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PRACTICALLY IRRIGABLE ACREAGE STANDARD: A POOR PARTNER FOR THE WEST'S WATER FUTURE

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I. INTRODUCTION

Water is the resource that globally creates prosperity and success. It has been called "the lubricant of regional growth" in the United States.¹ Besides being recognized as the medium for our prosperity, it has also been a constant source of legal friction in the West since people began settling in the region.² However, our Nation has changed greatly in population and activity since that time. We have evolved from a sparsely populated, agricultural country, to a country characterized by population and urbanization explosions, with corresponding increases in technology and industry.³ These population and urbanization changes have increased water usage, but the supply remains the same.⁴

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¹ A. Dan Tarlock & Sarah B. Van de Wetering, *Growth Management and Western Water Law: From Urban Oases to Archipelagos*, 5 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 163, 166 (1999).

² See generally Roderick E. Walston, *Western Water Law*, in THE NATURAL RESOURCES LAW MANUAL 305, 305 (Richard J. Fink ed., 1995) ("The American West . . . has long lacked sufficient water to sustain its expanding economic needs. . . . [T]he western states have adopted water rights laws intended to maximize water uses and provide certainty among individual [water] users.").

³ 'How do we in the southwest and the border region cope with twice the population on the same limited water supply?' . . . We need to make what we have go farther, and there is lots of room for saving water through conservation both in agricultural and in municipal and industrial usage. . . . Then, in addition, we are in the process, throughout the west, of switching water from irrigation to industrial and municipal uses as populations increase. . . . [G]enerally industry can produce more with an acre-foot of water and therefore can afford to pay more for it.

Albert E. Utton, *Water and the Arid Southwest: An International Region Under Stress*, 34 NAT. RESOURCES J. 957, 960 (1994).

⁴ See *id.*

Compounding the stress on water supply, our water standards are based upon outdated reasoning, specifically the "practically irrigable acreage," or PIA standard, that is used for quantifying federally reserved Indian water rights.⁵ The PIA standard is used to determine how much state water Indian reservations should receive as a reserved right by determining how many acres of the reservation could be reasonably or practically irrigated when the original purpose of the reservation was to promote the pursuit of an agricultural livelihood by the Indian tribes.⁶ This standard was formulated when the United States had a smaller population and a more limited focus as a country. This standard is viewed as presenting the most easily applicable standard for quantifying Indian water rights within individual states.⁷ Today, however, the problem of water scarcity has become a serious concern because of the ever-increasing population,⁸ yet we are using a standard that was created for a simpler and smaller country to allocate this resource. It makes no sense to continue using such a standard when the stakes are so high.

This note argues that reconsideration of the PIA standard is even more important today, ten years after the *Wyoming* decision, because of the growing realities of water scarcity and population increases in the western United States, and because of the weaknesses in the standard

⁵ See *Wyoming v. United States*, 492 U.S. 406 (1989) (per curiam), *aff'g by an equally divided Court In re The General Adjudication of All Rights to Use Water in the Big Horn River System* (Big Horn Adjudication), 753 P.2d 76, 100-01 (Wyo. 1988).

⁶ See David H. Getches, *Indian Water Rights Conflicts in Perspective*, in *INDIAN WATER IN THE NEW WEST* 7, 14 (Thomas B. McGuire et al. eds., 1993).

⁷ See *Arizona v. California* (Arizona I), 373 U.S. 546, 601 (1963). "[T]he only feasible and fair way by which reserved water for the reservations can be measured is irrigable acreage." *Id.* See also Martha C. Franks, *The Uses of the Practically Irrigable Acreage Standard in the Quantification of Reserved Water Rights*, 31 NAT. RESOURCES J. 549, 562 (1991). "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." *Id.*

⁸ See Pamela LeRoy, *Troubled Waters: Population and Water Scarcity*, 6 COLO. J. INT'L ENVTL. L. & POL'Y 299, 299 (1995).

[R]enewable freshwater is an increasingly scarce commodity in many regions of the world. . . . There is essentially the same amount of freshwater on the planet today as there was 2,000 years ago. Yet this supply, which was then shared by no more than 300 million people, today must sustain a population of over 5.7 billion that is projected to grow to almost 10 billion by 2050.

Id.

itself.⁹ The conflicting considerations of water and population are presently great problems in developing countries,¹⁰ but even an established power, such as the United States, must consider the fact that a lack of water resources could hinder future development. The PIA standard is a significant contributor to this problem because it is an example of how American water is being used and appropriated in an inefficient and potentially harmful manner. A new standard should be formulated that is preservational of our water future—consistent, efficient, beneficial, and fair to all parties. Water standards can no longer be formulated independent of these considerations.

Section II of this note defines the PIA standard and outlines its role in the quantification of reserved water rights in the West. Section III discusses how population increases and the corresponding risk of water scarcity make the quantification of water a pressing issue in the United States, and Section IV relates the problematic nature of the PIA standard to these issues. A proposal for quantification of reserved water rights is defined in Section V, with Section VI concluding this note.

The purpose of this note is not to show that the Indian tribes deserve more or less water for their reservations,¹¹ but that it should be quantified for its true use in order to promote the best allocation of the water resources. The nation's water is used by all people and should be governed by a national standard that will protect all parties, not a standard that so clearly separates non-Indian and Indian water users.¹²

⁹ See Utton, *supra* note 3, at 957. "The region is marked by three key features—limited water supplies, rapid population growth and divided political authority." *Id*

¹⁰ JOHNS HOPKINS UNIVERSITY POPULATION INFORMATION PROGRAM, POPULATION REPORTS (1998), available in 1998 WL 28645190 [hereinafter POPULATION REPORTS].

¹¹ See Reid Peyton Chambers & John E. Echohawk, *Implementing the Winters Doctrine of Indian Reserved Water Rights: Producing Indian Water and Economic Development Without Injuring Non-Indian Water Users?*, 27 GONZ. L. REV. 447, 454 (1991-92). "Because of the scarcity of water in western states and the dependence of Indian economic development upon water, the vested property right to the use of water sufficient for beneficial economic development of Indian reservations is probably essential to Indian future economic development and well-being." *Id.* While I agree with this statement, water rights cannot be blindly quantified without consideration of all water using parties—Indian and non-Indian alike. This lack of consideration of all water users is one of the main areas where the PIA standard fails.

¹² Others have voiced this idea long before me. "[B]ecause Indians and non-Indians now share the same landscape, Indian water rights must be limited by the conservation and sharing principles that apply to all natural resources." A. Dan Tarlock, *One River, Three Sovereigns: Indian and Interstate Water Rights*, 22 LAND & WATER L. REV. 631, 644 (1987).

In the West, reliable water supplies are essential to many people's livelihoods and determine the vitality and stability of entire communities. While the quantities of land and water to which tribes are entitled vary considerably from state to state, these claims raise widespread and significant issues. Uncertainty about the future availability of water raises concerns and contributes to the desire to determine, once and for all, the extent and scope of Indian water rights.¹³

II. PIA STANDARD (PRACTICALLY IRRIGABLE ACREAGE)

The background and development of the PIA standard is the focus of this section. The standard is defined in Part A. Part B discusses the concepts of prior appropriation and reserved water rights in conjunction with the development of the PIA standard in *Winters*. Part C briefly covers the adjudicative history of the PIA standard.

A. Definition of PIA

The PIA standard determines the amount of water to be annually allotted or reserved for Indian reservations by determining how many of the acres of the reservation can be reasonably irrigated.¹⁴ "It [PIA] measures the quantity of the reserved water right based on the assumption that the future needs of the Indians will be to irrigate all irrigable reservation lands."¹⁵ The original purpose for the creation of the reservation is central to the use of this standard. The original or intended

¹³ Elizabeth Checchio & Bonnie G. Colby, *The Context for Indian Water Settlements*, in *WATER LAW: TRENDS, POLICIES AND PRACTICE* 179 (Kathleen Marion Carr & James D. Crammond eds., 1995).

¹⁴ PIA is "a standard for quantifying reserved water rights on a reservation set aside with the intent that its inhabitants pursue agriculture." *Id.* at 185.

¹⁵ Chambers & Echohawk, *supra* note 11, at 453. This article, though, argues for the continued existence of the PIA standard because the authors claim that "non-Indians are not being adversely impacted by most increased Indian water use because the Indian use usually occurs through new storage or as the result of improved water management-conservation, allocation of existing storage, transfers, and exchanges of water." *Id.* at 467. However, even if this is true, another concern is that Indian water users can decide to implement the totality of their reserved water rights at any time, endangering non-Indian water users who do not have the guarantee of reserved water rights, but simply rights by prior appropriation, and taking away the predictability of our water resources. Presently, many reservations with settled rights cannot afford to utilize their total water rights, but this concern looms behind the PIA controversy.

purpose assumption creates two points of controversy regarding the PIA standard. First, it is unfair to lock the Indian water users into agricultural quantification of water simply because that was the original purpose of the reservations over one hundred years ago.¹⁶ Second, besides being unfair to the Indian users, it is problematic for all other water users because there is no guarantee that the water will be used for agricultural purposes.¹⁷

The steps in applying this standard begin with determining why the reservation was originally created, because "[r]eserved rights are implied only to effectuate those purposes."¹⁸ If the answer is that the reservation was created for an agricultural purpose, then the PIA standard is applicable.¹⁹ The next question is whether it is economically feasible to irrigate the reservation land and how much would be feasibly irrigable.²⁰ This standard, though, does not measure the amount of water needed to

¹⁶ See Franks, *supra* note 7, at 563. "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." *Id.* Just as the uses of water have changed in non-Indian areas since the time of the creation of the reservations, so have the types of uses that would be most beneficial in reservation areas. A standard that is responsive to these changes is necessary.

¹⁷ See Getches, *supra* note 6, at 13.

Once a tribe's reserved water rights are quantified according to their needs for a particular purpose (e.g., agricultural irrigation), the tribe can apply the water to any other beneficial use. Because quantifications have been based on specific, high water-demand uses, most tribes have few practical limitations on their ability to use water for almost any purpose.

Id.

¹⁸ Walter Rusinek, Note, *A Preview of Coming Attractions? Wyoming v. United States and the Reserved Rights Doctrine*, 17 *ECOLOGY L.Q.* 355, 359 (1990); see also DAVID H. GETCHES, *WATER LAW NUTSHELL* 320 (2d ed. 1990) (explaining that the quantity of Indian reserved water rights is the amount of water that is needed to "fulfill the purposes of the reservation").

¹⁹ See *Arizona I*, 373 U.S. 546, 600 (1963); see also *Big Horn Adjudication*, 753 P.2d 76, 101 (Wyo. 1988).

²⁰ See GETCHES, *supra* note 18, at 332. "The physical and financial feasibility of constructing necessary water delivery systems must be determined." *Id.* See also Franks, *supra* note 7, at 553 (explaining the determination of economic feasibility).

The trial court . . . 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 'practically irrigable,' thus permitting a water award.

Id.

fulfill the reservation's actual water use,²¹ or what the actual use will be, because the "water rights are measured by fixed features of Indian land."²² PIA ignores what is arguably the most important information in determining the most efficient and beneficial quantification of water rights.

This is not an equitable standard, which is another criticism of PIA: "[a]lthough the Court is not supposed to balance equities in determining the quantity of water reserved, these real life issues [such as impact on non-Indian water users] make it difficult for the Court to follow that standard strictly."²³ This difficulty is important because it shows the necessity of a standard that is more responsive to the needs and concerns surrounding water resources. Though an equitable standard might be more difficult to apply, it should lead to a better allocation of water for all water users. Because water is both a finite and shared resource, a standard based on fairness and true use is absolutely necessary. The impact of the reserved water rights on other water users, the environment, and the state of the water supply must be a consideration in determining a just standard for the quantification of water rights.²⁴

B. Water Rights Terminology—Doctrine of Appropriation and Reserved Water Rights

An understanding of the terms "doctrine of prior appropriation" and "reserved water rights" is important in the examination of the PIA standard because they pre-dated this standard, but are very much part of it. PIA was created and used to give detailed meaning to the Indian-reserved water rights that were implied to meet the water needs of the tribes.²⁵

The doctrine of prior appropriation is the idea that "[u]nder that law the one who first appropriates water and puts it to beneficial use thereby acquires a vested right to continue to divert and use that quantity

²¹ See Franks, *supra* note 7, at 555-56.

²² *Id.* at 556.

²³ Rusinek, *supra* note 18, at 382.

²⁴ See *id.* at 358. "[B]ecause most reserved rights have senior priority dates [the date the reservation was created], more often it is state law water users, even senior users, who fear that use of reserved rights will cut off their water supply." *Id.*

²⁵ See generally *Arizona I*, 373 U.S. 546, 600 (1963) ("[A]s to the quantity of water intended to be reserved . . . the water was intended to satisfy the future as well as the present needs of the Indian Reservations.").

of water against all claimants junior to him in point of time.”²⁶ Traditionally, the doctrine of prior appropriation was designed to apply to non-reservation water users.²⁷ It was responsive to the water user’s actions by making these actions into a type of right, as long as the water was beneficially used.²⁸ By simply doing the act of taking and using water before another party, a water user can create a right of prior appropriation.²⁹

The problem with the doctrine of prior appropriation is that the water can be completely used up, or “fully appropriated,” by the earlier users with older rights, well before the water reaches later users.³⁰ This potential exclusion of later water users by the prior appropriation standard eliminates this standard as an option for Indian water rights. By the time the reservations were founded and using water, the non-Indian water users had gained priority water rights.³¹ The unsatisfactory result for Indians by the doctrine of prior appropriation led to the use of the federally reserved water right for reserved lands, which is applied in the hope that the interested parties will get the water that is necessary to develop and use these lands in specific ways.³² This standard differs fundamentally from the doctrine of prior appropriation because a specific amount of water is quantified as the federally reserved amount for a determined area.³³

Many Indian reservations were created in the nineteenth century for the purpose of giving the tribes limited land on which to live.³⁴ Some

²⁶ *Id.* at 555. This type of water right is not as permanent as the reserved water right. See also Walston, *supra* note 2, at 306 (“The right arises when the water is actually diverted to beneficial use and is lost when the use is discontinued.”).

²⁷ See GETCHES, *supra* note 18, at 74. “The prior appropriation doctrine was developed to meet the unique needs of nineteenth century water users in the western United States. It originated in the customs of miners on the public lands who accorded the best rights to those who first used the water.” *Id.*

²⁸ See *id.* at 92-93. See also JOHN R. WUNDER, *RETAINED BY THE PEOPLE* 51 (1994) (“[W]ater rights are not attached to the land; instead, they belong to the first user who puts the water to a beneficial use.”).

²⁹ See GETCHES, *supra* note 18, at 74. See generally Walston, *supra* note 2, at 306 (“The appropriation doctrine has now been statutorily codified in virtually all western states.”).

³⁰ See WUNDER, *supra* note 28, at 52 (“Once a stream is fully appropriated or if there is a drought, the last users will lose out.”).

³¹ See *id.*

³² See Walston, *supra* note 2, at 307.

³³ See Chambers & Echohawk, *supra* note 11, at 454. “[R]eserved rights do not depend on actual past or present use of water.” *Id.*

³⁴ See WILLIAM C. CANBY, JR., *AMERICAN INDIAN LAW* NUTSHELL 18 (1988). “Reservations were originally intended to keep distance and peace between Indians and non-Indians, but they came to be viewed also as instruments for ‘civilizing’ the Indians.”

considered the Indians to be agricultural people, which resulted in the creation of many reservations for the purpose of providing an agricultural way of life for the Indians.³⁵ *Winters v. United States*³⁶ first formulated the Indians' reserved water rights based on the purpose for the creation of the reservations, which in many cases was agriculture, leading to the formulation of the PIA standard in later adjudications.³⁷

The idea of creating reserved rights for the protection of the Indian tribes has existed since the early twentieth century.³⁸ However, the Court's reasoning appears somewhat misguided by modern standards, "[T]he Court [in *United States v. Winans* (1905)] concluded . . . that if Indians were to be successfully assimilated, they must have some fundamental rights reserved so that they could actually move from being Indian to being non-Indian."³⁹ Specifically, reserved water rights for Indian reservations were recognized in *Winters*⁴⁰ as being implied with the reservation of land and have become synonymous with that standard as "*Winters* rights."⁴¹ This type of reserved right is important because it led to the need for the PIA standard as these federally reserved water rights had to be quantified, so that non-reserved water users could utilize their rights with some certainty.⁴² The Court held that the water rights of the Indians in this case were originally reserved by the government from the

Id. See also GETCHES, *supra* note 6, at 8. "Treaties were negotiated with the idea of confining tribes to a defined area where they could have their independence." *Id.* See generally *Winters v. United States*, 207 U.S. 564, 567 (1908) (discussing the claimed scope of the Indian and federal reserved water rights of the Milk River).

It is alleged with detail that all of the waters of the river are necessary for all those purposes and the purposes for which the reservation was created, and that in furthering and advancing the civilization and improvement of the Indians, and to encourage habits of industry and thrift among them.

Id.

³⁵ See, e.g., *Big Horn Adjudication*, 753 P.2d 76, 96. "[W]e have no difficulty affirming the finding that it was the intent at the time to create a reservation with a sole agricultural purpose." *Id.*

³⁶ *Winters v. United States*, 207 U.S. 564 (1908).

³⁷ See *Arizona v. California* (Arizona II), 460 U.S. 605 (1983); see also *Arizona I*, 373 U.S. 546 (1963).

³⁸ See *Winters*, 207 U.S. at 577.

³⁹ WUNDER, *supra* note 28, at 53.

⁴⁰ See *Winters*, 207 U.S. 564.

⁴¹ CHECCHIO & COLBY, *supra* note 13, at 182; see also Walston, *supra* note 2, at 307 ("The reserved rights doctrine originally applied only to Indian reservations . . . but it has been extended to include all federal reservations.").

⁴² See Walston, *supra* note 2, at 308.

date that the reservation was created and these rights continue on, reserved, from that point in time.⁴³ The Court's reasoning for this rule was that without such implied, reserved rights, the Indian lands would be useless because they would be without water.⁴⁴

Winters also held that the purpose of the reservation (and consequently the purpose of the implied reservation of water rights) is determined from the original date and intention for creating the Indian reservation; the purpose is not based on later or present uses of water.⁴⁵ This is important because "[u]nder the *Winters* doctrine, an Indian reservation is entitled to enough water to fulfill the primary purpose for which the reservation was created."⁴⁶ The intent for creating the reservations at earlier dates was more limited than the range of modern purposes and uses for reservation lands.⁴⁷ The PIA standard can be considered to be too limiting and even incorrect by today's varying and disputed purposes for reservation lands.⁴⁸

One view, broader than the agricultural intent of PIA, is that the reservations were created to enable the Indian tribes to generally support themselves in society.⁴⁹ Some think that it is reasonable to use the more expansive idea of the creation of a "permanent homeland" as the original

⁴³ See *Winters*, 207 U.S. at 577.

⁴⁴ See *id.*

⁴⁵ See FRANK P. GRAD, TREATISE ON ENVIRONMENTAL LAW § 16.03[3] (1999).

⁴⁶ *Id.* at § 16.03[4]. See also Teno Roncalio, *The Big Horns of a Dilemma*, in INDIAN WATER IN THE NEW WEST 209, 210 (Thomas R. McGuire et al. eds., 1993) ("The famed *Winters* case of 1908, however, said simply that Congress, when it created an Indian reservation in Montana, intended to grant a water right at that time also, since it was untenable that Congress intended to leave Indians without the water needed to sustain life, particularly in the arid West.").

⁴⁷ See Franks, *supra* note 7, at 566.

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.

Id.

⁴⁸ See Franks, *supra* note 7, at 565. This article uses the *Mescalero* case as an example of the limiting nature of the original intents and purposes for Indian reservations. The lower court in this case found that the lands were reserved for "grazing and agriculture" only, though the tribe in the case would have benefited by offering recreational use of the land. *Id.*

⁴⁹ See CANBY, *supra* note 34, at 18.

purpose for the creation of the reservations.⁵⁰ This could broaden the types of standards that are available to determining the amount of Indian-reserved water rights, but this has not happened yet.⁵¹

These reserved rights can directly impact other water users, often non-Indian water users who do not have implied reserved rights to water but would have priority by the doctrine of prior appropriation.⁵² This impact makes the specific quantification of the reserved water rights an absolute necessity, mainly so that the water users without reserved rights can have some predictability in determining how much water will be available to them now and in the future.⁵³ However, this is an extremely difficult task because different ideals, needs, and laws are examined together.⁵⁴ One point to recognize about reserved rights is that they effectively differentiate between Indian and non-Indian resource users, because reserved rights apply to federally reserved lands, which are Indian reservations in many relevant cases, while rights by the doctrine of appropriation are usually held by private parties, or at least parties that are

⁵⁰ See, e.g., Rusinek, *supra* note 18, at 364-65.

⁵¹ See Austin Nunez & Mary G. Wallace, *Solutions or Symbols? An Indian Perspective on Water Settlements*, in *INDIAN WATER IN THE NEW WEST* 35, 36 (Thomas R. McGuire et al. eds., 1993). "To date, the PIA standard has been the only standard for quantification used." *Id.*

⁵² See GETCHES, *supra* note 18, at 331-32.

Those whose water rights were perfected after the reservation was established, can discover the magnitude of potential water claims ahead of them. The government or an Indian tribe may not in fact use its entire entitlement, but knowledge of the full quantity of reserved rights that might be asserted allows others to make wiser decisions about their own uses.

Id.

The fact that these reserved rights can, in many instances, supersede appropriative rights makes the topic of quantification a very contentious issue in water-scarce areas. Even though many of the reservations with quantified amounts of water cannot afford to use their full amount, the quantifications that remain to be determined and the potential size of these quantifications make many appropriative users nervous.

⁵³ See *id.*; see also Rusinek, *supra* note 18, at 359. "Because the reserved water can be used at any time and because the quantity of water is not clear until the reserved right has been quantified, the existence of the reserved right creates uncertainties for state law water users." *Id.* at 358.

⁵⁴ See CHECCHIO & COLBY, *supra* note 13, at 183. "[S]ettling Indian water rights claims entails the tremendous challenge of blending two different sets of legal principles for water allocation—the state doctrine of prior appropriation and the federal reserved water rights doctrine." *Id.*

not protected by a federal reservation of land.⁵⁵ This effective differentiation is a mindset that was accepted in the late nineteenth and early twentieth centuries, but may be inappropriate in today's society and environmental reality. This leads to the question of why and how the PIA standard quantifying this right has been upheld by modern courts.

C. Decisions Affirming PIA

Three Supreme Court cases have been instrumental in developing and upholding the PIA standard of quantification. Part 1 discusses *Arizona v. California (Arizona I)*,⁵⁶ that upheld the use of the PIA standard for quantifying implied reserved water rights on federally reserved land. Part 2 focuses on the later case, *Arizona II*,⁵⁷ that upheld *Arizona I*, and further detailed the application of the PIA standard. Part 3 discusses *Wyoming v. United States*.⁵⁸ This is the most recent Supreme Court decision regarding PIA, and though no written opinion accompanied this per curiam decision, it again upheld the use of the PIA standard, this time for the quantification of water rights in the Big Horn River System.⁵⁹

1. Arizona I

In 1963, the Supreme Court upheld the use of the PIA standard in judging Indian reserved water rights in *Arizona I*.⁶⁰ This reserved right stood intact because it was considered to be implied by the creation of the reservations, even though an express agreement about the reservation of water rights was not created.⁶¹ The Court found that at the time the reservation was created, water was reserved by the United States, and it quantified these rights with the PIA standard.⁶²

⁵⁵ See generally Edward Weinberg & Richmond F. Allan, *Federal Reserved Water Rights*, in *WATER RIGHTS OF THE FIFTY STATES AND TERRITORIES*, 74, 74-76 (Kenneth R. Wright ed., 1990).

⁵⁶ See 373 U.S. 546 (1963).

⁵⁷ See 460 U.S. 605 (1983).

⁵⁸ See 492 U.S. 406 (1989).

⁵⁹ See *Big Horn Adjudication*, 753 P.2d 76 (Wyo. 1988).

⁶⁰ See 373 U.S. 546.

⁶¹ See *id.* at 600.

⁶² See *id.* The Court agreed with the Special Master's findings that "the water was intended to satisfy the future as well as the present needs of the Indian Reservations and . . . that enough water was reserved to irrigate all the practically irrigable acreage on the reservations." *Id.*

The Court's reasoning for upholding the creation of implied reserved water rights for the reservation was persuasive, but the reasoning for the application of the PIA standard over other standards was not.

It is impossible to believe that when Congress created the great Colorado River Indian Reservation and . . . the other reservations they were unaware that most of the lands were of the desert kind . . . and that water from the river would be essential to the life of the Indian people and to the animals they hunted and the crops they raised.⁶³

While it is undeniably true that the reservations need water to survive in the desert of the Southwest, *Arizona I* is significant because it upheld the idea that the purpose for Indian reservations was agricultural development, making the PIA standard applicable.⁶⁴ Today, this agricultural purpose simply does not apply to all Indian reservations, and it probably was a questionable assumption even in 1963. The United States was and is in an age of technological change, one in which it is extremely difficult to make a living through irrigated agriculture.⁶⁵ While agriculture is still a necessary part of our existence, there is no reason for reserved water use to be judged on agricultural criteria when: 1) the real reason behind the creation of the reservations was to give the tribes land so that they could make a living, and 2) agriculture may not be a reasonable manner for a specific tribe to support itself.⁶⁶ The United States has become a largely non-agricultural society, and the tribes should be enabled to keep pace with this trend, which makes the PIA standard seem archaic and unresponsive in this time of changing focuses.

⁶³ *Id.* at 598-99.

⁶⁴ *See id.* at 600.

⁶⁵ *See* Rusinek, *supra* note 18, at 410. Irrigated agriculture is expensive and labor intensive, and adding the fact that it may also be harmful to the environment, one can see why this is probably not the best or most realistic way to quantify water rights.

⁶⁶ Opponents of the reserved rights doctrine try to limit the purposes for which water was reserved by arguing that Congress solely intended to transform Indians into yeomanfarmers, thus limiting the purpose of the reservation to agriculture. Not only is it illogical to define the parameters of water use by tribes today according to a 19th century ideal with a mythology of its own, but the language used in *Winters* also points to a broader standard. . . . [T]he Court stated that . . . under the agreement the water could be used in pursuit of the ambiguous 'arts of civilization.'

Id. at 364.

In *Arizona I*, Arizona proposed the idea that the reserved water rights should be judged by the “reasonably foreseeable needs” of the Indians.⁶⁷ The Court rejected this idea, however, because it interpreted that the “reasonably foreseeable needs” standard would really mean the “number of Indians,” and that predicting future Indian populations would be a difficult and unpredictable determination to make.⁶⁸ The assumption that “reasonably foreseeable needs” is an unfeasible standard is questionable, however. Cities and communities must plan their future needs and populations; it does not seem unreasonable to apply that same standard of future planning to the reservations in determining their water needs—especially in the water-scarce areas like the Southwest.

2. Arizona II

The Court reexamined the PIA standard in 1983 in *Arizona II*.⁶⁹ This case again upheld the use of the PIA standard, and it gave specifics on how to apply the standard and determine quantification of reserved water rights.⁷⁰ While this case continued the use of the PIA standard, some scholars claim that the Court alluded to the idea that the PIA standard was not necessarily permanent.⁷¹ This case gave hope that other standards might be considered and used, but this hope did not materialize in the determinative case of *Wyoming v. United States*.⁷²

3. Wyoming

The Court in *Wyoming* again seemingly upheld the use of the PIA standard.⁷³ However, this case is difficult to interpret for many reasons.

⁶⁷ *Arizona I*, 373 U.S. 546, 600-01 (1963).

⁶⁸ *Id.*

‘[R]easonably foreseeable needs,’ which, in fact, means by the number of Indians. How many Indians there will be and what their future needs will be can only be guessed. We have concluded, as did the Master, that the only feasible and fair way by which reserved water for the reservations can be measured is irrigable acreage.

Id.

⁶⁹ See *Arizona II*, 460 U.S. 605 (1983).

⁷⁰ See *id.*

⁷¹ See, e.g., Rusinek, *supra* note 18, at 370 and n.90 (“Thus, although the *Arizona II* Court did not overturn the PIA doctrine . . . the majority opinion intimated that opponents might validly attack the standard in a future case.”).

⁷² See *Wyoming*, 492 U.S. 406.

⁷³ See *id.*

First, the Court did not issue a written opinion in this case, but simply affirmed the lower court⁷⁴ with a per curiam decision because the Court was in a 4-4 split.⁷⁵ Justice O'Connor recused herself because of personal and financial involvement with issues in the case.⁷⁶ Documents found after Justice Marshall's death, though, revealed a draft opinion written by Justice O'Connor.⁷⁷ This opinion would have changed the PIA standard to include a "reasonable likelihood" standard that such irrigation projects would really occur.⁷⁸ In addition, the special master who made the original recommendations for the case at the trial level suggested that the reservation's purpose was for the creation of a "permanent homeland."⁷⁹ The "permanent homeland" original purpose for the reservation would be more open to interpretation and application to modern needs and uses of water. The court, however, disagreed with this finding and ruled that the reservation was created for agricultural purposes only.⁸⁰

This case has not settled the PIA issues; instead it created controversy about the PIA standard and its permanence. The 4-4 split and the discovery of Justice O'Connor's draft opinion did not do much to steady these issues, but have created hope for some that the PIA standard might still be overturned in the future by the Supreme Court. With Justice O'Connor's vote, the standard would already be headed towards an application that would be more inclusive of the environmental and economic needs of the West.⁸¹

PIA seems to have some advantages because it is a determinate standard. It is concrete and easy to apply, which is why courts and some

⁷⁴ See *Big Horn Adjudication*, 753 P.2d 76 (Wyo. 1988).

⁷⁵ See *Wyoming*, 492 U.S. 406.

⁷⁶ See Memorandum from Justice Sandra Day O'Connor to the Conference (June 22, 1989) (on file with Collections of the Manuscript Division, Library of Congress).

⁷⁷ See Justice Sandra Day O'Connor, 2nd Draft Opinion of *Wyoming v. United States* No. 88-309 (June 12, 1989) (unpublished draft opinion, on file with Collections of the Manuscript Division, Library of Congress).

⁷⁸ See *id.*

Sensitivity to the impact on prior appropriators necessarily means that 'there must be some degree of pragmatism' in determining PIA. . . . [T]his pragmatism involves a 'practical' assessment . . . of the *reasonable likelihood* that future irrigation projects necessary to enable lands which have never been irrigated to obtain water, will *actually* be built.

Id. at 17 (citations omitted).

⁷⁹ *Big Horn Adjudication*, 753 P.2d at 94.

⁸⁰ See *id.* at 95.

⁸¹ See O'Connor, *supra* note 77.

parties like the standard.⁸² However, the problem is that water usage is not determinate.⁸³ It is ever-changing in response to the uses and the needs of populations and communities.⁸⁴

III. POPULATION INCREASES IN THE WEST AND WATER SCARCITY

The merits of the PIA standard have been widely debated by water law scholars, but it is even more important now because of the growing problems of exploding populations and water scarcity in the West. Part A describes the population issue, especially in the western and southwestern United States. Part B discusses how water usage is changing and increasing, and details how this effects the water supply.

A. Population

Today, the West is one of the fastest growing and most popular places to live and work.⁸⁵ The land is apportioned as before, but the skyrocketing populations are creating concerns about the future of the water supply and water rights.⁸⁶ These concerns have existed since the settlement of this area,⁸⁷ and have increased in recent decades.⁸⁸ Today, there is not as much room for growth within the water supply as there was

⁸² See *Arizona I*, 373 U.S. 546 (1963). But see A. Dan Tarlock, *One River, Three Sovereigns: Indian and Interstate Water Rights*, 22 LAND AND WATER L. REV. 631, 671 (1987). "Its [PIA] chief virtue—certainty—has benefited neither the Indians nor the states." *Id.*

⁸³ See GETCHES, *supra* note 18, at 331.

⁸⁴ See *id.*

⁸⁵ See Tarlock & Van de Wetering, *supra* note 1, at 164. "[The West] has become a classic example of a modern, if not post-modern, globally integrated, service, information and manufacturing economy." *Id.*

⁸⁶ See INSTITUTE FOR THE DEVELOPMENT OF INDIAN LAW, INDIAN WATER RIGHTS I-5 (1984) (discussing the significance and impact of water in the West, in relation to economics, politics, and population). "Population growth in the Southwest presents particularly severe problems. Diminishing water supplies have necessitated the control of water and its distribution." *Id.*

⁸⁷ See *Arizona I*, 373 U.S. at 553. "During the latter part of the nineteenth and the first part of the twentieth centuries, people in the Southwest continued to seek new ways to satisfy their water needs, which by that time were increasing rapidly as new settlers moved into this fast-developing region." *Id.*

⁸⁸ See Robert J. Sheehan, *Population in South and West Continues to Grow*, UNITS, Oct. 1, 1998, available at 1998 WL 14779861 ("A decided shift in population growth in the United States began in the 1960s as people moved to the metropolitan areas of the South and West, and this trend continues into the 1990s.").

in the 1860s or 1960s, and still the population increases show no sign of slowing.⁸⁹ The limited water supplies for the expanding West should make water usage and allocation a driving issue in areas concerned with the population increase.⁹⁰

The future is expected to bring even more growth in the southwestern and western United States. It is predicted that the fastest growing areas in the next twenty-five years will include "California, New Mexico, Texas, Arizona, Washington, Wyoming, Utah, and Idaho."⁹¹ This growth causes already precious resources, like water, to be spread thinly and carefully in order to fulfill the needs of the populations. With more people comes more water use, which is an easy problem to identify but a very difficult one to solve.

B. *Increasing Water Usage*

Since the early 1900s, the resource rights of the Indians created significant legal issues, of which water was a main concern.⁹² Many of the foundations for western water rights were laid in the *Winters*⁹³ case and the Colorado River Compact of 1922.⁹⁴ The twenty-first century promises to have many of the same concerns as the last, including the guaranteed provision of "renewable freshwater" supplies.⁹⁵ Some consider the modern purpose of water laws to be "unlimited urban

⁸⁹ See, e.g., Tarlock & Van de Wetering, *supra* note 1, at 163 ("Western states grew by about 32 percent in the past twenty-five years, compared with 19 percent in the rest of the nation.").

⁹⁰ See *id.* at 167. "Both growing communities and communities of origin should have the ability, within constitutional limits, to define their resource and landscape heritage." *Id.*

⁹¹ *Id.* at 164.

⁹² See *Winters*, 207 U.S. 564.

⁹³ See *id.*

⁹⁴ See 70 CONG. REC. 324 (1928). Some of the water that is at issue in PIA cases is water from the Colorado River, the focus of the Colorado River Compact of 1922. The Compact divided much of the West, which is the basin of the Colorado River, into upper and lower basin states and then split up the water from the Colorado River between these two basin areas. In the Southwest, the lower basin states include Arizona, California, and Nevada. The water from this compact is all the water that the upper and lower basin states receive from the Colorado River annually, which is a major source of their water.

⁹⁵ LeRoy, *supra* note 8, at 299. This author defines renewable freshwater as "the water that is recycled within reasonable time spans through the hydrologic cycle, such as the water found in streams, reservoirs, and other sources that are regularly recharged with precipitation or runoff." *Id.* at 299, n.1.

growth",⁹⁶ which seems to be occurring in much of the West.⁹⁷ This boundless growth will not be possible to sustain in terms of water resources because water resources will not increase.⁹⁸ While it is possible to share the water supply, it is not presently possible to make it grow along with the population.⁹⁹

While the United States as a whole has been changing by industrializing and urbanizing, water usage has been consistently increasing in those areas.¹⁰⁰ The increased amounts of water usage correspond to increases in types of usage—irrigated agriculture, industrial, urban, and individual.¹⁰¹

How the water resources are used is an important concern alongside the factor of how much is being used.¹⁰² Because of pollution, "[s]ufficient water quantity is no longer enough to assure a long-term water supply; the water quality must be adequate to serve the purposes for which it is required."¹⁰³ Surprisingly, agriculture has been named as one of the largest polluters, even more so than industry and municipalities.¹⁰⁴ Also, the methods used in agriculture are problematic because they can be inefficient or wasteful of water, specifically irrigation.¹⁰⁵ This is a

⁹⁶ Tarlock & Van de Wetering, *supra* note 1, at 172.

⁹⁷ *See id.*

⁹⁸ *See* LeRoy, *supra* note 8, at 299. "There is essentially the same amount of freshwater on the planet today as there was 2,000 years ago." *Id.*

⁹⁹ *Id.* at 301. "Renewable freshwater is a finite resource." *Id.*

¹⁰⁰ *See* INSTITUTE FOR THE DEVELOPMENT OF INDIAN LAW, INDIAN WATER RIGHTS I-6 (1984). "Urban growth was accompanied by a decline in rural population. While the industrial sectors of the cities prospered, the agricultural economies in surrounding areas stagnated. This change created new competition for water." *Id.*

¹⁰¹ *See* POPULATION REPORTS, *supra* note 10 ("Beyond the impact of population growth itself, the demand for freshwater has been rising in response to industrial development, increased reliance on irrigated agriculture, massive urbanization, and rising living standards. In this century, while world population has tripled, water withdrawals have increased by over six times.").

¹⁰² *See* LeRoy, *supra* note 8, at 299 ("[T]rends in freshwater availability still fail to receive the attention they deserve and are rarely examined in the context of population growth. Analysts fail to recognize the critical impacts that increased population pressures on the world's freshwater supply can have on human health, the environment, and international security.").

¹⁰³ Eric L. Garner & Janice L. Weis, *Water Management Options for the Future*, in THE NATURAL RESOURCES LAW MANUAL 330, 330 (Richard J. Fink ed., 1995).

¹⁰⁴ *See* POPULATION REPORTS, *supra* note 10.

¹⁰⁵ *See* Garner & Weis, *supra* note 103, at 335. One suggested way to better manage our water resources is conservation of existing agricultural and domestic supplies. In

necessary tool for farming in the dry Southwest, but it is not an efficient use of the water supply because it uses so much water to produce a marketable good.¹⁰⁶ Irrigation cannot be halted in the Southwest, but it should not be increased and could be slowly curbed to make room for more efficient water usages.¹⁰⁷ If this were done, the whole use of water in the Southwest would be changed.

Water use today is impacted by the changing populations and focuses in this region; "we are in the process, throughout the west, of switching water from irrigation to industrial and municipal uses as populations increase."¹⁰⁸ Today, agriculture employs less people in the West, indicating that the uses of water are changing as the population transforms and increases.¹⁰⁹ These changes impact how the states use water, and it is not unrealistic to think that these changes in use will change how water is allocated and the standards by which it is judged. Managing our water supplies carefully is an important tool for protecting the future supply of these resources,¹¹⁰ and using effective and responsive standards is key to managing the supplies appropriately. Because we cannot find more water, we need to re-examine our uses of our present water supply, and we need to "stretch [the supply] and switch [uses]."¹¹¹ The goal will be to determine how our water can be best and most efficiently used. This could mean changing how much water we use, how we use it, and how we allocate it among ourselves.¹¹²

agriculture, for example, "farmers may be encouraged to use more efficient irrigation techniques and to line transmission canals." *Id.*

¹⁰⁶ See Rusinek, *supra* note 18, at 410.

[P]roblematic is that irrigation is one of the most inefficient and ecologically damaging ways to use water. . . . [I]ncreasing the use of water for irrigation runs counter to a historic trend in western water use—the transition from agricultural to less consumptive and higher-valued municipal and industrial uses.

Id.

¹⁰⁷ See LeRoy, *supra* note 8, at 324. "[S]lowing down the expansion of land under irrigation could take considerable pressure off the world's renewable water supplies." *Id.*

¹⁰⁸ Utton, *supra* note 3, at 960.

¹⁰⁹ See Tarlock & Van de Wetering, *supra* note 1, at 169. "[T]he projected urban growth will accelerate the on-going reallocation of water from agricultural to urban and environmental use." *Id.* at 168. See also Rusinek, *supra* note 18, at 410.

¹¹⁰ See LeRoy, *supra* note 8, at 324.

¹¹¹ Utton, *supra* note 3, at 960.

¹¹² See *id.*; see also Tarlock & Van de Wetering, *supra* note 1, at 170 ("[W]e are now in the era of reallocation and management [of water resources].").

IV. PIA STANDARD—ANALYZED ACCORDING TO MODERN NEEDS

This section describes why the re-examination of the PIA standard is so vital today. Part A describes the weaknesses of this standard in relation to modern water uses. Part B demonstrates that since its creation, the PIA standard has become outdated in our changing society. PIA's unresponsiveness to actual water use is detailed in Part C, while Part D specifies the inefficient results of the standard.

A. Increased Water Use Necessitates Reality in Quantification

PIA alone will not be the cause of water scarcity in the Southwest, but it is an inconsistent and irrational standard. Because of the impending dangers of growing populations and an inflexible amount of water to provide to those populations, the PIA standard is one of many standards and ideas about our natural resources that must be re-examined.

The population growth in the West has consistently broken records and predictions, and it shows no sign of slowing in the future.¹¹³ As industry, technology, and municipalities all grow in accordance with the increasing populations in the West and become successful, even more people continue to be attracted to this region.¹¹⁴ This relocation is positive for the West's economy and status in the United States, but the dangers that present themselves with fast and unstoppable growth do come, even with improvements. Water is the resource that keeps this region functional, but it is also the resource that should limit its ability to grow.¹¹⁵

Since the reservations were created in the nineteenth century, the United States and its cultural viewpoints have changed dramatically—from slave emancipation, to women's suffrage, to the civil rights actions in this century. However, the foundations of our reserved water rights standards have been basically unchanged since the *Winters* doctrine was implemented. This lack of change is a hindrance to the safety of our water supply and the goals of efficient use and allocation.

The PIA standard is an extension of the *Winters* doctrine in many respects, because *Winters* was the landmark case in that it clarified that Indian water rights were impliedly reserved from both the date of the

¹¹³ See LeRoy, *supra* note 8, at 299.

¹¹⁴ See generally Utton, *supra* note 3, at 961 (explaining effects of increased growth in the West). "Increasing demand is being placed on the limited water supplies of the region by rapid population growth and economic development." *Id.*

¹¹⁵ See *id.* "[W]e have to confront the reality that there are limits, that there is an ultimate maximum carrying capacity of the water supplies available to the region." *Id.*

creation of the reservation and the purpose of the reservation.¹¹⁶ The PIA standard is used when that purpose is deemed to be agricultural. However, the PIA standard takes this determination further, quantifying these rights with "a two-part analysis, i.e., the PIA must be susceptible of sustained irrigation . . . and irrigable 'at reasonable cost.'"¹¹⁷ This seems fair when the water will be presently and realistically used for agriculture, but not when the agricultural purpose is not feasible in a specific situation. The whole point of the creation of the reservations was to provide the Indians with homelands, places to live and create a living for themselves.¹¹⁸ It is counterproductive to judge them by a standard that is no longer efficient or beneficial. It is unfair to the Indians who have to shroud their real uses in inefficient standards.¹¹⁹

PIA plays an important role in the West's water resources because there is a limited amount of water in the region and it is used to quantify a significant portion of that water. The increasing population and the threat of water scarcity make every allocation of water important enough to be closely examined. If a standard is not a good measure for allocating a resource, it could actually become dangerous to let use of that standard continue. This is why inefficient standards should be re-examined by the Court.

B. *Outdated Intentions*

The quantification of the reserved water right with the PIA standard is based upon the finding of the original purpose for the creation of the reservation.¹²⁰ These purposes are often debatable, but even if they are clearly stated, it is unreasonable to base modern water allocation on decades-old intentions. These intentions may also be less than honorable in retrospect. One scholar has even suggested that the reservations were created for purposes that were deliberately opposed to Indian prosperity:

¹¹⁶ See *Winters v. United States*, 207 U.S. 564, 577 (9th Cir. 1908).

¹¹⁷ *Big Horn Adjudication*, 753 P.2d 76, 101 (Wyo. 1988).

¹¹⁸ See CANBY, *supra* note 34, at 284. "[T]he purposes of Indian reservations are necessarily entitled to broader interpretation if the goal of Indian self-sufficiency is to be attained." *Id.*

¹¹⁹ See Franks, *supra* note 7, at 583.

¹²⁰ "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 the land was reserved, and concluded that without the water the purposes of the reservation would be entirely defeated." *Big Horn Adjudication*, 753 P.2d at 90.

[f]ederal Indian policies based on subjugation and removal were initially justified because it was assumed that Indians were destined to perish in the face of the advancing superior European civilization. When the Indians did not become extinct as rapidly as expected, they were herded onto reservations in the West, which were initially viewed as hospices.¹²¹

While such reasoning and intentions seem obviously ridiculous now, it is a good example of why we should not categorize present rights by past reasoning alone, as the PIA standard does.

Some view the true purpose of the creation of Indian reservations as enabling those people to become self-sufficient on their own land.¹²² The concept of "permanent homeland" is much more comprehensive and generalized, which would allow the standards and uses of water to change with time and development.¹²³ As the purposes and amounts of non-Indian water uses have changed greatly over the years since the creation of reservations,¹²⁴ it is necessary to allow the Indian populations to change and expand their water uses to fit in modern times.¹²⁵

C. *Unresponsive to True Uses*

Though the PIA standard judges the amount of water to be allocated according to an agricultural and irrigation standard, the water

¹²¹ Tarlock, *supra* note 12, at 632.

¹²² See CANBY, *supra* note 34, at 284; see also Big Horn Adjudication, 753 P.2d at 94 (noting the special master's finding that:

it is not at all unreasonable to conclude that the principal purpose for entering into this Treaty was to provide the Indians with a homeland where they could establish a permanent place to live and to develop their civilization just as any other nation throughout history has been able to develop its civilization.).

¹²³ See Big Horn Adjudication, 753 P.2d at 94.

¹²⁴ See Rusinek, *supra* note 18, at 406.

¹²⁵ See *id.* at 407. "[A]lthough the Indians may have agreed to become farmers, it is unlikely that they agreed to limit use of their water to farming or, more importantly, to remain farmers forever." *Id.* I have to disagree, however, with this author's following idea that after quantification of reserved Indian rights, they should be allowed to use the water in any manner, "for agriculture or industry, for maintenance of instream flows on reservation lands, or for sale or lease." *Id.* The standard is agricultural and makes more sense to find a new, more responsive standard than to ignore why the water was allocated.

does not actually have to be used for agriculture.¹²⁶ This seems completely counter-intuitive to intentions of responsible and efficient water use in the water-starved Southwest. To force a group of water users into presenting a false use, simply so they can obtain water, is a ridiculous and dangerous hoop to jump through.¹²⁷ Tribes may not be able to realistically or beneficially use water for agricultural purposes.¹²⁸ This can only promote incorrect allocation of water.¹²⁹ Unless the creation of reservations was with the intention to harm and hinder tribes, which would be ridiculous, this standard has no place in efficient water usage. More realistic standards are necessary.¹³⁰ The uses of water are not static, but are developing with time and technology, and the standards for quantification of Indian water rights should reflect that.¹³¹

D. Inefficient Agriculture

Reservations were mainly agricultural at one time,¹³² but this is not uniformly true anymore.¹³³ It may be more profitable and realistic for

¹²⁶ See CANBY, *supra* note 34, at 283. "If a tribe decides to use its quantified share of agricultural water for industrial or other purposes, it therefore may do so." *Id.* See also Franks, *supra* note 7, at 583 ("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.").

¹²⁷ See Franks, *supra* note 7, at 583 ("[T]ribes 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.").

¹²⁸ See *id.*

¹²⁹ See *id.*

¹³⁰ See Tarlock, *supra* note 12, at 659. "Irrigable acreage as a standard for Indian water rights is an unfortunate legacy of the assimilation period. . . . Irrigable acreage is often unresponsive to non-agricultural reservation development or to cultural-based water claims." *Id.*

¹³¹ See Big Horn Adjudication, 753 P.2d 76, 119 (Wyo. 1988) (Thomas, J., dissenting):

The fault that I find with such a limitation [of determining intended uses for the quantification of implied water rights] is that it assumes that the Indian peoples will not enjoy the same style of evolution as other people, nor are they to have the benefits of modern civilization. . . . [T]he homeland concept assumes that the homeland will not be a static place frozen in an instant of time but that the homeland will evolve and will be used in different ways as the Indian society develops.

¹³² See Arizona I, 373 U.S. 546, 598 (1963).

¹³³ See Tarlock, *supra* note 12, at 636.

reservations to focus on non-agricultural uses of water today—such as with recreation or industry, as many non-Indian water users are doing today.¹³⁴ If the goal is to enable the Indian tribes to be self-sufficient and profitable for themselves, a non-agriculture specific standard would be much more responsive to the economic realities for tribes.¹³⁵ A non-agriculture specific standard, besides being more responsive, would become more efficient because it would be examining true uses, instead of intended but possibly unfeasible purposes for water use.¹³⁶ It is undeniable, however, that the PIA standard has been good for some tribes in the sense that they have been allocated large quantities of water.¹³⁷ This allocation, though, may be based on false purposes, which is not a knowledgeable and informed allocation of water rights. This can only harm the water supply as a whole in the long run.

Agriculture is lessening as a focus of water use in the Southwest for many reasons.¹³⁸ Modern studies show that agriculture is the biggest polluter of water; “[a]ccording to researchers at Johns Hopkins, agricultural chemicals such as fertilizers and pesticides that contaminate ground- and surface-water sources do the most harm.”¹³⁹ If agriculture is lessening as a beneficial use of water, it does not make sense to hold Indian water users to an agricultural irrigation standard. An article arguing for reserved Indian water rights stated that “Indian use of water for agricultural and other purposes is being expanded—probably by as much as twenty to thirty percent over historic uses in Indian country.”¹⁴⁰ While the expansion of their rights is not necessarily objectionable, the security of the water supply should not be challenged by unrealistic and

¹³⁴ See *id.* “American agriculture is declining generally so it is unlikely that Indian agriculture will be significantly expanded. If tribal agriculture is expanded, it is unlikely that such a policy would further Indian economic development. The future of Indian water, as many have long recognized, lies in off-reservation uses.” *Id.*

¹³⁵ See Franks, *supra* note 7, at 563.

¹³⁶ See *id.*

¹³⁷ See Rusinek, *supra* note 18, at 407. “[O]ne reason tribes have fought to retain the PIA standard is that it generally results in substantial reserved rights, primarily because irrigation is the most consumptive use of water.” *Id.*

¹³⁸ See Tarlock & Van de Wetering, *supra* note 1, at 168-69:

Urban water use is more efficient compared to agriculture. . . . ‘The value of water in agriculture is generally less than in industrial or municipal uses . . . [and] because it is so expensive to develop additional water supplies, only the higher-value water uses are likely to be justified economically.’

¹³⁹ *Potentially Un-Potable*, ENV’T, Nov. 1, 1998, available in 1998 WL 14641064.

¹⁴⁰ Chambers & Echohawk, *supra* note 11, at 468.

harmful uses of water. We would not quantify the water rights of cities according to original, but now harmful, uses of water—such as mining—so it does not make sense to stick to such a standard for the quantification of Indian water rights.

V. PROPOSAL FOR A NEW STANDARD—"TRUE USE"

A new standard for determining water rights is a possible solution to the inadequacies of the PIA standard. This new standard should have three main qualities: consistency in relation to all water using parties, efficiency in the use of water, and a responsiveness to the actual use of the water. The formulation and implementation of a standard other than PIA would be difficult, but consideration must be given to the subject because of the seriousness of water scarcity.

Part A of this section proposes a true use standard for quantifying Indian reserved water rights. Part B demonstrates that a true use standard would be an improvement over PIA and discusses other standards that were proposed as alternatives to PIA in the past. Part C defines the goals of this new standard. The difficulties with the proposed standard are detailed in Part D.

PIA is an inadequate standard because it does not respond to the true or most beneficial uses of water, and it therefore incorrectly estimates the amount of water necessary for use. A more reasonable standard would be one that quantified the amount of water by the probable and needed use.¹⁴¹ The amount quantified for the reserved right is not lost by non-use of the amount (as prior appropriation rights are) and it cannot be amended yearly or periodically because of the need for certainty for other water users.¹⁴² The problem, then, is how to quantify correctly and with an eye to future uses and changes because quantification amounts are most likely a permanent designation.

¹⁴¹ See Franks, *supra* note 7, at 563. "All parties would have been better served if the quantification process were directed more straightforwardly to the realistic economic choices and population needs of the various Indian reservations." *Id.*

¹⁴² See David S. Brookshire et al., *Economics and the Determination of Indian Reserved Water Rights*, 23 NAT. RESOURCES J. 749, 750 (1983). "This characteristic [not being lost by non-use] highlights the need for equitable quantification of Indian reserved water rights initially, since any over or under allocation is much less likely to be revised at a later date than would be the case with appropriative rights." *Id.* See also Chambers & Echohawk, *supra* note 11, at 454.

A. *Quantification by True Use*

A true use standard could require that the tribe quantifying their reserved water rights provide:

1. The specific, detailed use of the water—agricultural, municipal, recreational, industrial, etc.
2. How the tribe or reservation will benefit by the use of water—economically, socially, etc.
3. Amount of water needed
4. Cost of the use or project
5. Financial backing for the project—tribal, governmental, private
6. Affect on other water users, specifically prior appropriators.

After the quantification, if the actual project or use does not occur, the quantification must be reviewed in relation to the new use proposed. This should be done so there is no over-quantification of water. Also, the quantification must be done with sensitivity to future or prospective uses and needs because quantification is permanent. In order to provide certainty, though, any future amounts included in the quantification must also be specifically quantified so that appropriative users can be secure in their quantities of use. This future need amount could be measured by a percentage of the main quantification award. This percentage should not be so large as to be prohibitive of the quantification process, but also should be enough of a cushion so that re-quantification will not be an issue.

B. *True Use Quantification Is Responsive to the Realities of Reservations*

The implied reserved water right created by *Winters* is necessary, because without it the Indian tribes would, in all likelihood, not have water rights in accordance with the doctrine of prior appropriation.¹⁴³ However, the *Winters* requirement of determining the original purpose of the reservation from the date of the creation of the reservation should be

¹⁴³ See GETCHES, *supra* note 18, at 308-09; *c.f. Winters*, 207 U.S. at 576 (negating the idea that just because the Indians ceded away some of their reserved land, that they also ceded away all of their water rights).

abandoned in relation to reserved water rights.¹⁴⁴ It is an outdated determination, and it is harmful to beneficial allocations of water. The intended purpose determination does nothing to determine how the water would be best and most beneficially used by the affected parties today.¹⁴⁵ Also, the Indian water users should not be held to an intended purpose because the purposes and possibilities of reservations have greatly changed since the creation of reservations.¹⁴⁶ Modern goals of self-sufficiency, opportunity, and resource sharing better suit the present societal concerns of continued resources and prosperity in the western region.

The PIA standard has the correct foundational idea, that an actual amount must be designated in the quantification. However, this amount should respond to what the water will be used for, whether it is industrial, municipal, recreational, agricultural, etc. In order to quantify amounts, it only makes sense to quantify by the real, potential uses, not a former intention.

In addition, a true use standard would require the quantified water to be used for the use by which it was quantified. Non-Indian water users must use the water they have appropriated for the named use.¹⁴⁷ It makes environmental sense to have Indian water users follow a similar standard. If water is not being used for the use it was designated for, then it should be re-allocated or quantified to the true use because the quantification amounts could realistically vary. Water is such a precious commodity in the western region that it cannot be unthinkingly dealt to all water-using parties. Mindful of future concerns about water scarcity, this resource must be rationally granted. This is especially true because of the permanence of the quantification of Indian reserved water rights.¹⁴⁸

¹⁴⁴ See Brookshire, *supra* note 142, at 764. The original intent of Congress is outdated and inappropriate to apply to Indian reservations today. "Congressional intent expressed in treaties establishing Indian reservations was primarily to 'civilize' the tribes by teaching them to farm. We doubt that Congressional intent one hundred years ago is necessarily related to the needs or aspirations of modern day Indians." *Id.*

¹⁴⁵ See *id.* at 763.

¹⁴⁶ See Franks, *supra* note 7, at 563.

¹⁴⁷ See GETCHES, *supra* note 18, at 163. "An appropriator who seeks to change a use or to transfer a right to another for a changed use must apply to the appropriate administrative body or court for approval." *Id.*

¹⁴⁸ See Brookshire, *supra* note 142, at 750.

C. Goals Behind a New Standard—Consistency, Efficiency, and Responsiveness

The goal of consistency in a new standard would help to ensure security and certainty in the amount of water that is and will be available to non-reserved water users. Certainty has always been a concern surrounding water rights because the ability to develop these water scarce areas directly depends on this resource.¹⁴⁹ Consistency would be best served by the true use standard. While determining need could be difficult because needs will vary in accordance with unknown future events and changes, it is the best standard for quantification because it is grounded in the reality of the use.

This true use determination would also be responsive to the amount of water resource use. The reserved party will have to propose a quantification that will be beneficial to their needs, but still keeping an eye on the future of their needs. Presently, Indian water users can use the allocated water for any purpose, but non-Indian water users have to use their water for beneficial purposes according to the doctrine of prior appropriation.¹⁵⁰ By requiring the Indian water users to demonstrate specific-needs uses, a fair and consistent standard is created. This water would have to go to the proposed area of use or face the re-allocation of that water. That is a serious threat that no party wants to face, encouraging proper planning and use of the resource by the party.

The true use standard would also promote efficiency of water use because the tribes would have to present plans and proposals for the actual use of the water, which still could be evaluated for economic feasibility according to the tribe's financial status and government financial commitment. However, the tribes should not be shut out of gaining water resources because of financial limitations. Instead, the economic feasibility analysis should include financing possibilities for the proposals of water use (including the actual tribal resources, private lenders, federal

¹⁴⁹ See *Arizona II*, 460 U.S. 605, 620 (1983).

Certainty of rights is particularly important with respect to water rights in the Western United States. The development of that area of the United States would not have been possible without adequate water supplies in an otherwise water-scarce part of the country. The doctrine of prior appropriation, the prevailing law in the Western States, is itself largely a product of the compelling need for certainty in the holding and use of water rights.

Id.

¹⁵⁰ See *supra* text accompanying note 147.

and state government assistance, collaborative efforts with outside parties, financial predictions stemming from the proposal, etc.).

D. Difficulty with the True Use Standard

The weakness in the true use standard is similar to the weakness in any quantification standard for reserved rights. These quantifications are supposed to be permanent, but little in the West and Southwest has remained permanent in the past century—except for water scarcity. Needs change, uses change, and populations change, as water resources stay the same in amount. The challenge is to create a quantification standard that takes these characteristics into account. A true use standard is efficient in quantification for the present time, but it cannot encompass all future possibilities.

This standard might be too restrictive because the tribes must comply with the uses proposed at the time of quantification. Though PIA is a disagreeable standard, one benefit of it is that tribes can change the use of water at any time. With the proposed true use standard, the tribe's quantification amount would have to be reviewed when new uses are desired. This could be expensive and time-consuming.

VI. CONCLUSION

Re-figuring the quantification standards for reserved water rights is no small task, and there are many societal hurdles to face before doing so could become a reality. No one wants to lose their water or be accused of taking away Indian water. This would not be an admirable goal, but our water resources are squandered by using the PIA standard. Its outdated character and false elements do not promote an allocation of water that is beneficial to all parties. Besides our individual interests, there exists the group interest in the future of this region of the United States. The West has been prosperous in its growth and popularity, but the same growth and popularity have the potential for destroying our ability to remain a prosperous region.

The water for reserved parties and non-reserved parties comes from the same place. While the existence of a reserved right is legally necessary, it does make allocation of water complicated. However, complicated should not translate into incorrect. A true use standard would determine the truths of quantification, not just the easy way out. It is attractive to stick with an old, but trusted, standard that has worked in the past. While the earlier quantifications from the PIA standard will stand,

the future quantifications must be anchored in the western region's future. The resources are not only shared, they are also scarce and need to be handled more carefully, considering other users, future uses and changes.

This standard must be revisited before the quantifications are completed. It will be too late if we continue to use PIA as the quantification standard, and while our water future will not be destroyed, it could be considered to have been carelessly and rashly decided.