 42 U.S.C. 1962 (1978); 44 Fed. Reg. 210 (1979); 18 C.F.R. 704.39 (1990).

whether a market exists at those prices.[96] Error on any one of these matters will be compounded when the court relies on that error in taking the next step in the economics analysis.

When a PIA claim was made in *Mescalero,* the United States and the tribe outlined two possible irrigation projects. The first proposal was a trans-mountain diversion, in which a tunnel drilled through a mountain would deliver water to acreage in another basin. The enormous engineering costs of this project were to be offset by benefits realized by growing profitable specialty crops (such as Christmas trees and strawberries), and attaining yields which would exceed those attained by commercial producers.[97] The decision on whether this plan was justified was by no means the relatively simple, non-speculative inquiry presumably envisioned by the Special Master in the first *Arizona v. California.* If the PIA standard were to be judged solely on whether or not it was a speculative process, the standard would not fare well.

2. What is Economic Feasibility?

The equation of PIA with "economic feasibility" occurred in the second *Arizona v. California* opinion.[98] Both the way in which the PIA standard is intended to be objective, and the way in which that standard is subject to abuse, flow from the nature of the economic feasibility analysis chosen by the second *Arizona v. California* Special Master, whose choice was accepted by the United States Supreme Court when it accepted the Master's PIA findings.

In the second *Arizona v. California* case, one of the five tribes involved argued that the proper measure of PIA was a matter of the arability of soils and the engineering feasibility of the proposed projects, without any economic analysis whatsoever.[99] The other tribes argued, in partial agreement, that even if economic concerns were addressed, not all costs of the project should be considered.[100] The United States and the state parties, by contrast, argued that an "economic feasibility" analysis was required. The Master found that the prior proceedings of the Arizona case had been done using an economic feasibility test.[101] The Master also observed that this economic feasibility test had been done in accordance with "the

96. Rusinek, *A Preview of Coming Attractions: Wyoming v. United States and the Reserved Right Doctrine,* 17 Ecology L.Q. 355, 371 (1990).

97. State v. Lewis, Nos. 20294, 22600 (Chaves County 1956) (consolidated). Decision of the Court, Finding of Fact No. 37.

98. 460 U.S. 605 (1983).

99. February 22, 1982 Special Master's Report 94, *adopted in pertinent part,* Arizona v. California, 460 U.S. 605 (1983).

100. *Id.*

101. *Id.*

general standard used to measure the feasibility of all federal water resources projects including those developed by the Bureau of Indian Affairs.[102] The Master then held that this economic feasibility approach more nearly adhered to the law of the case. The Master stated:

> The arguments by the tribes that the definition of practicably irrigable should incorporate various subsidies to Indian tribes, such that any analysis is a financial analysis from the point of view of the Indians, are misguided. The past analysis accepted by the former Master and the Court clearly was a non-Indian economic analysis measuring total benefits against total costs for water without regard to the special considerations available to the tribes. (footnote omitted)[103]

By this decision, the Master chose an "economic feasibility" analysis, as opposed to a "financial feasibility" analysis. A "financial analysis" considers a project only from one entity's point of view, and determines the feasibility of that project by measuring the benefits and costs to that entity alone.[104] For example, a person might do a financial feasibility analysis to determine whether to start a business. In doing so, he would not consider any detrimental effect the new business might have on competitors, but only the profitability of the new business to himself. An "economic feasibility" analysis, by contrast, is generally undertaken by the federal government to determine what the overall costs and benefits are of a project, no matter to whom they accrue.

The peculiar posture of a PIA case, where the task is not really to assess a project, but ultimately to quantify a resource used in the project, undermines the possibility of a financial feasibility analysis. The basis of any feasibility analysis, economic or financial, is the measurement of the "opportunity cost" of the money and resources which would be devoted to the proposed project. When an entity makes a feasibility analysis, it is choosing whether to place valuable resources in a given project. If it chooses to do so, then it forgoes spending those resources on other projects. It must weigh the possible benefits from one resource (whether money or water) against the possible benefits had it chosen another use. This foregone benefit is called an "opportunity cost." The use of the resource has an opportunity cost equal to the greatest possible use that might be precluded by the particular project under review.[105] The correct

102. This "general standard" was embodied in Bureau of the Budget Circular A-47. This circular was part of the continuing process which ultimately resulted in the Principles and Guidelines discussed below. 1986 Trial Transcript, Vol. 15, 2843; State v. Lewis, Nos. 20294, 22600 (Chaves County 1956) (consolidated) (testimony of state's expert economist Dr. Anderson).

103. February 22, 1982 Special Master's Report 96, *adopted in pertinent part,* Arizona v. California, 460 U.S. 605 (1983).

104. 1986 Trial Transcript, Vol. 15, 2819-2820; State v. Lewis (testimony of state's expert economist, Dr. Anderson).

105. *See* P. Samuelson, Economics 448 (1980).

assessment of "opportunity costs" is the whole endeavor of any feasibility analysis.

If PIA projects are examined from a financial feasibility standpoint, however, there are no opportunity costs—from the point of view of the tribe—with respect to one of the chief resources to be used, namely the water. No opportunity costs exist because, from the point of view of the tribe, no alternative possible uses of water exist; unless the project is found feasible, no water will be awarded. It is as if the owner of an oil well set about to see how cheaply he could sell oil as possible without actually going bankrupt.[106] That is not a coherent feasibility analysis. The "analysis" degenerates into a simple effort to maximize the proposed use of a resource. In the absence of opportunity costs of water to the tribe, the practical reality is that within broad, practical limitations of engineering accessibility, every arable acre can be found irrigable, because such a finding bestows upon that acre a valuable water right which quite likely makes it profitable to farm. The size of Indian land holdings suggests that a reserved right award based merely on arable acres would quickly outrun the amount of water available in the arid west and thus be no practical limitation on a reserved right award. The only internal limitation on a tribe's incentive to use as much water as possible is the rock-bottom standard of breaking even financially.[107]

Thus, a feasibility analysis which considers costs and benefits only from a tribe's point of view is not only impossible in the sense that it applies an analysis in a context for which that analysis was not intended, but it ultimately provides no limitation on a reserved right award whatsoever. From a tribe's point of view, this is of course an attractive result, but it cannot have been the intent of the Court in *Arizona v. California*. If it were, there would be no need to undertake the costly and time-consuming exercise of a PIA analysis.

An economic feasibility analysis, as opposed to the financial feasibility

106. At the Mescalero trial in State v. Lewis, the United States' Exhibit on economic feasibility stated in its introduction: "The aim of the benefit cost analysis is to maximize the present value of benefits less costs, subject to specified restraints." United States Exhibit 47 at 4. This illustrates the misuse of an economic feasibility analysis as a tool of litigation. By itself, an economic feasibility analysis is merely a method of analysis, and does not seek to maximize either benefits or costs at the expense of strict objectivity. *See* 1986 Trial Transcript Vol. 15, 2827, *id.* (testimony of state's expert economist Dr. Anderson). When used in litigation, however, it can become a "self-serving and merely argumentative form of assessment." Brief Amicus Curiae for the County of Chaves *et al.* 7, Wyoming v. United States, 492 U.S. 406 (1989).

107. The Mescalero Tribe and the tribes in *Arizona v. California* argued that preserving an agricultural way of life is a benefit to be included in the feasibility analysis; thus a tribe should be awarded the water to engage in a full agricultural use of the reservation, even if it were clear that the venture would lose money. A positive benefit-cost ratio could still appear if a value were assigned to the tribe's freedom to choose agriculture despite the loss of money. It is as if the oil well owner in the previous example were not constrained even by the danger of bankruptcy, but had a positive incentive to pump as much oil as possible, without considering financial losses.

approach, restores to the PIA standard the possibility of objectivity and expedience. The opportunity costs, which under financial feasibility analysis are non-existent to a tribe in a PIA context, are actually felt off-reservation as displaced water use brought about by a reserved right award. Opportunity costs, therefore, would be accounted for by an economic feasibility analysis, which considers all costs and benefits of a project regardless of to whom they accrue. Water is no longer free in the analysis; thus the proposed project must meet realistic standards of feasibility measured against competing possible uses. This has the effect of placing genuine limitations on what projects will be feasible, returning to PIA the expediency as a quantification standard which it loses under a financial feasibility approach.

The inclusion of off-reservation costs also has the elegant side-effect of being a principled avenue for "sensitivity" to state water rights interests.[108] The value of state water rights interests is included as part of the opportunity costs of the proposed projects. In effect, the tribe is asked to demonstrate that the projects it proposes will comprise a more valuable use of water, viewed from a national perspective, than the uses to which the water is presently being put.

In this light, the use of PIA is open to serious question, even under a rigorously applied economic feasibility analysis. Nothing in *Winters v. United States* or its progeny—except the indirect result of the choice of an economic feasibility analysis—supports the view that the uses proposed under a federal reserved right claim must be shown to be *better* uses of the water than those made by non-Indians. Congress could hardly have intended that the tribes make such a showing before receiving a water right. Yet the inclusion of off-reservation opportunity costs in the analysis leads to that result. As has been shown, however, the *exclusion* of off-reservation opportunity costs undermines any feasibility analysis, because it means that the water carries no opportunity cost whatsoever, a situation which a feasibility analysis does not address.

It is difficult to find a compromise between these extremes. There does

108. United States v. New Mexico, 438 U.S. 697 (1989). The Mescalero Tribe objected to the consideration of off-reservation opportunity costs for precisely this reason, arguing that considering costs to anyone except the Tribe is contrary to the Court's Cappaert v. United States, 426 U.S. 128 (1976) rejection of an equitable balancing in the quantification of water rights. *See also* Brief Amicus Curiae for the Native American Rights Fund, *et al.* 28-29, Wyoming v. United States, 492 U.S. 406 (1989). An economic feasibility analysis, however, makes no effort to balance equities. It merely counts all costs whether they accrue on or off the reservation. The fact that costs accrue off the reservation in connection with proposed irrigation projects is not a matter of equities, it is a reality which must be considered for the feasibility study to be accurate and complete. Indeed, the Tribe's argument suffers from the very infirmity of which it complains. To *ignore* off-reservation costs, once the decision is made to comply with an economic rather than a financial feasibility analysis, would be to favor the tribes arbitrarily, departing into equitable considerations contrary to Cappaert v. United States.

not appear to be a principled basis on which some off-reservation costs would be considered in the analysis and others not. The most attractive suggestion along these lines might be that the foregone benefits of off-reservation users with priority dates that are junior to those of the reservation should not be considered, on the grounds that a tribe should not have to recognize the value of water rights junior to theirs in possible derogation of their senior rights.[109] This argument, while persuasive, confuses economics, which as part of the PIA standard gages social utility at a moment in time, with legal rights and duties. It is circular to choose PIA, including its concomitant economic feasibility analysis, as a way to measure legal rights, but then to go behind the PIA analysis and adjust it to reflect extraneous attributes of the very legal rights for which PIA was chosen as an objective measure. It is as if one set about to measure water by the gallon, but then decided to change the definition of "gallon" for some extraneous legal reason. That may be correct from the point of view of that extraneous legal consideration, but it destroys the efficacy of the measuring process. If the tool of an economic feasibility analysis of proposed projects is to be used at all, it should be used with some rigor. To an economist, the foregone uses even of junior appropriators are real costs to the project.

Moreover, even if the actual uses of junior appropriators were ignored on the grounds that those uses are junior to the tribe, some accounting of the opportunity cost of the water would still be required. If the federal government were proposing to build these projects, it would unquestionably include in the costs of the project the opportunity cost of alternate uses of the water, without regard for relative priority dates. In effect, the cost of foregone uses to junior appropriators is merely a reasonable and convenient assessment of that opportunity cost. That opportunity cost could be assessed in some other way. The opportunity costs of alternate uses cannot, however, be ignored in a consistent economic feasibility analysis. To exclude those costs would amount to a partial reversion to a financial feasibility analysis, which simply does not work and cannot be justified as an expedient and objective standard.

The inclusion in the economic feasibility analysis of off-reservation costs to junior users might be so unfair to senior Indian rights that it argues for abandonment of the PIA standard. What it cannot call for, however, is to pretend to keep the PIA standard with its attendant economic feasibility analysis, but to ignore real costs which would be included in any other context. This is analytically incoherent.

Controversies over what costs are properly included in an economic

109. *But see* Brief Amicus Curiae for the Village of Ruidoso 9-10, Wyoming v. United States 492 U.S. 406 (1989).

feasibility analysis and what costs should be excluded have been the chief trial battleground in these cases. The state and non-Indian defendants in *Mescalero* argued that all of these controversies could be avoided by the application of published federal economic standards in conducting an economic feasibility analysis. Specifically, the state and non-Indian defendants argued that the analysis should be done in accordance with the Principles and Guidelines adopted by the Water Resources Council of the Federal Government.[110] The Principles and Guidelines are the product of fifty years of discussion and commentary by various agencies of the federal government, as well as private parties.[111] They did not arise in the context of Indian water litigation and cannot be viewed as biased toward either side of that litigation.[112] In 1978, President Carter expressly directed that these Principles and Guidelines were to be applied internally by federal agencies in assessing reserved rights claims for Indians for purposes of negotiation or litigation.[113] If these Principles and Guidelines are adhered to, argued the state and non-Indian defendants in *Mescalero,* then the PIA process has some guarantee that it actually is the expedient and objective approach which the Court seemed to think it would be in the first *Arizona v. California.*[114]

The United States and tribe in *Mescalero* recited at first that the economic feasibility analysis should be done in conformity with the Principles and Guidelines.[115] As trial proceeded, however, and the United States and tribe's departures from the Principles and Guidelines were pointed out, the United States' and tribe's position changed. Now on appeal, they argue that it was error for the trial court to consider the Principles and Guidelines, and that those findings of fact and conclusions of law which are in conformity with the Principles and Guidelines should be reversed.[116]

110. 42 U.S.C. 1962 (1978); 44 Fed. Reg. No. 210 (1979), 18 CFR 70439 (1990).

111. 1986 Trial Transcript, Vol. 15 at 2838-40, State v. Lewis, Nos. 20294 and 22600 (Chaves County 1956) (consolidated); (testimony of state's expert economist Dr. Anderson).

112. Various Indian interests provided comments toward the creation of the Principles and Guidelines. *Id.* at 2859.

113. *Id.* at 2852-54.

114. 373 U.S. 546 (1963).

115. The United States' chief economics expert, Dr. Gorman, explicitly stated in his report: "This baseline economic analysis has been undertaken using the Principles and Standards for Water Project Planning which have guided the analysis of publicly-financed irrigation projects for many years." United States Exhibit 24 at 1-2. Footnote 2 states: "These guidelines, as interpreted by the U.S. Bureau of Reclamation Instructions Series 110; Project Planning Part 116; Economic Investigations, have been generally followed in preparing the analysis set forth in this report." *Id.* He states in this report that his analysis is one of economic feasibility, not a "financial feasibility" analysis from the tribe's perspective. *Id.* Furthermore, Dr. Gorman testified at trial that he had relied upon a national economic perspective rather than a regional one. 1986 Trial Transcript, Vol. 14, 2466, State v. Lewis (testimony of United States' expert economist Dr. Gorman).

116. State v. Lewis, No. 11,718 (N.M. Ct.App. August 8, 1989) (Brief-in-Chief of the United States at 59-62) (Brief-in-Chief of the Mescalero Tribe at 71-72).

This change came about when it became clear that if the Principles and Guidelines are taken seriously, then it will not be easy to show that *any* new agricultural use of water is economically feasible.

One of the chief purposes of an economic feasibility analysis from a national perspective is to show that the proposed project will be an improvement over other uses of the resource. This seems important and reasonable when the question is whether the federal government will, for the national benefit, reallocate present uses of resources for a new project. In the context of the quantification of Indian water rights, however, it is harder to see the justification for this requirement. Thus, the use of an economic feasibility analysis, while mandated by the *Arizona v. California* cases and, in addition, the only means by which the PIA standard can be assured of objectivity and expedience, puts a burden on tribal water rights claims which may be inappropriate.

It is at this point that the central impossibility and unfairness of the PIA standard is most clear. As Judge Thomas suggests in his dissent to the Wyoming Supreme Court's decision in *In Re Rights to Use Water in Big Horn River*,[117] it does not take much expert knowledge of the present agricultural and economic climate to see that large agricultural projects today are risky, marginal enterprises. This is demonstrated by the fact that no federal project planned in accordance with the Principles and Guidelines has been able to show a positive benefit/cost ratio in the last decade.[118] Nor is there effort from private ventures to establish the kind of business that the PIA standard requires the tribes to plan in order to get water. The PIA standard forces the tribes to prove economic feasibility for a kind of enterprise that, judging from the evidence of both federal and private willingness to invest money, is simply no longer economically feasible in the West.

Not surprisingly, tribes want to remove the analysis of PIA projects from the generally dismal atmosphere for irrigation projects by measuring them with a non-standard economic analysis designed to reflect special considerations for the tribes and for the peculiar litigative posture of the economic question. Non-Indians then cry foul, pointing out that if the economic analysis is not done by standard rules, it has no objectivity and fails as a predictable standard measure. Thus the tribes are in an intolerable bind. They must make a virtually impossible showing, or they receive no water award, despite the undisputed existence of their federal reserved rights. The middle course is to argue that the rules of economic analysis should be adjusted—the discount rate lowered, for example. This was

117. 753 P.2d 76, 101 (Wyo. 1988) (Justice Thomas, dissenting); quoted at pg. ___, *supra*.

118. *See* State v. Lewis, No. 11718, (N.M. Ct.App. August 8, 1989) (Appellant Mescalero Apache Tribe's Brief-in-Chief at 73).

successful in *Wyoming v. United States* and unsuccessful in *Mescalero*. It is a dangerous gamble.

No matter how the economic aspect of the PIA standard is understood, it still leads to severe problems in the quantification of water rights. A PIA standard using a financial feasibility analysis is contrary to Supreme Court precedent, as well as incoherent and unhelpful. A PIA standard using an economic feasibility analysis, in adherence to the Principles and Guidelines, is legally correct and is also workable and objective, but it carries a hidden burden for tribal claims. A PIA standard which tries to compromise between the two, counting some costs and neglecting others, is simple chaos resulting in no principled standard at all. The central difficulty is that a feasibility analysis, whether financial or economic, is not an appropriate tool to measure natural resource rights. Thus, the PIA standard is analytically flawed.

3. The Special Case of the Discount Rate.

Controversy surrounding the discount rate is probably the best example of the analysis discussed above. A "discount rate" compares the value of money at the time of planning to the value of money over the life of the project.[119] Benefits and costs of different kinds and amounts will occur at various times in the life of the project. In order to be able to compare them as if they occurred at one time, which is necessary for an economic feasibility analysis, those benefits and costs must be adjusted so that the different values of money prevailing at the different times they occur are made comparable.[120] For example, a business considering a project with immediate costs of five thousand dollars, and an expected benefit of ten thousand dollars in ten years would not view the benefit/cost ratio as ten to five. Ten thousand dollars is worth less in ten years than it is worth now, both because it is not in hand, and because the proceeds of the proposed five thousand dollar investment must be compared against the lost opportunity cost of a safe investment at the prevailing interest rate. Therefore, the ten thousand dollar projected benefit must be discounted to reflect the present value of that future return. Only then can it be compared intelligibly to the five thousand dollar cost of the proposed project.

As this example illustrates, the choice of a discount rate can make a big difference in the feasibility of a project, even if all other questions about the plausibility of the estimated figures for costs and benefits are resolved. In the above example, if a 10 percent discount rate is chosen,

119. 1986 Trial Transcript, Vol. 15 at 2821, *id.*, (testimony of state's expert economist Dr. Anderson).

120. *Id.* at 2821-22.

the resulting benefit/cost ratio is less than one, and the proposed project is not feasible. If a five percent discount rate is chosen, the resulting benefit/cost ratio is greater than one, and the project *is* feasible. As this example also illustrates, the lower the chosen discount rate, the more likely it is that the project will be found to be feasible.[121]

In the case of an irrigation project, a large percentage of costs occur at start-up, whereas a large percentage of benefits will occur in the future.[122] A high discount rate emphasizes those present costs by discounting the future benefits. A low discount rate, by contrast, emphasizes the value of future benefits. A zero discount rate, for example, would compare present value costs against the full value of all benefits as if they were immediately felt, rendering a positive feasibility figure for almost any project, no matter how unlikely. Thus, the single issue of the discount rate could make or break the project.

The discount rate appropriate to a certain project will fluctuate over time, as interest rates change and the present value of money changes. The Principles and Guidelines at the time of the *Mescalero* trial recommended a discount rate of 8 3/8 percent. At the time in *Wyoming v. United States* the recommended rate was 7 1/8 percent. The United States in both cases, however, suggested a discount rate of 4 percent. The *Mescalero* Tribe suggested 2.5 percent. The United States argued that because the projects would likely be funded with federal money, the discount rate should reflect the real rate of return on federal money, since that would be the opportunity cost foregone in the use of that money, with inflation removed from consideration as it is removed from consideration of costs and benefits generally.[123] The Mescalero Tribe agreed with this analysis and further argued that the discount rate should be adjusted downward to reflect the cultural value of the project and its value to future generations.[124]

The state in *Mescalero* presented evidence that a 4 percent discount rate is wrong as a matter of substantive economics, as the correct measure of the opportunity cost of federal funding is not the rate of return on that money, but the opportunity cost to the taxpayer who provided it.[125] Moreover, in the second *Arizona v. California* opinion, the Special Master specifically considered, as an aspect of the issue of whether the feasibility analysis should be economic or financial, the argument that the likelihood of federal funding for the proposed projects should be accounted in the

121. *Id.* at 2834.

122. *Id.* at 2825.

123. *E.g.*, Vol. 18 at 3410-50, *id.*, (testimony of United States' expert economist Dr. Dornbusch). This discussion summarizes a great deal of testimony in the Mescalero case, and is thus undoubtedly over-simplified.

124. *Id.* at 3478 (testimony of tribe's expert economist Dr. McKusick).

125. *Id.* Vol. 19 at 3547 (testimony of state's expert economist Dr. Snyder).

feasibility analysis. The Master viewed that suggestion as proper to a financial feasibility analysis and rejected it.[126] The United States in *Mescalero* had thus made the same argument regarding federal funding that was rejected in the second *Arizona v. California,* but has cast the argument in terms of the discount rate.

The tribe's suggested lowering of the discount rate to 2.5 percent on the basis of social and ethical concerns is in direct contradiction to an economic feasibility analysis. At one point the district court inquired of the tribe's witness: "You are saying that economic feasibility is not the sole consideration when you are determining an Indian water project?" The witness answered: "Yes."[127]

Thus a discount rate which reflects "special considerations available to the tribes,"[128] is not an appropriate part of a PIA analysis. This is so not only as a matter of precedent, but as a matter of retaining any objectivity in the PIA standard. Even if the *Arizona v. California* decisions are not accepted as precedent on the economic feasibility issue, the use of a low discount rate in order to reflect the social situation of an Indian tribe undermines the expediency and the objectivity of the PIA standard in just the same way as discussed above with respect to the choice of a feasibility analysis. If a discount rate is chosen which is so low that it does not reflect the real costs of the project on a national scale, but only the federal government's unmeasurable willingness to provide money to support the tribes, and is lowered even further on the basis of the mostly unmeasurable social and cultural values of the Indian people, the PIA analysis is not measuring anything at all, beyond a tribe's desire for water and the United States' willingness to obtain it for them. In light of the *Wyoming v. United States* case this might lead to a successful result, certainly from the tribe's point of view, but it cannot be described as objective, and thus it is hard to see it as the "feasible and fair" approach envisioned by the United States Supreme Court in *Arizona v. California.*[129]

When the discount rate from the Principles and Guidelines is employed,

126. February 22, 1982 Special Master's Report *adopted in pertinent part* 94, Arizona v. California, 460 U.S. 605 (1983).

127. 1986 Trial Transcript Vol. 19 3502, State v. Lewis, Nos. 20294, 22600 (Chaves County 1956) (consolidated) (testimony of tribe's expert economist Dr. McKusick). This view was also rejected in the second *Arizona v. California* opinion. Arizona v. California, 460 U.S. 605 (1983). The second *Arizona v. California* Special Master considered whether intangible benefits occurring to society because of Indian self-sufficiency should be considered as part of the feasibility analysis. The Master rejected this suggestion as inconsistent with the prior proceedings in the case, which he found were based on an economic feasibility standard. February 22, 1982 Special Master's Report 96 n. 17, Arizona v. California, 460 U.S. 605 (1983) adopted in pertinent part (discussing Barnes, Cummings, Gorman and Lansford, United States Reclamation Policy and Indian Water Rights, 20 Nat. Res.J. 807 (1980)).

128. February 22, 1982 Special Master's Report at 96, *adopted in pertinent part,* Arizona v. California, 460 U.S. 605 (1983).

129. Arizona v. California, 373 U.S. 546, 601 (1963).

however, the projects are quite likely to be found infeasible. When this happens, the tribes will get *no* reserved rights for future uses. This undermines the entire reserved rights concept. Because of this intolerable result, the Mescalero Tribe and the United States argue that the decision to ignore "special considerations available to the tribes" should be revisited and a financial feasibility analysis adopted. The United States and tribe offer no cure for the problems of the financial feasibility analysis discussed above, however.

In addition to those problems, the adjustment of a feasibility analysis to reflect social concerns is simply not an appropriate activity for a judicial factfinder in a quantification procedure. It would place multifaceted social and cultural questions in unelected hands. The decision to build a project that is not strictly economically feasible, in order to address social issues such as cultural values, poverty, or unemployment, is recognized in the Principles and Guidelines as a perfectly legitimate *legislative* or *executive* decision. There exists a formal procedure for a legislature or executive body to assess such a decision under the Principles and Guidelines.

Such a decision is made following the objective economic feasibility analysis. The Principles and Guidelines allow a legislature or executive to decide that despite an adverse finding on economic feasibility, a project is worth pursuing on these other grounds. The conceptual error made by the United States and tribes in both *Wyoming v. United States* and *Mescalero,* however, driven by necessity because of the peculiar posture of a PIA approach, was to take such assessments out of the hands of legislators or the executive, and insert them into the economic feasibility analysis by such indirect means as the adjustment of the discount rate.[130] In effect, by recommending changes to the discount rate to address social and cultural concerns, economist expert witnesses are giving their opinions to judges about the political questions of Indian poverty and unemployment, as well as the preservation of Indian culture. This puts an economic patina on questions that do not in fact belong in the courtroom; a judge is not the appropriate public official to undertake to place a value on political concerns.

C. The Misfocus of the PIA Standard

In addition to these flaws, the PIA standard puts all the interested parties in disingenuous or at best unproductive positions. For example,

130. The error is not so much a mistake, of course, as a reflection of the fact that form the point of view of a tribe the award of water is inextricably linked to social and cultural considerations. To reflect that fact indirectly in the economic feasibility analysis, however, simply destroys the usefulness and objectivity of that analysis. If the United States Supreme Court were to decide that social and cultural factors are appropriate to consider in quantifying a water award, then the PIA standard should be abandoned, and those values considered straightforwardly, rather than in the form of a corruption of the economic feasibility analysis.

the United States and a tribe, facing their only[131] opportunity to quantify water for all possible future uses, are susceptible to the temptation to create vastly overstated irrigation projects in order to produce as large an award as possible. This has two serious consequences, even assuming that a trial court can be expected to sort out factual exaggerations.

First, it exposes the Indians to the danger that the proposed irrigation projects will be rejected in their entirety, as illustrated by the *Mescalero* result. A PIA court is asked to make an all-or-nothing decision on the feasibility of irrigation projects. Generally, it is not possible to justify the feasibility of some portion of a project, because costs are spread out over the benefits gained by the whole acreage. Thus, either the whole project is feasible or it is not. If the latter, a tribe will obtain no reserved water right. This is an intolerable result, and yet it is an unavoidable risk under a PIA standard.

A second serious consequence of the PIA standard is the procedure of forcing a tribe to quantify its water with respect to largely fictional, highly speculative and dubious irrigation projects, instead of realistically evaluating actual tribal needs for water as determined by real economic choices on the reservation. Without the prospect that the projects will ever be built, the evidentiary abuses possible in the speculative process of determining PIA will be unchecked. Further, tribes are being asked to employ the fiction of these irrigation projects to try to cover the amount of water they might need for their real needs, whatever those might be.

The Mescalero Reservation, for example, is situated in a beautiful part of New Mexico, and lends itself to a recreation use. The Mescaleros have begun to exploit the recreation possibilities of their reservation. To satisfy the PIA standard, however, they were required to plan large irrigation projects, instead of claiming reserved water for recreation uses.[132] When they failed to prove these projects feasible, they may have lost the chance of obtaining the water to increase the recreation industry which is a sensible alternative on that reservation.[133] All parties would have been better served by a standard of quantification which looked frankly at the tribe's real needs and economic choices.

131. In the first *Arizona v. California* opinion, the Court rejected the notion of an open-ended standard, where the Tribes might be permitted, upon a showing of future need, to come into court and increase their award. The Court was deeply concerned about finality and certainty in water right awards. Arizona v. California, 373 U.S. 546, 600-01 (1963).

132. The Mescaleros did in fact claim a reserved right for recreation under a "permanent homeland" theory, which the district court adopted. It is not clear, however, in what way the 950 acre-foot award for general future uses was directed to recreation. Certainly the Tribe did not obtain all the water it asked for recreation, as a large portion of it was contained in the proposed storage reservoir which was rejected as infeasible. *See* Decision of the court, Findings of Fact Nos. 32-45, State v. Lewis, Nos 20294, 22600 (Chaves County 1956) (consolidated).

133. *See* Burton, The American Indian Water Rights Dilemma: Historical Perspective and Dispute-Settling Policy Recommendations. 7 UCLA J. Envtl. Law & Pol'y 31 (1987) (suggesting that forest and mountain-dwelling tribes generally may require a standard other than PIA).

V. CONCLUSION

The parties' briefs and arguments in the *Wyoming v. United States* case, as well as the questions raised by the Court, have helped to focus the issues surrounding the quantification of federal reserved rights for Indians. For example, the multifarious conclusions reached by those attempting to employ historical considerations to define a proper quantification standard illustrates the uselessness of history on this question. If the PIA standard is to be successfully defended, it will not be because that standard can be shown accurately to reflect an actual congressional or Indian intent for these reservations.

Instead, the battleground for the PIA standard pits its purported advantages of accuracy, expediency, and objectivity against the allegation that it puts a tribe in an unrealistic and risky position. Because of the need for an economic feasibility analysis of proposed irrigation projects, PIA claims necessarily involve a good deal of speculation. For a court to make abstruse guesses about the various factors that go into the possible profitability of a hypothetical irrigation project requires a serious attenuation from reality.[134] It is hard to see how the process of estimating future Indian population, which some parties have suggested as the basis for an alternative standard,[135] could prove more speculative than a PIA analysis.

With respect to its claim of objectivity, the PIA standard can be put on firmer ground, but may be unacceptable for other reasons. The decision in *Arizona v. California* to employ an "economic feasibility" test rather than a "financial feasibility" test makes the standard meaningful and provides it with an objective framework. Although an economic feasibility analysis is susceptible to manipulation, a trial court may see through such abuses and use the tool responsibly. This could be done, for example, by adhering strictly to the Water Resource Council's Principles and Guidelines for assessing water projects. If these standards were used, the equitable and social policy considerations which have a way of creeping into these cases would be accounted for in a formal, objective way. By including opportunity costs for the use of the water, use of these guidelines would also address in a principled fashion the *United States v. New Mexico*[136] requirement that reserved water rights should be quantified with

134. Rusinek, *supra* note 96, at 410. This author also makes the point that irrigation can be undesirable on a reservation because it can be disastrous for the landscape. *Id.* at 410-11.

135. *See* Brief for New Mexico as Amicus Curiae at 11, Wyoming v. United States, 492 U.S. 406 (1989) (where the amicus points out that a prediction of water needs by population is a commonplace practice by water use planners for municipalities. This process must in fairness carry with it the vehicle for the parties to adjust the award on a showing of a change in need. *See* Washington v. Washington Fishing Vessel, 443 U.S. 658 (1979)).

136. 438 U.S. 696 (1978).

"sensitivity" to the interests of third parties. Even this has a drawback, however, in that it decreases the likelihood that a tribe can demonstrate that any proposed project is economically feasible. Thus, as soon as and to the extent that the PIA standard is made workable, it may become detrimental to Indian interests.

For all these reasons, the PIA standard falls short of expectations for it. Because it calls for the creation of irrigation projects that are either an imposition on Indian economies that could more profitably grow in non-agricultural directions, or a fiction to mask the real needs that are being addressed, the PIA standard misses the point. The point is for the federal government to fulfill trust and treaty obligations by assuring water for the Indians' needs. These needs may be directly assessed with a population estimate, or with an analysis of water needs which reflect tribal economic choices for the use of reservation resources.