

THE AMERICAN INDIAN  
AGRICULTURAL RESOURCES MANAGEMENT ACT:  
DOES THE *WINTERS* WATER BUCKET  
HAVE A HOLE IN IT?

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## I. INTRODUCTION

The Way it Is: One Water, One Air, One Mother Earth....<sup>1</sup> The American Indian Agricultural Resource Management Act (AIARMA)<sup>2</sup> lends itself well to a discussion of traditional and modern agricultural practices employed by tribes whose reservations are located in the arid West. Massive water projects dominate the supply of water in the West—water projects that supply the huge demands of agribusinesses, farms, ranches, and quench a thirsty urban sprawl.<sup>3</sup> With the West being water-short, the scarcity of water prompts the central question of whether water flowing through Native American Indian reservations, in rivers or streams, can be taken for non-Indian uses. In other words, is there enough water left in the stream for tribes whose revenue and subsistence depend upon agriculture?

It is commonly understood, by farmers and non-farmers alike, that sufficient availability of water is the basis upon which agricultural endeavors succeed or fail.<sup>4</sup> Therefore, water is no less important to Native American Indian tribes than to a large scale farming corporation. A discussion of the need for accessibility to, and reliability of, a quantity of water sufficient to sustain the agricultural endeavors of Native American Indians, both for plant and animal life, must include an insight into the relationship between the Native American Indians and the water that flows within a reservation. This Article will introduce, in brief form, the legal doctrine that underpins Indian reserved water rights, and how that doctrine supports Native American Indian farming endeavors. Although Indian reserved water rights are implicated in diverse situations involving water, this Article will not consider other Native American Indian industries that require a supply of water.

Accordingly, the inquiry then must be focused on the judicially created *Winters* doctrine and to the question of whether the doctrine retains its vitality as

we approach the close of the twentieth century.<sup>5</sup> As the title to Corbin Harney's book suggests: it is one water, one air, one Mother Earth for all.<sup>6</sup>

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1. See CORBIN HARNEY, *THE WAY IT IS: ONE WATER . . . ONE AIR . . . ONE MOTHER EARTH* (1995).

2. American Indian Agricultural Resource Management Act of 1993, Pub. L. No. 103-177, 107 Stat. 2011 (codified at 25 U.S.C. § 3701 (1994)).

3. See generally MARC REISNER, *CADILLAC DESERT: THE AMERICAN WEST AND ITS DISAPPEARING WATER* (1993) (discussing dry climate and water problems in the American West). *Cadillac Desert* is well worth the read to grasp the vast and diverse claims made by the inhabitants of the West about water which comes from both the Colorado River and the swollen streams and rivers that twist and turn down the western slope of the Sierra Nevada mountains into the valleys and reservoirs. See also Barton H. Thompson, Jr., *State, Pueblo, & Aboriginal Water Rights*, Paper in proceedings from Indian Water Rights Conference at Stanford University (Sept. 9-10, 1994).

4. See generally REISNER, *supra* note 3 (discussing the importance of water).

5. See *Winters v. United States*, 207 U.S. 564, 576 (1908). The *Winters* doctrine has been the subject of much litigation, and there is a plethora of case law and legal material discussing the

## II. FEDERAL RESERVED WATER RIGHTS

### A. *The Supreme Court Finds Treaties Hold Water by Implication*

The western State of Montana demonstrates well the judicially created tribal right to waters that flow through Native American Indian reservations. Within the State of Montana lie seven reservations: the Flathead, the Fort Belknap and Trust Lands, the Fort Peck, the Rocky Boy's and Trust Lands, the Blackfeet, the Crow and Trust Lands, and the Northern Cheyenne and Trust Lands.<sup>7</sup> Of these seven reservations, the Fort Belknap was the locus of the birth of the *Winters* doctrine, also known today as the "Indian reserved rights doctrine."<sup>8</sup>

The Fort Belknap Reservation contains the flowing water of the Milk River. Industrious non-Indian settlers decided to "partake of the Milk" River, seeing as such that the Native American Indians were not using the water<sup>9</sup> (and it may not have mattered to them if they were). The tribe lodged a complaint with the federal agency authorities, and under the duty imposed by trust relationship between Indian tribes and the federal government, the United States brought suit to enjoin the settlers from taking reservation water.<sup>10</sup> The government's argument stood on firm ground, and the United States Supreme Court found that the federal government did not grant land and water rights to the tribes.<sup>11</sup> Indeed, it was the Native American Indians themselves who reserved the land and water when they entered into treaties with the United States and relinquished their rights to roam, gather, and hunt except on the reserved land.<sup>12</sup>

The Supreme Court adopted the position of the federal government,<sup>13</sup> and the *Winters* decision has the distinction of being the most generous holding of the Supreme Court relative to Indian reserved water rights. The decision retains that

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United States Supreme Court's creation of the doctrine at the beginning of the twentieth century. Essentially, the *Winters* doctrine established that the native American Indians hold a federally protected right to use the water on their respective reservations, a right that is not limited or controlled by state law. *See id.* at 576-77.

6. *See HARNEY, supra* note 1.

7. *See* COMM. ON INDIAN AFFAIRS, THE TRIBAL NATIONS OF MONTANA: A HANDBOOK FOR LEGISLATORS 5 (1995).

8. *See* Richard N. Morrison, *State and Federal Law in Conflict Over Indian and Other Federal Reserved Water Rights*, 2 DRAKE J. AGRIC. L. 1, 2 (1997). *See generally* Federal Power Comm. v. Oregon, 349 U.S. 435 (1955) (holding that reserved rights also apply to federally reserved lands).

9. *See Winters v. United States*, 143 F. 740, 741 (9th Cir. 1906).

10. *See id.*

11. *See Winters v. United States*, 207 U.S. 564, 577 (1908), *aff'g* 143 F. 740 (9th Cir. 1906).

12. *See id.* at 576-77. *See generally* G. William Rice et al., *Federal Trust Responsibility and Conflicts of Interest: Environmental Protection of Natural Resource Development*, 71 N.D. L. REV. 365 (1995) (discussing Indian trust responsibility).

13. *See Winters*, 207 U.S. at 576-77.

distinction today. It appears that the Court found untenable the argument that Native American Indians would enter into a treaty agreement with the federal government, be restricted to a given land mass, and then be expected to survive without water.<sup>14</sup>

Interestingly, the Native American Indians on the reservation were not using their water for agricultural purposes, in spite of the fact they had a right to use it for that purpose.<sup>15</sup> One can speculate that the tribe found abundant game and wild foods for subsistence, and thus, it was not necessary for them to raise livestock or plant crops.

The Supreme Court, via the *Winters* decision, provided a way of sustaining the traditional agricultural practices and culture of the tribes throughout the United States by holding that Native American Indians enjoy a right to use the water on their respective reservations. Thus, the holding gave birth to a security that tribes had never before enjoyed: whatever water flowed through the reservation was theirs to use.

### B. *The Supreme Court Erects a Dam on the Winters Test*

Not surprisingly, reservations located within states bordering the Colorado River (and other western rivers) have been involved in protracted litigation. In *Arizona v. California*, the federal government asserted reserved water rights for five tribes from Arizona, Nevada, and California.<sup>16</sup> Taking into consideration the enormous need for water that besets California and Arizona, the Supreme Court held that the test previously applied to determine the quantity of water that could be taken by Native American Indians on their respective reservations—the “reasonably foreseeable needs test”—was forthwith debunked and rendered obsolete.<sup>17</sup> In its place came the “practicably irrigable acres” (PIA) test, a standard that offered a more comfortable certainty to the states losing water to the Indians.<sup>18</sup> The PIA test determines water reserved for reservation by irrigable acreage.<sup>19</sup> However, the PIA test has in some respects created more litigation due to a host of unanswered questions. One question looming on the horizon is whether Indian reserved water rights include groundwater.<sup>20</sup> This issue will most likely be answered in the near future.

Under the hot desert sun, the water battle is being fought. In some instances, the warriors have changed, especially when a tribe relies upon water for agriculture. The PIA amount is calculated by the government; errors in calculation and omission

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14. *See id.* at 576.

15. *See id.*

16. *See Arizona v. California*, 373 U.S. 546, 595 (1963).

17. *See id.* at 600-01. The “reasonable needs test” was based on the expressed need of the tribe and not on the condition of the land. *See id.*

18. *See id.* at 601.

19. *See id.*

20. *See Morrison, supra* note 8, at 10.

of the amount of PIA were reclaimed by the tribes in the continuing saga of *Arizona v. California*.<sup>21</sup> Not surprisingly, the tribes were found to be bound by the PIA calculated in the earlier litigation under *res judicata*—a legal doctrine that bars future litigation over an issue which has already been judicially decided.<sup>22</sup>

However, dissatisfied tribes are still entitled to sue the United States for a breach of trust in the measuring of the PIA land.<sup>23</sup> An incorrect calculation would significantly reduce the amount of water each tribe would receive.<sup>24</sup> In one of those cases, the federal claims court found that the PIA test was based on “three areas of expertise: soil science, engineering, and economics.”<sup>25</sup> Development of and income from the PIA acres was the court’s focus, *not* maximizing the water claim.<sup>26</sup> The PIA test has wrestled away from tribes the decision making function of what or how much to plant. The decision now fundamentally rests with federal government officials who undoubtedly are influenced by state water imperatives.

The PIA standard was used to measure irrigation needs on the Wind River Indian Reservation, and the Supreme Court of Wyoming awarded a fixed amount under the PIA.<sup>27</sup> Thus, the PIA was not a wholesale judicial success. More importantly, it is clear that the scale of farming on a reservation is not equal to the agricultural land available to that tribe. The final amount of PIA is the result of competing values and may result in a state’s values outweighing the value attached to traditional agricultural practices of the various impacted tribes.

The Wyoming Supreme Court determined the agricultural importance of Indian reserved water rights in *In re Rights to Use Water in the Big Horn River System*.<sup>28</sup> The Wind River Reservation, established by treaty in 1868, could use water for agriculture and subsumed uses, such as livestock, domestic, commercial, and municipal water uses with a caveat: the court held that Indian reserved water rights could not be used for mineral, industrial, or fishing uses because the tribe did not depend on these uses, nor have a traditional lifestyle based on such uses in

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21. See *Arizona*, 460 U.S. at 612. Please note that twenty years elapsed since the first *Arizona v. California* decision.

22. See *id.* at 617.

23. See *Fort Mojave Indian Tribe v. United States*, 23 Cl. Ct. 417, 426 (1991); *Fort Mojave Indian Tribe v. United States*, 32 Fed. Cl. 29, 33 (1994).

24. See *Fort Mojave Indian Tribe*, 32 Fed. Cl. at 29-30.

25. *Id.* at 35.

26. See *id.* The PIA doctrine apparently is susceptible to disparate land measurements, calculations and opinions of its “irrigability.” See *id.* at 34. The correct amount of PIA on a given reservation is thus not determined by the tribe. See *id.* at 34-35.

27. See *In re Rights to Use Water in the Bighorn River System*, 753 P.2d 76, 100-12 (Wyo. 1988), *aff’d sub nom. and by an equally divided Court Wyoming v. United States*, 492 U.S. 406 (1989).

28. *Id.*

1868.<sup>29</sup> Agriculture use figured prominently in the *Winters* doctrine, and based on the above limitation, remains so today.<sup>30</sup>

### C. *Indian Reserved Water Rights Survive Termination of the Reservation*

The Klamath Reservation, which includes an amount of marshy land, was created by treaty in 1864 and congressionally terminated in 1954.<sup>31</sup> However, the right to harvest from the marsh was found to continue after termination.<sup>32</sup> The Ninth Circuit held that the treaty of 1864 had two purposes: to encourage Native American Indians to become farmers, and to secure forever the right of the Klamath Indians to continue their lifestyle of hunting waterfowl, fishing, and gathering edible plants.<sup>33</sup> Included in the Klamath Indians' reserved water rights for hunting and fishing was the right to prevent the depletion of the stream flow below a protected level.<sup>34</sup> Subsequent appropriations could not deprive the Native American Indians of their aboriginal use that dated from time immemorial, because the treaty of 1864 clearly established that the tribe's use pre-existed the treaty.<sup>35</sup> Again, it must be noted that the Klamath tribe was limited to the amount of water necessary to protect the livelihood of the tribe as it existed at the time of the lawsuit and not the amount used in 1864. By so limiting the Klamath tribe, its age-old farming practices, handed down by oral tradition from ancestors and passed reverently on to young members of the tribe, may die out.

### D. *The AIARMA: Congressional Response to Idle Acres*

The stated purpose of the AIARMA is to "carry out the trust responsibility of the United States and promote the self-determination of Indian tribes . . . ."<sup>36</sup> Congress enacted the AIARMA based on findings that agricultural land<sup>37</sup> is "vital to

29. *See id.* at 94-95.

30. *See Winters v. United States*, 207 U.S. 564, 577 (1908). The Indian water rights reserve enough water to satisfy the reservation's needs, which for many tribes were the need to feed the people living on the reservation by planting crops and raising livestock. *See In re Rights to Use Water in the Bighorn River System*, 753 P.2d at 99-100.

31. *See United States v. Adair*, 723 F.2d 1394, 1397-98 (9th Cir. 1983).

32. *See id.* at 1412.

33. *See id.* at 1410.

34. *See id.* at 1411.

35. *See id.* at 1409.

36. 25 U.S.C. § 3702(1) (1994). The lands are to be managed in a manner protecting renewable resources and consistent with tribal goals. *See id.* Priorities are given for conservation, multiple use, and sustained yield. *See id.*

37. *See id.* § 3703(1) (defining Indian agricultural land to include farmland and rangeland, but excluding forest lands). Farmland means "Indian land . . . used for the production of food, feed, fiber, forage and seed oil crops, or other agricultural products, and may be either dryland, irrigated, or irrigated pasture." *Id.* § 3703(6); *see Darla J. Mondou, Our Land Is What Makes Us Who We Are: Timber Harvesting on the Tribal Reservations After the NIFRMA*, 21 AM. INDIAN L. REV. 259, 265

the economic, social, and cultural welfare of many Indian tribes and their members.”<sup>38</sup> Thus, the AIARMA supports the presumption that Native American Indians must have water in order for their reservation land to provide benefits. If it is adequately funded, the provision in the AIARMA for education and training is of significant importance to the tribes.<sup>39</sup> Native American Indians who are willing and eager to learn can play a role in improving the technical abilities of their tribes.<sup>40</sup> Indeed, education in the agricultural sciences is imperative to ensure profitability and development of agricultural land on reservations.<sup>41</sup>

Over 54,500,000 acres of land within the United States are reserved to Native American Indian tribes, with seventy-five percent of that amount devoted to agricultural land; the remainder is comprised of forest land.<sup>42</sup> Studies show that the United States Department of Agriculture (USDA) and the Bureau of Indian Affairs (BIA) have not devoted enough time and effort to assist Native American Indian farmers.<sup>43</sup> This fact is particularly egregious when one considers that agricultural production, were it encouraged, would produce considerable monetary rewards to the tribes, with an unlimited future potential for growth.<sup>44</sup> Although they legally hold reserved water rights, the tribes lack the financial support of the federal government to enforce that right by farming their land. Indeed, there exist many options as to what can be grown because the AIARMA allows for a broad interpretation of the term “agricultural product.”<sup>45</sup>

Many tribes have agricultural industries and use the profits to support their own communities, such as the Navajo Agricultural Products Industry (NAPI).<sup>46</sup> The NAPI was developed by the Navajo Tribal Council in 1970 as a means of generating sorely needed revenue for the tribe from agriculture.<sup>47</sup> Today, the NAPI grows

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(1997). “Indian forest land” is defined in the National Indian Forest Resources Management Act. *See* 25 U.S.C. § 3103(3) (1994). By such strong delineation, Congress has determined that Indian forest lands are not to be designated as “Indian agricultural lands.” *See id.* § 3703(1).

38. *Id.* § 3701(3). Congress has found that proper management of agricultural lands will provide increased economic returns, enhance Indian self-determination, promote employment opportunities, and improve the communities. *See id.* § 3701(4).

39. *See id.* § 3702(4).

40. *See id.*

41. *See* Lisa Jones, *Agriculture, Education Key to Indian Prosperity*, HIGH COUNTRY NEWS, Nov. 11, 1996 <[http://www.hcn.org/1996/nov11/dir/western\\_Agricultur.html](http://www.hcn.org/1996/nov11/dir/western_Agricultur.html)>.

42. *See id.*

43. *See id.*

44. *See id.*

45. *See* 25 U.S.C. § 3703(2) (1994). “Agricultural product” includes crops, livestock, forage and feed, grains, and any other marketable or traditionally used materials. *See id.*

46. *See* NAPI (last modified Jan. 31, 1998) <<http://www.edonnet.com/fourcorners/nm/business/napi.html>>. The San Juan Pueblo tribe is also known as an agricultural tribe. *See Pueblo Harvest: About San Juan Pueblo* (visited Nov. 16, 1998) <<http://www.puebloharvest.com/pueblofr.html>>. The author suggests that the reader will find an enormous amount of educational information regarding Native American Indian enterprises on the Internet.

47. *See* NAPI, *supra* note 46.

beans, corn, alfalfa, potatoes, barley, wheat, and onion crops.<sup>48</sup> Of the 110,630 acres planted, 60,000 acres are on semi-arid farm land, at an elevation of 5600 feet.<sup>49</sup> The NAPI's farmland is irrigated by the Navajo Indian Irrigation Project, using the waters from the San Juan and Chaco rivers.<sup>50</sup> The NAPI has professionally-trained management, and it is under this management that the NAPI has realized so much success that the reservation is visited by many who wish to learn from the NAPI example.

Important to the sponsoring and passing of the AIARMA was a study of Indian country, conducted by Congress, which concluded that approximately one million acres of reservation land lay idle nationwide.<sup>51</sup> Thus, governmental intervention was necessary to foster and encourage tribes to benefit economically from undertaking agricultural production.<sup>52</sup> The farming and ranching sector provide the main source of entrepreneurial opportunity to Native American Indian people living on reservations.<sup>53</sup> In the early 1970s, Native American Indian farmers and ranchers were encouraged to seek financing from the USDA.<sup>54</sup> By putting more reservation land to agricultural use, economic benefits were realized both on and off the reservation.<sup>55</sup> However, the agricultural crisis of the 1980s was fully felt by the Native American Indian agricultural communities. When Native American Indian farmers or ranchers defaulted on a USDA loan,<sup>56</sup> their land was subject to repossession.<sup>57</sup> Congress responded to lively floor debate and ordered the Secretary of Agriculture to transfer all Indian trust lands in foreclosure to the Department of Interior if the rightful owner could not buy back or lease the lands.<sup>58</sup>

The chaotic farm crisis years during the 1980s, in addition to a raised concern for the environment, clearly manifested the need to revamp the natural resources programs that were applicable to Native American Indian reservations.<sup>59</sup> Indeed, full utilization of Native American Indian land would create benefits that could then flow to all persons, whether Indian or non-Indian, who reside in rural communities on or near Indian reservations.<sup>60</sup> The BIA sought out the tribes' opinions regarding the

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48. *See id.*

49. *See id.*

50. *See id.*

51. *See* S. REP. NO. 103-186, at 1 (1993), *reprinted in* 1993 U.S.C.C.A.N. 2459, 2459.

52. *See* American Indian Agricultural Resource Management Act of 1993, Pub. L. No. 103-177, 107 Stat. 2011 (codified at 25 U.S.C. § 3701(1994)).

53. *See* S. REP. NO. 103-186, at 2, *reprinted in* 1993 U.S.C.C.A.N. at 2460.

54. *See id.* at 3, *reprinted in* 1993 U.S.C.C.A.N. at 2461.

55. *See id.* at 2, *reprinted in* 1993 U.S.C.C.A.N. at 2460.

56. The loans were Farmers Home Administration loans, such as farm ownership or farm operating loans. *See id.* at 3, *reprinted in* 1993 U.S.C.C.A.N. at 2461. The Farmers Home Administration was replaced in 1994, during restructuring of the USDA, by the Farm Service Agency. *See* 7 U.S.C. § 6932 (1994).

57. *See* S. REP. NO. 103-186, at 3, *reprinted in* 1993 U.S.C.C.A.N. at 2461.

58. *See id.* at 3, *reprinted in* 1993 U.S.C.C.A.N. at 2461.

59. *See id.* at 4, *reprinted in* 1993 U.S.C.C.A.N. at 2464.

60. *See id.*, *reprinted in* 1993 U.S.C.C.A.N. at 2464.



existing policies and what specific problems needed to be addressed in the Native American Indian agricultural system.<sup>61</sup> In response to the inquiries, Congress formed the Intertribal Agricultural Council (IAC) as the means to carry forward new agricultural policies.<sup>62</sup> Of imminent importance to the IAC was the need for monetary appropriations from Congress for education and training of interested Native American Indians to learn proficiency in agricultural endeavors.<sup>63</sup> As a result of the IAC's findings and opinions, Congress adopted the Food, Agriculture, Conservation and Trade Act, which included provisions supported by the IAC.<sup>64</sup>

E. *The Bureau of Indian Affairs: Training Native American Indians  
in the Management of Natural Resources*

The BIA's natural resources program includes much more than agriculture. While all natural resources on a reservation may be useful for the tribes' income generation, agriculture provides income both from production and from leasing their land to non-Indians.<sup>65</sup> The IAC was instrumental in gaining a cooperative extension program at Haskell Indian Junior College and the Southwestern Indian Polytechnic Institute that both attracts Native American Indians to study natural resources and enlists non-Indians into federal service.<sup>66</sup> The AIARMA was intended to continue and expand upon the initial efforts made by the BIA through the recommendations of the IAC.<sup>67</sup> The Committee of Indian Affairs and the Subcommittee on Native American Affairs of the House Committee on Natural Resources worked together to develop the AIARMA, fostered by numerous meetings with the Departments of

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61. *See id.*, reprinted in 1993 U.S.C.C.A.N. at 2462.

62. *See id.*, reprinted in 1993 U.S.C.C.A.N. at 2462.

63. *See id.* at 5, reprinted in 1993 U.S.C.C.A.N. at 2462-63.

64. *See* Food, Agriculture, Conservation, and Trade Act of 1990, Pub. L. No. 101-624, § 1677, 104 Stat. 3359, 3779. Reservation extension services were re-authorized for an agent on the reservation through the Cooperative Extension Service. *See id.* § 1677, 104 Stat. at 3779 (codified as amended at 7 U.S.C. § 5930 (1994)). In addition, each reservation was considered a separate county for disbursement of socially disadvantaged loan monies. *See id.* § 2501, 104 Stat. at 4065 (codified as amended at 7 U.S.C. § 2279 (1994)).

65. *See* S. REP. NO. 103-186, at 6, reprinted in 1993 U.S.C.C.A.N. at 2464. Also included is forestry, water resources, wildlife and parks, and minerals and mining. *See id.*, reprinted in 1993 U.S.C.C.A.N. at 2464. Of these, water is of foremost importance. *See id.*, reprinted in 1993 U.S.C.C.A.N. at 2464.

66. *See id.* at 7, reprinted in 1993 U.S.C.C.A.N. at 2465. There are many tribal colleges that now offer a course on the study of natural resources. *See id.* at 13, reprinted in 1993 U.S.C.C.A.N. at 2471. Of consequence is the fact that, traditionally, Indian students did not choose to study this track. *See id.* at 7, reprinted in 1993 U.S.C.C.A.N. at 2465. In 1993 there were twenty-four Tribal Controlled Community Colleges, with eighteen offering a two-year course, several offering four years, and one offering a course leading to a master's degree. *See id.* at 13, reprinted in 1993 U.S.C.C.A.N. at 2471.

67. *See id.* at 13, reprinted in 1993 U.S.C.C.A.N. at 2467.

Agriculture, Interior, and Justice, as well as with tribal government representatives and, of course, the IAC.<sup>68</sup>

Under federal law, tribal governments have the right to enter into a contract with the Secretary of the Interior to develop their own agricultural management plans.<sup>69</sup> Giving a tribal government the right to develop its own agricultural management plans fits into the goal of enabling Native American Indian farmers and ranchers to maximize the potential benefits available to them through using the land.<sup>70</sup> Technical assistance, training and education in conservation practices, management and economics of agri-business, and learning how to locate a credit source and market the agricultural products would be available through the Secretary.<sup>71</sup>

All plans must comply with applicable federal laws and remain in compliance with tribal agricultural and integrated resource management plans.<sup>72</sup> The failure of the Department of Interior to coordinate its resource management plans in a manner consistent with tribal priorities and laws was brought to the attention of Congress.<sup>73</sup> The result is that the Secretary can waive inconsistent plans, as long as tribal laws do not conflict with an applicable federal statute, a judicial decision, or are incongruent with the Secretary's trust responsibility.<sup>74</sup>

Additionally, within six months of the passage of the AIARMA, the Secretary was to contract with a non-federal entity to conduct an assessment of Native American Indian agricultural land management practices on a nationwide scale.<sup>75</sup> Moreover, one barrier to the full utilization of suitable reservation land for the production of agriculture is the leasing of land by the tribes.<sup>76</sup> The AIARMA specifically requires the approval of the Secretary for certain leases, based on length of time and interest to the tribe.<sup>77</sup>

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68. *See id.* at 14, *reprinted in* 1993 U.S.C.C.A.N. at 2472.

69. *See id.* at 8, *reprinted in* 1993 U.S.C.C.A.N. at 2466. The tribe may also elect to have the "Secretary to develop the plan after consultation with the tribal government." *Id.*, *reprinted in* 1993 U.S.C.C.A.N. at 2466.

70. *See* 25 U.S.C. § 3711(a)(4) (1994).

71. *See* American Indian Agricultural Resource Management Act, Pub. L. No. 103-177, 107 Stat. 2011 (1993) (codified at 25 U.S.C. § 3701 (1994)).

72. *See* S. REP. NO. 103-186, at 8, *reprinted in* 1993 U.S.C.C.A.N. at 2466.

73. *See id.* at 9, *reprinted in* 1993 U.S.C.C.A.N. at 2467.

74. *See id.*, *reprinted in* 1993 U.S.C.C.A.N. at 2467. *See also* 25 U.S.C. § 3712(c) (1994).

75. *See id.* § 3714(a). The author has largely been unsuccessful at locating the report and was told by the Intertribal Agricultural Council that the report was never generated.

76. *See* Greg Hanscom, *Tribes Reclaim Stolen Lands*, HIGH COUNTRY NEWS, Aug. 3, 1998, at 1. The BIA was renting out prime Shoshone-Bannock potato farming land on the Fort Hall reservation for as low as \$50 per acre, when nearby off-reservation land was commanding \$150 to \$200 per acre. *See id.* Angered by the loss, a group of members living on the reservation formed the Fort Hall Landowners Alliance, a non-profit organization. *See id.* The Alliance bypassed the BIA officials and rewrote many leases. *See id.* The Alliance believes that the tribe has lost millions of dollars as a result of the BIA's mismanagement of their productive farmland. *See id.*

77. *See* 25 U.S.C. § 3715 (1994).

By force of law, the AIARMA has opened up educational opportunities for tribal members to be employed in their agricultural products industries.<sup>78</sup> The AIARMA defines “agriculture study program” to include, but not be limited to, “agricultural engineering, agricultural economics, animal husbandry, animal science, biological sciences, geographic information systems, horticulture, range management, soil science, and veterinary science.”<sup>79</sup> Students are to be recruited by the cooperative extension programs initiated by the AIARMA.<sup>80</sup>

The Navajo Nation expressed concern that the AIARMA neither diminish the responsibility of the USDA nor transfer any authority or responsibility from the USDA to the Department of the Interior.<sup>81</sup> Moreover, the USDA wanted assurance that these concerns would not materialize by insisting that Congress include a specific disclaimer in the AIARMA.<sup>82</sup> As a result, the AIARMA will not be construed to supersede or limit the authority of federal, state, or local agencies that are otherwise authorized by law to provide services to Native American Indians.<sup>83</sup> Thus, Native American Indian ranchers and farmers may still avail themselves of the USDA programs.<sup>84</sup>

The AIARMA does not address irrigation either on reservation land or tribal irrigation projects. However, the definition of “farmland”<sup>85</sup> in the AIARMA includes irrigated lands and pastures, leaving many unanswered questions concerning the accessibility to irrigation water.<sup>86</sup> Finally, the AIARMA allows concurrent jurisdiction in tribal and federal courts to assess fines and penalties for trespassing on Native American Indian agricultural land.<sup>87</sup> All proceeds from civil penalties for trespassing are to be considered as proceeds from agricultural products.<sup>88</sup>

Congress, in the general provisions of the AIARMA, directed the Secretary to promulgate final regulations within eighteen months of the enactment of the AIARMA.<sup>89</sup> The Congressional Budget Office (CBO) estimated that “it would take the full 18 months . . . to develop [the] regulations.”<sup>90</sup> Only the assessment of current Native American Indian agricultural management programs required by the

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78. *See id.* § 3731.

79. *Id.* § 3731(a)(2)(C).

80. *See id.* § 3731(b).

81. *See id.* § 3744(a).

82. *See id.*

83. *See id.*

84. *See S. REP. NO. 103-186*, at 14 (1993), *reprinted in* 1993 U.S.C.C.A.N. 2459, 2472.

85. *See* 25 U.S.C. § 3703(b) (1994).

86. *See S. REP. NO. 103-186*, at 15 (1993), *reprinted in* 1993 U.S.C.C.A.N. at 2473.

87. *See* 25 U.S.C. § 3713(c) (1994).

88. *See id.* § 3713(b).

89. *See id.* § 3714(c).

90. *S. REP. NO. 103-186*, at 22, *reprinted in* 1993 U.S.C.C.A.N. at 2480.

AIARMA<sup>91</sup> could begin without funding.<sup>92</sup> The CBO determined that educational funding alone would cost no less than \$1 million annually due to the breadth of the educational provisions.<sup>93</sup> However, the BIA was given considerable flexibility as to the number of students who could participate in the programs.

A survey of traditional and non-traditional agricultural practices is necessary to complete this discussion. If the AIARMA lives up to its stated purpose, many tribes may request permission to fashion an agricultural management plan based on traditional methods used by their ancestors. Thus, each tribe would be able to incorporate their own agricultural practices, ensuring that traditional culture would be passed on.

### III. NATIVE AMERICAN INDIAN AGRICULTURE ENDURES

#### A. *Historical Overview of Indians, Agriculture, Water, and Environment*

Historical accounts of the indigenous population of North America introduce a people who expressed by word and by deed a reverence for the bounty of natural resources in their immediate environment.<sup>94</sup> In all aspects, it is apparent that Native American Indians lived and believed in a unity of the physical world and the spiritual world; they felt a connection to the land and animals, and decreed certain places as sacred ground.<sup>95</sup> This connection is still manifested today by the songs they sing to their God, and the reverence they hold for Mother Earth.<sup>96</sup> When reading an account of the history of a particular tribe, it is not surprising to find that the names given to tribal members and chiefs are commonly derived from the species of animals they encountered.<sup>97</sup> Native American Indians tended their crops and gave thanks for the harvest that sprang forth from the earth.<sup>98</sup> However, there came a profound change in the environment—a change that arose from European immigration (or encroachment) into traditional Native American Indian homeland.<sup>99</sup> Complete domination by the immigrants soon occurred, and the Native American Indians were forced to relinquish their rights to freely roam the land in search of better

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91. 25 U.S.C. § 3714(a) (1994).

92. See S. REP. NO. 103-186, at 22, *reprinted in* 1993 U.S.C.C.A.N. at 2480.

93. See *id.* at 23, *reprinted in* 1993 U.S.C.C.A.N. at 2481.

94. See David R. Lewis, *Essay on Native American Environmental Issues*, in NATIVE AMERICA IN THE TWENTIETH CENTURY: AN ENCYCLOPEDIA 187, 187 (Mary B. Davis ed., 1994).

95. See *id.* at 187-88.

96. See *id.*

97. See generally, Pamela D'Innocenzo, Comment, "Not in My Backyard!" *Protecting Archaeological Sites on Private Lands*, 21 AM. INDIAN L. REV. 131, 131-33 (1997) (discussing the practice of using animal names for distinguished Native American leaders); Kif Augustine-Adams, *The Beginning of Wisdom to Call Things by Their Right Names*, 7 S. CAL. REV. L. & WOMEN'S STUD. 1 (1997) (providing an historic account of naming practices).

98. See Lewis, *supra* note 94, at 187-88.

99. See *id.* at 188.

circumstances.<sup>100</sup> The Native American Indians forever would be limited to a defined area of land that would become the actual limit of their physical environment.<sup>101</sup> The name for the land mass reserved, on which the tribe would be free from incursion by non-Native Americans Indians, is appropriately called a reservation.<sup>102</sup> The reservation became the tribe's new home, however different it was from their homeland. Native Americans Indians were forced to practice agriculture in a way they never had—restricted to what Mother Earth provided at that particular location.

Luckily for some tribes, a few of the newly created reservations contained highly-valuable natural resources that had not yet been discovered by the federal government.<sup>103</sup> Today, more than anything, it is this worth—this intrinsic value, that shapes all environmental debates that rage over Native American Indian reservations.<sup>104</sup> The tribes farmed their reserved space, sometimes planting monoculture crops, as was being done by farmers on the Great Plains.<sup>105</sup> In the early 1900s, agricultural practices and overgrazing were beginning to exact a toll from some of the best farmland—not only on the reservations—but on farmland in general throughout the western and midwestern states.<sup>106</sup> Great losses were suffered from the infamous “Dust Bowl,” the Depression, the American market economy, and drought that caused many tribes to forego planting crops and to begin raising livestock on their land.<sup>107</sup> For example, on the reservations of the Navajo and Papago tribes, the introduction of hardier plant species did not solve the overgrazing problem. As a result, many tribes have had to contend with and replenish land that suffered from overgrazing and erosion, by eradicating noxious weeds and realigning their European-induced agricultural practices to comport with the fragile environment, as they once had in the not-so-distant past.

B. *The Fight for Water—The White Settler and the Federal Government  
Against the Treaties*

The majority of reservations lay in the arid West,<sup>108</sup> and water is a fundamental natural resource—an integral element of the environment. The *Winters* doctrine was enunciated by the Supreme Court in 1908.<sup>109</sup> The westward bound settlers were as

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100. *See id.*

101. *See id.*

102. *See id.* at 187-88.

103. *See id.* at 188.

104. *See id.*

105. *See id.*

106. *See id.*

107. *See id.*

108. *See id.* at 189.

109. *See Winters v. United States*, 207 U.S. 564, 576 (1908).

thick as flies as they stampeded to the vast open lands,<sup>110</sup> and they did not expect to be required to share water with Native American Indians.<sup>111</sup> The settlers that crossed the continent, from as far away as the rain-drenched east coast, could not conjure an image in their minds of a life where water was a precious and scarce commodity.<sup>112</sup> Alas, water was scarce in the West.<sup>113</sup> The war of the water began, gaining strength and speed, as the people came over the mountains and by boats.<sup>114</sup> Native American Indians, not too unduly surprised by the white man's greed, took notice of the white man's dependence on water.<sup>115</sup> They listened, and carefully observed; they had to, for their existence depended on the availability and accessibility to a water source.<sup>116</sup> Early in the twentieth century, the federal government entered the water battle.<sup>117</sup> The great reclamation projects, irrigation systems, and big dams that were erected became a real threat to the Native American Indians whose livelihood and lives depended on the water.<sup>118</sup>

The application of western water law has never been a blessing to Native American Indians.<sup>119</sup> Tribes, their lives and lifestyles forever changed by the loss of water, exist today as strangers to themselves—Pyramid Lake, the Walker River, the salmon rivers of the Northwest, on the upper Missouri, and other places too numerous to mention—have been lost to tribes upon whose land the water sustained

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110. *See generally* REISNER, *supra* note 3, at 269 (discussing the population expansion in Arizona).

111. *See generally id.* (discussing the sufficiency of the water supply).

112. *See generally id.* (explaining the scarcity of water).

113. *See generally id.* (stating Arizona's difficulty in supplying adequate quantities of water).

114. *See* David Roberts, *In Apache Land: Exploring the Battlefields of the Southwest*, MEN'S J., Sept. 1997, at 48. In 1880, an Indian war was triggered when the United States Calvary denied the Apache the right to live near a source of water. *See id.* Fought in the rugged mountains of the southwest, the Chihenne Apache, led by Victorio, who was in every respect equal to Geronimo and Cochise, waged a battle with the Calvary over the Chihenne Apache's right to have their proposed reservation near Ojo Caliente, the site of a spring-fed stream, and their traditional home. *See id.* at 48-49. The Apache, a large tribe living throughout the southwest, was comprised of three separate and distinct subgroups: the Chihenne led by Victorio, the Bedonkohe led by Geronimo, and the Chokonen led by Cochise. *See id.* at 47-48. Victorio and his followers did, for a brief time, live on the Mescalero Reservation. *See id.* at 48. However, life for the Apaches was not suited for close, confined areas where sickness was rampant. *See id.* Victorio and his people, including a small amount of warriors, escaped, and the Calvary began a man hunt to kill the "savages." *See id.* Had the Chihenne been left to live on a reservation that included Ojo Caliente, perhaps there need not have been such senseless killings. *See id.* at 48-49.

115. *See* Lewis, *supra* note 94, at 189.

116. *See id.*

117. *See id.*

118. *See* Charles Wilkinson, *Coming to Grips with Growth in the West*, RESOURCE L. NOTES (Natural Resources Law Ctr., Univ. of Colo. Sch. of Law, Boulder, Colo.) Fall 1997, at 6, 8. The Federal Reclamation Act was passed in 1902. *See id.* at 7. The first masonry dam built by the United States under the auspices of the Reclamation Act was Roosevelt dam in Arizona, a dam on the Salt River built for farming irrigation and to allow Phoenix to grow. *See id.*

119. *See id.* at 6, 8.

their economic and spiritual existence.<sup>120</sup> As a result of the City of Phoenix winning a long battle to divert the Colorado River, the Central Arizona Project (CAP) was born.<sup>121</sup> The original plans called for the flooding of 146 miles of the Grand Canyon, all for the benefit of a population determined to live in the desert.<sup>122</sup>

The public hew and cry was heard, and the site for generating electricity was moved to Glen Canyon near the Navajo reservation.<sup>123</sup> The Navajo Generating Station would provide the power to pump the water first uphill and then downhill to Phoenix. However, to the detriment of the Hopi, the coal to fire the Navajo Generating Station would come from the Hopi Black Mesa, a venerated sacred Hopi religious site.<sup>124</sup> The Navajo and Hopi occupy the northeast corner of Arizona.<sup>125</sup> Thus, both have been shaped by the environmental conditions that they share. Moreover, both tribes view their surrounding environment as sacred, deserving of respect.<sup>126</sup> The Hopi were especially concerned with the depletion of vast amounts of their coal and water.<sup>127</sup> This concern is understandable when it is considered that the water used in the Navajo Generating Station would be Hopi water, which is practically stolen from the Hopi by the Peabody Coal Company for \$1.67 per acre per foot.<sup>128</sup> The Hopi have also been blessed with an abundance of the precious coal, but they have suffered from the mining of coal, which has adversely affected the land, water, and air on the Hopi reservation.<sup>129</sup>

The adverse effects from exploration and mining of minerals are clearly visible today, and those reservations that are rich in minerals may see their land transformed and their air polluted.<sup>130</sup> For example, a cyanide leach mining plant near the Fort Belknap reservation in Montana is polluting reservation waters,<sup>131</sup> and in Washington state, toxic waste from the Hanford nuclear power plant poses a serious threat to the salmon runs.<sup>132</sup> The depletion of the salmon has affected the revenue of all tribes that rely on the Columbia River salmon harvesting.<sup>133</sup>

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120. *See id.*

121. *See id.*

122. *See id.*

123. *See id.*

124. *See id.*

125. *See id.*

126. *See id.*

127. *See id.*

128. *See id.*

129. *See id.* The Black Mesa coal pipeline uses 1,400,000,000 gallons of water a year, which lowers the water table and severely reduces Hopi water sources for other water-dependent endeavors. Equally as damaging is the fact that the Navajo Generating Station releases a haze that covers the entire Four Corners region, including the Grand Canyon. *See id.* *See also* Lewis, *supra* note 94, at 189.

130. *See id.*

131. *See id.*

132. *See id.*

133. *See id.*

Now that we are in an era of nuclear power, Native American Indian reservations are viewed by the government and industry as viable sites for disposal of wastes, including hazardous, nuclear, and common solid waste.<sup>134</sup> Some tribes are engaged in heated debates regarding the desirability of allowing their land to host nuclear dumps. Environmentalists and traditionalist members of the tribes vociferously shun the lure of monetary rewards at the cost of destroying the land, while other members are enticed by the new wealth these facilities would bring.<sup>135</sup> Underlying the debate is the core belief by most, if not all, tribes that reciprocity and balance must be maintained between the land, water, and air.<sup>136</sup>

In an ironic twist, several western reservations are considered to be the best in the United States.<sup>137</sup> The Salish and Kootenai tribes live on the Flathead Reservation, in northwestern Montana.<sup>138</sup> Situated in the Mission Mountains, the land boasts dense forests and is graced with mountain springs, several streams, two great rivers, and sparkling waters pooled in the deep valleys.<sup>139</sup> The Flathead Reservation is but one location where fishing is at its finest.<sup>140</sup> Native American Indian land from the Apache reservation in the southwest to the eastern slope of the continental divide provides anglers with a slice of heaven on earth.<sup>141</sup>

Water was formerly considered distinctly separate from other natural resources, separate from land and wildlife, and separate from social constraints.<sup>142</sup> There was a shift in public attitude during the 1970s and 1980s that resulted in the treatment of water as inseparable from, and an organic part, of all our natural resources. As stated previously, *Winters* water rights, granted to Native American Indians at the turn of this century, suffer from interpretation variances, both in the courts where the right is quantified and by tribes themselves; as a result, future water-use planning is at best speculative.<sup>143</sup> For tribes that rely on agricultural endeavors for revenue, the security of a constant water supply is an imperative.

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134. *See id.* at 190.

135. *See id.* There are conflicting theories regarding the status of Native American Indians and their environment. One theory would posture that the Native American Indians are true conservationists, and although hunting was considered a sacred vocation, hunters killed more than necessity demanded. *See* Gerald Reed, *A Native American Environmental Ethic: A Homily on Black Elk*, in RELIGION & ENVIRONMENTAL CRISIS 25, 31 (Eugene C. Hargrove ed., 1986). The other theory places the Native American Indian as a proponent of "sustained yield." *See* Winona LaDuke, *Traditional Ecological Knowledge and Environmental Futures*, 5 COLO. J. INT'L ENVTL. L. & POL'Y 127, 130 (1994). The latter theory has gained more support. *See* Lewis, *supra* note 94, at 190.

136. *See* Lewis, *supra* note 94, at 190.

137. *See* John Holt, *Flathead Indian Reservation Fisheries: A Successful Progressive Tribal Management Plan* (visited Nov. 16, 1998) <<http://www.alloutdoors.com/AllOutdoors/Library/Fishing/Fly/flytribal.html>>.

138. *See id.*

139. *See id.*

140. *See id.*

141. *See id.*

142. *See* S. REP. NO. 103-86, at 2-3 (1993), reprinted in 1993 U.S.C.C.A.N. 2459, 2461.

143. *See infra* Part II.



C. *Native American Indians and Agriculture Lessons from the Past*

The Hohokam tribe provides an excellent backdrop from which to begin a study of the agriculture practices known and used by Native American Indians from past to present. It is impossible to read a historical account of Native American Indian agricultural traditions without coming to the realization that agriculture shaped a rather distinctive lifestyle—one that was linked to water.<sup>144</sup> The earliest accounts of the Hohokam peoples inhabiting the southwest documents settlements of Hohokam in small villages near water on the rich bottomlands, where they farmed and hunted.<sup>145</sup> Like those who came before them, the early Hohokam gathered acorns and pine nuts from the mountains in the fall, in addition to hunting small game.<sup>146</sup> Corn, which was introduced to the region before the Hohokam migrated into the southwest from Mexico, had long been a staple crop.<sup>147</sup> Corn was planted near permanent water sources, such as the Gila and Salt rivers.<sup>148</sup> Later, the Hohokam moved their settlements to the Tucson Basin, where the Santa Cruz and Rillito rivers flow.<sup>149</sup>

The Hohokam are known as an agricultural tribe; they lived in rancheria style, which is exemplified by widely-spaced dwellings within the village.<sup>150</sup> The Hohokam retained the seasonal hunting and planting traditions of their predecessors, with the harvesting of crops equally as important as the bounty from hunting.<sup>151</sup> After 1100 A.D., the Hohokam became acquainted with the Mogollons who inhabited the northeastern portion of what now is Arizona.<sup>152</sup> From this association came a blend of cultures and, in some instances, the Hohokam began building their homes in a communal style rather than separate and spaced.<sup>153</sup> Then, in approximately 1350 A.D., the entire population in the area suffered a great decline;

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144. See LINDA M. GREGONIS & KARL J. REINHARD, *HOHOKAM INDIANS OF THE TUCSON BASIN* 6 (1979).

145. See *id.* at 2. The Hohokam were present in the Tucson basin from 300 A.D. to around 1500 A.D. See *id.* at 1. The Hohokam lived in the Sonoran Desert where hunting and farming were the primary means of survival. See *id.* Even earlier than the Hohokam, the Tucson basin provided food for “Paleo-Indians,” who migrated into North America from Siberia. See *id.* Mammoths were plentiful and the desert was a grassland. See *id.* Though they ate bison and plants, the mainstay of their diet was the mammoths until the Ice Age was over and the planet began to warm, which resulted in the disappearance of many animals, such as the horse, camel, and bison. See *id.* Thus, more reliance was placed on plant foods, and grinding grain was introduced to supplement their diet. See *id.* at 1-2.

146. See *id.* at 1-2.

147. See *id.*

148. See *id.*

149. See *id.*

150. See *id.*

151. See *id.*

152. See *id.* at 4.

153. See *id.*

speculation abounds for the cause of the decline, but not one answer has been found definitive.<sup>154</sup>

The Hohokam returned to their pre-contact traditions, and again rancherias became the dominant dwelling style.<sup>155</sup> This is the way the Spanish found the Hohokam living when they pushed north from Mexico and invaded the Tucson Basin.<sup>156</sup> The Tucson Basin remains the center of the descendants of the Hohokam people, but they are known today as the Pimas or Papagos.<sup>157</sup> Hohokam influence has been documented as well in other regions of Arizona: from Gila Bend in the western most portion of the state, to northern Arizona near Flagstaff where the Mogollons lived, to the southern border shared with Mexico.<sup>158</sup> Although there are dissimilarities in culture amongst the diverse mixture of localities, everyone depended on agriculture, no matter where situated.<sup>159</sup> To a large extent, the environment shaped the lifestyle, which is quite different from today, where the lifestyle shapes the environment.

The Tucson Basin is ringed by mountains: the Tucson and Sierrita Mountains make up the southern and western boundaries, and the Santa Catalina, Rincon, and Santa Rita Mountains make up the northern, eastern, and southern boundaries.<sup>160</sup> Within this basin, at the summit, there is approximately twenty-five inches of rainfall per year.<sup>161</sup> The lowest elevation, the Tucson Basin, receives eleven inches per year, as compared to other portions of the desert that receive as little as seven inches per year.<sup>162</sup> During the time when the Hohokam people farmed the region, rainwater soaked into the ground.<sup>163</sup> In the 1800s, water flowed in streams upon the surface of the land and was transported to irrigate crops by means of ditches cut into the ground.<sup>164</sup> The Sonoran Desert is home to a vast array of plant life: Ponderosa pine flourish on the steep sides of the mountains, cacti bloom on the desert floor, and willow and cottonwood thrive along stream banks.<sup>165</sup> Reptiles, deer, insects, and rodents all live off of the plant life, which miraculously springs forth from the dry soil.<sup>166</sup>

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154. *See id.*

155. *See id.*

156. *See id.*

157. *See id.*

158. *See id.*

159. *See id.*

160. *See id.* at 4, 6.

161. *See id.* at 6.

162. *See id.*

163. *See id.* The Hohokam planted a wide variety of crops, sustaining the yield by irrigation. *See id.* at 8.

164. *See id.* at 6. The Tucson Basin was rich with water during the 1700s and even as late as the 1870s—so rich that cottonwood trees lined the banks and one could find dams built by the ever-ready constructionist, the beaver. *See id.*

165. *See id.*

166. *See id.*

The Hohokam planted their own seeds of corn, cotton, and several varieties of beans, along with squash.<sup>167</sup> Different irrigation means were employed by the Tucson Basin people than were employed by the Gila and Salt River people. As a result of strategic planning, the Tucson Basin inhabitants farmed with natural irrigation: the crops were planted either in the floodplain of the rivers that overflowed after storms or near arroyos or great gullies.<sup>168</sup> On the contrary, the Gila and Salt River residents dug canals following an intricate system designed to supply the necessary water for irrigation.<sup>169</sup>

The tools that the Hohokam used for cultivating were amazingly simple, being fashioned from what was available to do the job at hand.<sup>170</sup> They used the “hill” or mound method of planting diverse plants; corn, beans, squash and cotton would share a single mound.<sup>171</sup> By this method, a symbiotic relationship developed between the plants; nutrients were shared and weed protection was enhanced.<sup>172</sup> Due to the climate, the Hohokam waited until after the last winter frost before planting seeds.<sup>173</sup> The warm spring sun hurried the seedlings along, and harvest time began in the first days of summer.<sup>174</sup> Corn was indispensable to the Hohokam because it was so versatile; the Hohokam ate it on the cob, roasted, or ground it with metates or manos into a flour for use during the long winter months.<sup>175</sup> The beans and squash were eaten fresh or dried for storage, preserving the nutritious vegetable for a treat during the long winter.<sup>176</sup> Even cotton was put to multiple uses, both as food and as fibre for clothing.<sup>177</sup> The Hohokam supplemented their diet with fruits, berries, and game.<sup>178</sup>

This window into the past also highlights a vision of how the Hohokam managed their natural resources. The legislative intent of Congress in passing the AIARMA is expressed as a means to promote sustainable yield agricultural practices.<sup>179</sup> Yet, untouched by an inchoate government in a far away place called Washington, D.C., the Hohokams did exactly what the AIARMA purports to do. If

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167. *See id.* at 8-9.

168. *See id.* at 8.

169. *See id.*

170. *See id.* The tools were sharp digging sticks made from wood. *See id.* They also used rock slabs, broke into thin shards and, perhaps, utilized broken bits of their pottery. *See id.*

171. *See id.* at 9.

172. *See id.*

173. *See id.*

174. *See id.*

175. *See id.*

176. *See id.*

177. *See id.*

178. *See id.* at 10. The Hohokam hunted rabbit, deer, mountain sheep, antelope, and rodents such as the squirrel. Additionally, they feasted on snakes, tortoises, lizards, and fowl such as duck, quail, geese, and due to the fact that they located their villages near rivers, their diet included fish. *See id.*

179. *See S. REP. NO. 103-186, at 1 (1993), reprinted in 1993 U.S.C.C.A.N. 2459, 2459.*

the streams and rivers had remained full of precious water and had the Pima and the Papagos enjoyed freedom from incursion of the white settler, the Tucson Basin residents might today be feeding themselves with a harvest wrought from their own labor. Thus, the question becomes: what would be the amount of “practically irrigable acres” used to quantify the water rights of the Hohokam? The answer in the past was: all of them. However, this may not be the answer the Hohokam would be given today.

History informs us that corn was planted in the desert for at least one thousand years prior to the Hohokam arriving in the Tucson Basin.<sup>180</sup> Indeed, when the water was plentiful and the rivers were full, the fields were a sea of green.<sup>181</sup> The variety of corn that would be planted in the spring was influenced by weather conditions and cultural upheaval.<sup>182</sup> Many of the species of corn that were introduced prehistorically have disappeared.<sup>183</sup> Of the remaining Old World varieties of corn, today only a handful show up in dooryard gardens.<sup>184</sup> However, one significant distinction separates the agricultural endeavors of the Hohokam from the prior corn harvesters: the Hohokam were full-time farmers.<sup>185</sup> They were the first to change from total dependence on hunting and gathering to dependence on harvesting crops in one area year after year.<sup>186</sup>

#### IV. REAPING THE WINTER’S HARVEST ON RESERVATIONS TODAY

##### A. *The Navajo Nation: Reaping the Rewards of a Harvest*

The Navajo people arrived in the Southwest and made their home on land with a diverse climate, various soil types, differing growing seasons, ranges of temperature, and most importantly, great changes in altitude.<sup>187</sup> The Navajo Nation reservation occupies a vast amount of land where the environmental hazards of agricultural endeavors are enormous.<sup>188</sup> It was not only the extreme ruggedness of the land that posed a challenge to the Navajo, but it was also the condition of the soil, treacherous plant-killing frosts, and a limited and undependable water supply.<sup>189</sup> On the Navajo Nation reservation, the variations in climate result from changes in

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180. See GARY PAUL NABHAN, *ENDURING SEEDS* 53 (1989) (discussing a collection of essays describing Native American experiences in agriculture and difficulties in maintaining traditional agricultural methods).

181. See *id.* at 54.

182. See *id.* at 55.

183. See *id.* at 57.

184. See *id.*

185. See GREGONIS & REINHARD, *supra* note 144, at 3.

186. See *id.* at 10.

187. See CLYDE KLUCKHOHN & DOROTHEA LEIGHTON, *THE NAVAHO* 47 (Lucy H. Wales & Richard Kluckhohn eds., rev. ed. 1974).

188. See *id.*

189. See *id.* at 47-48.

altitude, not from the distance from the equator.<sup>190</sup> Indeed, the altitude of a given portion of the reservation is the principal determinant of temperature, the length of the growing season, and the amount of rainfall.<sup>191</sup>

Within the reservation there are flat alluvial valleys, through which the San Juan River and Chinle Wash flow, and high plateaus.<sup>192</sup> Variations in elevation are demonstrated by the conditions that are present at each different level.<sup>193</sup> The lower elevations are desert and arid; the middle elevation is similar to the terrain of a steppe; and the highest elevation has a sub-humid climate.<sup>194</sup> Of the variations in the climates described, none are particularly favorable to agriculture unless water is made available.<sup>195</sup> Flowing water is rare, and rainfall is scanty, if and when it comes.<sup>196</sup> Precipitation may come too early in the growing season or too late to nourish the water-starved roots.<sup>197</sup> Moreover, the precipitation may come in the form of snow or in a sudden destructive downpour that washes away the seeds, leaving empty fields behind.<sup>198</sup>

Predictably, droughts visit the reservation twice a year: first in April through June, and then again in October through December.<sup>199</sup> Longer droughts occur once every three to eight years.<sup>200</sup> Hail and lightening kill livestock and destroy fragile crops.<sup>201</sup> Not surprisingly, inadequate or irregular rainfall stunts the growth of edible plants and defeats the storage of water for irrigation or for feeding the animals.<sup>202</sup> The desert vegetation, limited to grasses and browse plants, is sparse and grows very slowly.<sup>203</sup> As a result, the desert can be used marginally, and then only for grazing.<sup>204</sup>

In contrast, “[s]teppe vegetation is composed of grasses, sagebrush and pinion-juniper . . . .”<sup>205</sup> There is ample forage for the livestock; however, the steppe vegetation is fragile and cannot be safely overgrazed.<sup>206</sup> The mountainous sub-humid zone is characterized by its yellow pine timber, oak, and associated

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190. *See id.* at 47.

191. *See id.*

192. *See id.*

193. *See id.* at 47-48.

194. *See id.*

195. *See id.* at 48.

196. *See id.*

197. *See id.*

198. *See id.*

199. *See id.*

200. *See id.* at 49.

201. *See id.* at 48.

202. *See id.*

203. *See id.* at 49.

204. *See id.*

205. *Id.*

206. *See id.*

grasses and shrubs.<sup>207</sup> The mountains are the summer range for Navajo livestock because good forage abounds.<sup>208</sup> Agriculture forms the basis of subsistence and contributes to the economy of the Navajo Nation as it has for over three hundred years.<sup>209</sup> In Navajo country, almost every family grows or raises at least a portion of the food they consume.<sup>210</sup>

There is a significant variation in the amount of income realized from agriculture, which varies by region.<sup>211</sup> In spite of this, some form of agriculture has been the mainstay of the Navajo way of life for all but the most prosperous families.<sup>212</sup> The years after World War II were troublesome for the poor among the Navajo living on the reservation. The hardship was manifested by a decrease in the amount of cash a farming family realized from their agricultural labors. Today, for many Navajo farming families, maize and squash are still the mainstay crops, with melons a valued addition.<sup>213</sup> Fields of beans, wheat, and oat are prized, and the rewards are great. Moreover, ditch irrigated farms near the San Juan River may have up to forty-two different varieties of crops growing during the seasons.<sup>214</sup>

Livestock grazing on the reservation eat the wild plants that were once a source of food for the tribe. With grazing land depleted, the Navajo herdsman does not begrudge the beasts' full bellies. Herbs are grown for use in ceremonial events and as medicine; traditional ceremonies are an essential part of the Navajo religion.<sup>215</sup> Even wild seeds are used as a form of cereal by families who lack the financial ability to grow other grains.<sup>216</sup> In the past, floodwater farming was the means of irrigation, but with lowered stream levels, this method has been supplemented by the irrigation ditch in a few regions.<sup>217</sup> Ditch farming is now being used on the reservation where it is viable.<sup>218</sup> Today, the tribe uses non-Indian farming techniques including the use of modern farming equipment,<sup>219</sup> and a vast amount of acres are planted on the Navajo reservation. In fact, the NAPI is a thriving agricultural business that generates considerable revenue and stands as an example of a Native American Indian agricultural enterprise that is flourishing.<sup>220</sup>

The old sunrise and ceremonial methods of planting have become faded and dim memories in the minds of the oldest Navajo. Except for the planting of corn in

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207. *See id.*  
208. *See id.*  
209. *See id.* at 55.  
210. *See id.* at 55-56.  
211. *See id.* at 56.  
212. *See id.*  
213. *See id.*  
214. *See id.* at 57.  
215. *See id.*  
216. *See id.*  
217. *See id.* at 68.  
218. *See id.*  
219. *See id.*  
220. *See NAPI, supra* note 46.

hills, the planting is accomplished by using non-Indian methods.<sup>221</sup> Planting dates are still determined by simple traditional folk rites<sup>222</sup> by those who farm primarily for food for their table.<sup>223</sup> The Navajo people traditionally relied on the supernatural world for signs and guidance, and this was also true in determining the right time to plant.<sup>224</sup> To prevent an early frost from killing the crops, stones from sweat houses are planted in the fields or at the base of fruit trees.<sup>225</sup> If the wind damaged the corn, the wind was called by its secret name and implored to leave the corn alone.<sup>226</sup> Superstition also played a role in the harvest. For example, a corn stalk with two ears was placed in the bottom of the storage pit to ensure a bountiful crop next season; rain was prayed for in special ceremonies.<sup>227</sup>

Not all Navajo farmers have practiced every supernatural ritual, but it is fair to say that all Navajo farmers presently practice the ceremonial rituals to some extent.<sup>228</sup> The future of farming on the Navajo reservation appears bright, based on the soundness of NAPI.<sup>229</sup> Water availability is foundational to successful agricultural endeavors. For the Navajo living on the reservation and cultivating the soil for their own rewards, an increase in water resources and improved methods of agriculture and animal husbandry may be necessary.<sup>230</sup> Irrigation developments in the San Juan Valley can open up 110,000 to 160,000 acres of farmland.<sup>231</sup> The addition of 14,000 acres would produce the 35,000 tons of wheat flour consumed by Navajo living on the reservation.<sup>232</sup> Moreover, the wheat could be ground into flour at the Round Rock tribal mill near Many Farms, resulting in employment for many tribal members.<sup>233</sup> The extra harvest of wheat may require improved water works and possibly dam construction, but the increased production will be met with an increase in income when improved farming methods are used.

Will the AIARMA prove to be beneficial to the Navajo Nation? The success of NAPI is directly related to the application of non-traditional farming practices.<sup>234</sup> Without improved farming techniques, it is doubtful that the soil would have been able to sustain the high yields realized today. In all respects the Navajo people appear to have already adopted the intended result of the AIARMA as their theory

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221. See KLUCKHOHN & LEIGHTON, *supra* note 187, at 69.

222. *See id.*

223. *See id.* at 55.

224. *See id.* at 69.

225. *See id.* at 204.

226. *See id.* at 204-05.

227. *See id.* at 205.

228. *See id.* at 206.

229. *See NAPI, supra* note 46.

230. *See KLUCKHOHN & LEIGHTON, supra* note 187, at 81.

231. *See id.*

232. *See id.*

233. *See id.*

234. *See NAPI, supra* note 46.

and approach to good farming. Perhaps the Navajo approach is an example of the AIARMA in application.

### B. *The Hopi, the Zuni, and Other Indigenous Farmers*

The Hopi tribe's unique relationship with the land cannot be easily explained academically.<sup>235</sup> The Hopi are descendants of the ancient cliff dwellers called the Anasazi.<sup>236</sup> Their agricultural practices remain virtually the same as when the Anasazi farmed the land almost one thousand years ago.<sup>237</sup> In both the past and present, the corn is the main crop planted.<sup>238</sup> The Hopi tribe exists in "the fourth way of life," a concept that is difficult to understand and secretly guarded by the Hopi.<sup>239</sup> When "the fourth way of life" was emerging, the Hopi were offered corn by a member of their deity.<sup>240</sup> Other "peoples" took the largest ears of corn, and the Hopi got the remaining corn—a short ear of blue corn.<sup>241</sup> The short "blue ear" has profound significance to the Hopi.<sup>242</sup>

In the language of the Hopi, "techaqua ikachi" is defined as a blending of the people with the land and celebrating life.<sup>243</sup> The Hopi plant corn in fields that lie in the broad flat washes that collect rainwater.<sup>244</sup> This soil is rich, moist, and crops grow with ease, albeit during a very short growing season.<sup>245</sup> For the Hopi, the blue corn is a "way of life" and is used in ceremonies.<sup>246</sup> Hopi "lifeway" is a life based upon cooperation, respect, humility, and earth stewardship.<sup>247</sup>

Agriculture remains basic to the Hopi. The Hopi adjusted their lifeway and agriculture practices to fit into the arid landscape that comprises Hopi land. Their unique agricultural system has sustained the Hopi people for longer than one thousand years.<sup>248</sup> The Hopi plant crops several different ways: either by dry farming, planting in the valleys that form in between the mesas, or by planting in terraced gardens.<sup>249</sup> The Hopi live atop the mesas, a practice that is centuries old.<sup>250</sup>

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235. See *Hopi Agriculture* (visited Nov. 16, 1998) <<http://www.nau.edu/~hcpc-p/culture/agric.htm>>.

236. See THOMAS E. MAILES, *THE HOPI SURVIVAL KIT* 48-52 (1997).

237. See *Hopi Agriculture*, *supra* note 235.

238. See MAILES, *supra* note 236, at 256-57.

239. See *Hopi Agriculture*, *supra* note 235.

240. See *id.*

241. See *id.*

242. See *id.*

243. See MAILES, *supra* note 236, at 1.

244. See *Hopi Agriculture*, *supra* note 235.

245. See Daniela Soleri & David Cleaveland, *Seeds of Strength for Hopis & Zunis* (visited Nov. 16, 1998) <<http://www.ciesin.org/docs/004-190.html>> (stating the growing season varies between 120 and 160 days, with the shorter time period at the higher elevations).

246. See *id.*

247. See *Hopi Agriculture*, *supra* note 235.

248. See Soleri & Cleaveland, *supra* note 245.

249. See *Hopi Agriculture*, *supra* note 235.



The Hopi use modern implements, such as tractors and discs, in addition to traditional tools, like hoes and sticks.<sup>251</sup> Up high on the mesas, the reaping of a harvest depends upon the amount and depth of winter snow, and whether or not a heavy monsoon rain falls during the summer months.<sup>252</sup> Flowing surface water is non-existent on the mesas.<sup>253</sup> The shortage of water is the most significant barrier to a plentiful harvest.

Cutworms, crows, birds of prey, small game, coyotes, drought, and a host of other damaging nuisances threaten the Hopi crops. Planting a crop is both a religious act and an economic endeavor to the Hopi.<sup>254</sup> The Hopi women traditionally tend the plots or fields; the farm or garden belongs to the clan of the women.<sup>255</sup> Tending to the agriculture brings forth double benefits for the Hopi family: the harvest adds to the unique Hopi diet and it is a lesson of Hopi tradition and values taught to Hopi children by participation.<sup>256</sup> Agriculture is also a guide for the Hopi because agricultural tasks are performed according to the ceremonies dictated by the month of the year.<sup>257</sup> Thus, a cycle is evident that continues year after year.

The Hopi have two distinct farming practices: floodwater farming and Akchin farming.<sup>258</sup> Floodwater farming is used for crops of squash, corn, and melons.<sup>259</sup> Akchin farming may be used for the same crops, but the fields are located at the mouths of washes or arroyos (gullies).<sup>260</sup> The Akchin method is the oldest and most popular method employed by the Hopi.<sup>261</sup> This terraced method requires hand watering in buckets or digging irrigation ditches on the sides of the mesas.<sup>262</sup> The male and female Hopi have definitive tasks in the cycle. The men clear the fields and plant, care for, and harvest the corn.<sup>263</sup> On the other hand, the women distribute the harvests and have responsibility for the next growing season's seeds, in addition to tending and harvesting the crops planted in the terraced gardens.

The Center for People, Food, and Environment (CPFE) located in Tuscon, Arizona, researches crop genetic diversity in indigenous agriculture.<sup>264</sup> The Zuni make their home in western New Mexico, a region similar to the Hopi homeland in

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250. See NABHAN, *supra* note 180, at 129-32.

251. See *Hopi Agriculture*, *supra* note 235.

252. See *id.*

253. See Soleri & Cleaveland, *supra* note 245, at 13-18.

254. See *Hopi Agriculture*, *supra* note 235.

255. See *id.*

256. See *id.*

257. See *id.*

258. See *id.*

259. See *id.*

260. See *id.*

261. See *id.*

262. See *id.*

263. See *id.*

264. See Soleri & Cleaveland, *supra* note 245.

northern Arizona.<sup>265</sup> The number of Native American Indians who are involved in agriculture has been steadily declining in the last half of this century.<sup>266</sup> Most Native American Indians that continue to farm use commercially purchased seeds, and many of the farmers who plant crops do so in a limited fashion due to the necessity of working outside of the home.<sup>267</sup> This fact greatly discourages the older generation, who believe that traditional agricultural ways should be taught to the younger generation by example.

Today, many varieties of blue maize are available in the marketplace. In the past, the only place to secure blue maize seeds was in the southwest.<sup>268</sup> It is not uncommon to find several brands of “blue corn chips” at the market or served in restaurants with salsa.<sup>269</sup> However, the availability of blue corn on the national market could possibly damage the Hopi agriculture and Hopi social culture.<sup>270</sup> To the Hopi, the blue maize is both sustenance and ceremony; their social culture is intertwined with their agriculture, and a diminishment of one means a diminishment of the other.<sup>271</sup>

Indigenous seeds are frequently labeled “folk varieties.”<sup>272</sup> The Zunis have recognized that sustainable agriculture is best and that folk varieties of seeds are an integral part and necessary, if sustainability is to be achieved. The Zuni Folk Varieties Project was established,<sup>273</sup> and its stated goal is to teach the importance of preserving folk variety seeds for Zuni farmers in the future.<sup>274</sup> In the past, this has been accomplished largely by the Native American Indian farmers reserving private seed stock.<sup>275</sup> The supply has declined dramatically, however, in the second half of this century in direct relation to the decline of Native American Indian farmers.

Many Native American Indian farmers are striving to bring farming back as an integral part of their respective culture by using modern technologies, while at the same time trying to protect the folk variety seeds from mass marketing. With the advent of sophisticated biotechnologies and markets that are worldwide in scope, notwithstanding intellectual property rights of the particular tribe, folk variety seeds of the indigenous people are in demand. The salient issue facing Native American Indian farmers is: can the folk varieties remain the sole possession of a tribe in the

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265. *See id.*

266. *See id.*

267. *See id.*

268. *See id.*

269. *See id.*

270. *See id.* The damage may occur because the Hopi varieties, which have been honored and preserved for centuries, lose importance because blue maize is readily available on a large scale. *See id.* Before widespread availability, the only source of the indigenous blue maize was neighboring tribes. *See id.*

271. *See id.*

272. *See id.*

273. *See id.*

274. *See id.*

275. *See id.*

face of genetic engineering, plant patents, and other proprietary facets of the modern world?

C. *Planting and Reaping a Harvest in the Canyons and Pueblos and on the Plains*

Deep in the bottom of the Grand Canyon the Havasupai tribe makes its home in the small village of Supai.<sup>276</sup> Their reservation lies in the southwest corner of Grand Canyon National Park.<sup>277</sup> The Havasupai proclaim that their tribe's strength comes from the land.<sup>278</sup> Thus, preserving the land is a sacred responsibility of every tribal member. Among the list of their principles are two that apply particularly to agriculture: to use the homeland to provide sustenance for the tribe and to make the most efficient use of the water that is available.<sup>279</sup> Water is of central importance to their continued viability. The Havasupai, while not as visible as other tribes that have far more land and tribe members, are nonetheless connected to the land via agriculture. Although they do not plant on a large scale, they need water for their crops to sustain life.

Not too distant from the Havasupai is the Isleta Pueblo. The Pueblo people were imbued with Hopi traditional agricultural practices when many of the Isleta Indians fled to Hopi land during the Spanish invasion.<sup>280</sup> When they finally returned to their homeland, which consists of 211,002 acres, they brought with them not only Hopi seeds, but Hopi mates and Pueblo-Hopi offspring.<sup>281</sup> As in the past, agriculture occupies the majority of the days of the Isleta Pueblo people. With the blend of Hopi ways into the Isleta Pueblo culture, the Pueblo's practices are much the same.

The Lakota Sioux are not historically known for their agricultural practices. Indeed, they align with various other plains tribes as renown buffalo hunters.<sup>282</sup> When the westward expansion plowed through the great plains states (today known as the bread basket of the nation), the Lakota were forced to learn to grow their own food,<sup>283</sup> and today, they strive to remain self-sufficient.<sup>284</sup> At Oglala Lakota College in Kyle, South Dakota, the curriculum includes a gardening program.<sup>285</sup> The

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276. See *Havasupai Tribe* (visited Nov. 16, 1998) <<http://www.usgs.nau.edu/Tribes/Havasupai>>.

277. See *id.*

278. See *id.*

279. See *id.*

280. See *Isleta Pueblo* (visited Nov. 16, 1998) <<http://hanksville.phast.umass.edu/defs/independent/PCC/isleta.html>>.

281. See *id.*

282. See Lisa Jones, *Native Soil: Lakotas Garden for Health and Independence*, HIGH COUNTRY NEWS, Nov. 11, 1996 <[http://www.hcn.org/1996/nov11/dir/Western\\_Native\\_Soi.html](http://www.hcn.org/1996/nov11/dir/Western_Native_Soi.html)>.

283. See *id.*

284. See *id.* When President Nixon introduced the food stamp program in the 1960s, the Indians' reliance on farming became unnecessary because the food stamps were a certainty of nourishment. See *id.*

285. See *id.*

program focuses, among other things, on the health of the members and on the retention of traditional independence.<sup>286</sup> Organic gardening to the Lakota is a statement. The rolling hillsides by the college, where once only prairie grass grew, are planted with beans, squash, corn, broccoli, turnips, chard, and tomatoes.<sup>287</sup>

Their gardening endeavor is unusual in that no supplemental irrigation is available—the crops depend entirely on nature's precipitation,<sup>288</sup> and the Lakota farming method is devoid of fancy equipment.<sup>289</sup> To help the prairie retain its health, the vegetable beds are separated by pathways seeded to grass.<sup>290</sup> The beauty of the Oglala Lakota College's gardening project is that it helps the Lakota help themselves. Promoting agricultural studies at Native American Indian colleges is now accepted as a vital component of education.<sup>291</sup> The AIARMA may be an acknowledgment by Congress that agriculture is today, as it was in the past, woven into the fabric that depicts the culture of a tribe.

Statistics show that in 1994 only one Native American Indian was awarded a doctorate in agricultural science.<sup>292</sup> This fact compels a determination that the percentage of qualified Native American Indians enrolled in the agricultural related sciences is greatly disproportionate to the vast amount of agricultural land on reservations: 75% of 54,500,000 acres of reservation land is agricultural.<sup>293</sup> The AIARMA, which includes educational assistance programs,<sup>294</sup> should be funded without delay. Native American Indian colleges currently operate on minuscule budgets, and this fact is bolstered by studies that have found the BIA and the USDA have not served our Native American Indian farmers in the manner that the trust responsibility of the federal government requires.<sup>295</sup> Unless the education of Native American Indians in all facets of agriculture is made available and accessible, the possibility of revenue generating agricultural enterprises is remote for tribes that lack sufficient capital to fund the education of willing and able students. Therefore, the tribes themselves must instill their agricultural practices in their children in order to preserve this knowledge for future generations by teaching what was once a part of daily living.

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286. *See id.*

287. *See id.* The gardening program at the Oglala Lakota College caught the eye of some students at the University of Bonn, located in Germany. *See id.* The German students learned about Lakota culture while they assisted with the gardens. *See id.*

288. *See id.*

289. *See id.*

290. *See id.*

291. In 1994, the Congress designated Indian Colleges as "land-grant institutions," a designation that carries with it the obligation to teach agriculture and other rural-oriented studies. *See id.* The benefits to the tribes from being given the land-grant status may be immeasurable, as can be seen by the states that have land-grant institutions. *See id.*

292. *See Jones, supra* note 41.

293. *See id.*

294. *See* 25 U.S.C. § 3731 (1994).

295. *See Jones, supra* note 41.

## V. NATIVE AMERICANS, RESERVED WATER RIGHTS, AND THE USDA

A. *USDA Policy Towards Native American Agriculture*

The USDA has expressed its position relative to Native American Indians through the Animal and Plant Health Inspection Service (APHIS).<sup>296</sup> The “attitude” of the APHIS can be aptly described as enthusiastic. Native American Indian tribes that rely upon agricultural revenue may have found an ally in the APHIS. On the whole, it appears that the APHIS envisions tribes being actively involved in the programs offered by the APHIS. The stated purpose of the “Federal Government to Tribal Government” relationship is to provide accessible agricultural programs and services.<sup>297</sup> The relationship may provide an avenue by which the government can fulfill its trust responsibilities and at the same time support Native American Indian self-determination. The USDA, as well as the BIA and any other governmental agency, is mandated to protect, conserve, and utilize both reserved treaty-guaranteed and statutorily-identified trust assets.<sup>298</sup> The philosophy as stated by the APHIS is consistent with federal policy supporting tribal government self-determination and is intended to be a flexible working relationship and a mutual partnership.<sup>299</sup> The philosophy applies only to tribal governments currently in existence, and in addition, neither the philosophy nor the policy will be used to arbitrate differences in opinion between governmental agencies or interpret any authorities, laws, or judicial findings.<sup>300</sup>

The strategies that the APHIS have proffered to implement the mutual working relationships and partnerships are broad.<sup>301</sup> The APHIS acknowledges and supports the right of tribal governments to manage, co-manage, or cooperatively manage lands and other natural resources.<sup>302</sup> Communication and consultation is encouraged by the APHIS.<sup>303</sup> From the planning stages through completion, the goal is to involve tribal leaders in all APHIS programs and activities.<sup>304</sup> In any programs that involve Native American Indians, the APHIS will comply with existing cultural interests, such as the American Indian Religious Freedom Act,<sup>305</sup> the Native American Graves

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296. See *APHIS Native American Working Group: APHIS Native American Philosophy*, (visited Nov. 17, 1998) <<http://www.aphis.usda.gov/anawg/anawgpg.html>>.

297. See *id.*

298. See *id.*

299. See *id.*

300. See *id.*

301. See *APHIS Native American Working Group: Strategies* (visited Nov. 17, 1998) <<http://www.aphis.usda.gov/anawg/anawgstr.html>>.

302. See *id.*

303. See *id.*

304. See *id.*

305. See *id.*

Protection and Repatriation Act,<sup>306</sup> and all other laws that may be directly or indirectly implicated. Furthermore, the APHIS strategic plan is founded on the premise that Native American Indians, regardless of where they are living, will be entitled to programs and services on equal footing with other rural populations.<sup>307</sup> Moreover, the APHIS will sponsor outreach programs in Native American Indian communities, some directed at Native American Indian school children.<sup>308</sup>

The APHIS, through “A Native American Working Group” (ANAWG), will outline and establish interagency agreements with federal, state, local, or tribal governments.<sup>309</sup> The focus of such agreements will be on benefitting Native American Indians.<sup>310</sup> One benefit of the APHIS’s working strategy is already in place. APHIS will facilitate education by working with Native American institutions to develop natural resource studies and on-the-job training; qualified Native American Indians can be hired by the APHIS, where recruitment will focus on animal and plant health, agricultural sciences, wildlife biology, animal care, and veterinary science.<sup>311</sup>

A project that the APHIS is now focusing on is the outbreak of brucellosis in the Greater Yellowstone Park region. The project includes the APHIS, the National Park Service, the USDA Forest Service, and the Montana, Wyoming, and Idaho State Departments of Agriculture.<sup>312</sup> Additionally, the United States Native American Indian population largely live in rural, isolated areas.<sup>313</sup> Due to variants in jurisdictions, the APHIS establishes an agency-wide directive.<sup>314</sup> Thus, the directive applies to non-Indians in Missouri in the same manner as it does to Native American Indians in South Dakota. The ANAWG directive is a detailed document and acknowledges that land and natural resources are elements of the spiritual lives of the Native American Indian, as well as part of everyday life.<sup>315</sup> The ANAWG was fashioned in September 1994, modeled on the preexisting USDA ANAWG.<sup>316</sup> The directive enunciates a specific goal of fostering effective coordination of federal agricultural and rural development programs.<sup>317</sup>

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306. *See id.*

307. *See id.*

308. *See id.*

309. *See id.*

310. *See id.*

311. *See id.*

312. *See id.* Brucellosis has been found to be carried by bison ranging in or near Yellowstone National Park. *See id.* Although brucellosis does not affect bison, it can cause spontaneous abortion in cows. *See id.*

313. *See USDA APHIS Native American Working Group: Charter* (visited Nov. 17, 1998)

<<http://www.aphis.usda.gov/anawg/anawgcha.html>>.

314. *See USDA APHIS Native American Working Group: Directive* (visited Nov. 17, 1998)

<<http://www.aphis.usda.gov/anawg/anawgdir.htm>>.

315. *See id.*

316. *See id.*

317. *See id.*

The ANAWG was created as a result of President Clinton directing all federal agencies to make improvements on how federal programs were delivered to tribes, which number more than 550 at this time.<sup>318</sup> The programs that APHIS promote include: the health of animal and plant resources; the protection of agricultural and natural resources, property, human health, and safety; the promotion of animal welfare; protection and enhancement of ecosystems; and the enhancement of America's share in world trade.<sup>319</sup> With such a substantial mandate, agriculturally-oriented tribes should benefit from the APHIS directive. APHIS philosophy may be the outgrowth of the intent of the AIARMA.

### B. *Is APHIS the Plug in the AIARMA Bucket?*

The APHIS published the "Partnerships Across Nations" statement in June 1997.<sup>320</sup> The report is an informative statement describing the types of programs the APHIS sponsors,<sup>321</sup> and the report articulates that the APHIS employees identify themselves as "change agents."<sup>322</sup> The change is geared towards greater effectiveness in serving Native American Indian farmers and ranchers.<sup>323</sup> The implementing plan is to deliver the programs in a non-discriminatory manner nationwide.<sup>324</sup> Under this fairness rubric, all Native American Indian farmers will be able to avail themselves to the same benefits as non-Indians; the APHIS then is race and culture neutral.

Native American Indian agricultural practices are an integral part of the whole cultural structure of a tribe. It is this connection that must be recognized and preserved. Tribes may use the natural resources found on their respective reservations. They may plant crops, hunt, fish, and gather food, and grow medicinal plants. The Navajo and Hopi, as well as many other tribes, strive for harmony between the people and the nature that surrounds them.<sup>325</sup> When the agricultural pursuits yield harvests or the livestock eat well on the range, that harmony is observed.

### C. *Water Wars in the Indian West*

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318. See *Partnerships Across Nations* (visited Nov. 17, 1998) <<http://www.aphis.usda.gov/anawg/anawg/amerind.html>>.

319. See *id.*

320. See *id.*

321. See *id.*

322. See *id.*

323. See *id.*

324. See *id.*

325. See Matthew Green, *The Sacred Sky of the Navajo and Pueblo* (visited Nov. 21, 1998) <<http://arcturus.pomona.edu/sw/navajo.griffith.essay2.html>>.

The *Winters* doctrine established the right of all federal reserves to have the same amount of water today as was intended by Congress when the reserve was created.<sup>326</sup> According to a BIA Indian water rights expert, Chris Kenney, the central purpose of placing Native American Indians on reservations was to provide agricultural land from which they could plant and harvest crops as a way to feed tribal members.<sup>327</sup> This concept would be viable only if the necessary water was allocated to make this idea into a reality.<sup>328</sup>

Vast amounts of reserved water has been “appropriated” by non-Indians in violation of the treaties granting the water to the tribe. This unlawful taking has resulted in a morass of legal disputes. Moreover, the federal government appears to have been the principal culprit of non-legal appropriation of the Indian reserved rights water. By allowing reclamation projects and other developments to be built on river systems that flow within reservations, the federal government is obligated under the legally enforceable trust relationship to not only protect and preserve Native American Indian water rights, but to return to the tribe water unlawfully taken.<sup>329</sup>

The magnitude and complexity of the battle being waged when Native American Indian water is taken by non-Indians is difficult to comprehend, and this issue is beyond the scope of this Article. However, many states are willing to negotiate, instead of litigate, with time being the foremost factor of persuasion to bring the parties to this position.<sup>330</sup> It could take up to twenty years to litigate water rights.<sup>331</sup> However, the money is spent on structural improvements instead of being poured into legal battles.<sup>332</sup> The federal government promotes and encourages negotiation as the vehicle to motivate consensual agreements, which are approved and accepted by the parties.<sup>333</sup>

An example of these consensual agreements is the one reached between the federal government and the Central Utah Water Conservancy District.<sup>334</sup> The agreement included a guarantee of a water project on the reservation as compensation for the Utes having to give up some of their rights to water.<sup>335</sup>

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326. See Steve Hinchman, *West Faces a Time Bomb*, HIGH COUNTRY NEWS, Aug. 27, 1990 <<http://www.hcn.org/primer/waterprimer/timebomb.html>>.

327. See *id.*

328. See *id.*

329. See *id.* Chris Kenney stated that the Department of Interior has an ongoing responsibility to protect Native American Indian land and resources, and must fix the mess it created. See *id.*

330. See *id.*

331. See *id.*

332. See *id.*

333. See Daniel McCool, *Utah and the Ute Tribe Are at War*, HIGH COUNTRY NEWS, June 27, 1994 <<http://www.hcn.org/1994/jun27/dir/Essay2.html>>.

334. See *id.* The Central Utah Project (CUP) would be built, using the Uintah and Ouray reservation water. See *id.* The tribes agreed to this in return for the use of their water the reservation would get a water project. See *id.*

335. See *id.*



Unfortunately, but not surprisingly, the agreement was broken by the federal government.<sup>336</sup> It took the Unitah and Ouray tribes thirty years to get the federal government to admit that the agreement was a fraud.<sup>337</sup> The Central Utah Project was built, and the water project on the reservation was illusionary. As a result of the government's fraudulent conduct, a legal compact was absent, and no clear title to the water existed.<sup>338</sup> Thus, the project was diverting Ute water unlawfully.

#### D. Tribal Water, Western Water Policy, and the Future

Stream-wide adjudication is rapidly proceeding in several state courts, and this trend is expected to continue for some time into the future. It is in this venue where Indian reserved water rights are being quantified. The United States has waived its sovereign immunity and can be made a party to the state action.<sup>339</sup> Native American Indian tribes can bring suit in federal court against states in order to obtain a court order based on their reserved water rights.<sup>340</sup> Negotiated settlement of state-wide adjudication is favored, but this type of settlement requires knowledge of western water policy to facilitate an understanding of the need for final answers to the question as to who has a lawful rights to this critically necessary resource.

In March 1998, the Western Water Policy Review Advisory Commission hosted an informational forum in Phoenix to discuss trends and directions in federal water policies of Indian water.<sup>341</sup> The Commission, composed of twelve members of Congress (represented by proxies at the forum), was established by Congress, and it is charged with recognizing the federal government's trust responsibility to protect Indian water rights.<sup>342</sup> The purpose and scope ascribed to the Commission is to review federal activities in the western states and, based upon those findings, make recommendations to the federal government. Thus far, workshops and basin-wide meetings have taken place.<sup>343</sup> The testimony given by various speakers at the forum will be included in the Commission's report.

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336. *See id.*

337. *See id.*

338. *See id.*

339. *See* Amendment to Departments of State, Justice, Commerce, and the Judiciary Appropriations Act, Pub. L. No. 945, § 208(a)-(c), 66 Stat. 549, 560 (1952) (codified at 43 U.S.C. § 666 (1994)); *see generally* Colorado River Water Conservation Dist. v. United States, 424 U.S. 800 (1976) (holding state courts have jurisdiction to determine federal reserve rights held on behalf of Indians).

340. *See generally* Arizona v. San Carlos Apache Tribe, 463 U.S. 545 (1983) (stating that the holding in *Colorado River Water* applies to actions concerning reserved water rights).

341. *See generally* 1 WESTERN WATER POL'Y REV. ADVISORY COMM'N, U.S. DEP'T OF THE INTERIOR, INDIAN WATER LAW - 1997: TRENDS AND DIRECTIONS IN FEDERAL WATER POLICY; IMPLICATIONS AND OPPORTUNITIES FOR TRIBAL ACTION FORUM (1997) [hereinafter TRENDS AND DIRECTIONS IN FEDERAL WATER POLICY] (discussing western water policy).

342. *See generally* 1 *id.* (discussing western water policy).

343. *See generally* 1 *id.*

Three speakers, each well-known for holding vast knowledge of water law in general, and Indian reserved water law in particular, spoke eloquently and passionately about western water policy. David Getches discussed water law relative to entire western states and how tribal water issues fit into the matrix.<sup>344</sup> Getches noted that water is the “lifeline of tribal people,” and is a type of landscape that is both geographically and sociologically without limits or boundaries.<sup>345</sup> The tribes are called upon to be knowledgeable both in hydrology and federal policy in order to begin to understand the nature of their rights.<sup>346</sup>

Getches further explained that the prior appropriation doctrine was born of social and economic conditions occurring only in the West at that time.<sup>347</sup> Today, however, the prior appropriation doctrine is in flux.<sup>348</sup> Trends forewarning change that appear prominent today are conservation and efficiency, facilities (huge federally-built dams), water marketing,<sup>349</sup> environmental protection, and, most significantly, the reality of changing institutions on watershed governance.<sup>350</sup> Of the foregoing, the last trend is a clear warning for tribes: management of reservation water has never been more important than now. Emphatically, Getches reminded the people attending the forum that the trends and directions of the future are quite different from past and recent developments in the *Winters* doctrine.<sup>351</sup>

The basic tenet undergirding the prior appropriation doctrine is the beneficial use of the water. In the past, if a use was “economical” in nature, it was deemed “beneficial.”<sup>352</sup> Not so today, as water continues to be scarce. A determination of beneficial use includes an inquiry as to efficiency of the use, appropriateness of the use, and the actual physical diversion of the water.<sup>353</sup> Tribes have the right to require that their non-Indian neighbors use water in a manner that is beneficial and appropriate.<sup>354</sup> Nowhere is the lack of beneficial use by non-Indians more visible and tangible than in water development programs.

At times, Indian reserved water filled the dams and canals built for irrigation. Indeed, in some instances the irrigation water was used on marginally productive, non-Indian land.<sup>355</sup> In other words, the streams containing Indian reserved rights water were used to enhance development of the areas by non-Indians; this is, in

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344. See 1 *id.* at 13-22.

345. See 1 *id.* at 13.

346. See 1 *id.*

347. See 1 *id.* at 14.

348. See 1 *id.*

349. See 1 *id.* Getches explains that water marketing is the transportation of water in response to economic forces. See *id.*

350. See 1 *id.*

351. See 1 *id.* at 14-15.

352. See 1 *id.* at 15.

353. See 1 *id.*

354. See 1 *id.*

355. See NABHAN, *supra* note 180.

effect and consequence of, a “subsidy” taken from, and not given by, Native American Indians.

Where Indian reserved water rights are only “on paper” and not “in application,” tribes need to make Congress consider Native American Indian needs (in some cases necessities such as potable drinking water) first and foremost when the water is clearly theirs.<sup>356</sup> It may not be out of line to claim that western development progressed and prospered from the use of Indian reserved water at a great expense to the western tribes. Native American Indians need the reality of actual water to develop their agricultural land and not just a paper claim.<sup>357</sup> For example, consider a tribe blessed with an abundance of water rights, but no facilities such as dams or irrigation channels to use the water. Would it then be wise for the tribe to market and sell their rights? Should tribes be allowed to move water off the reservation for economic gain?

The sale of non-Indian water rights is basic to the prior appropriation doctrine.<sup>358</sup> Historically, tribes have been denied the same legal right, thereby reducing the value of their reserved water.<sup>359</sup> Getches proclaimed that now is the time for Congress to enact legislation which would allow tribes to become market participants, under their sovereign and proprietary authority, by leasing for a definite term for off-reservation use.<sup>360</sup> Moreover, failure to extend this economic advantage to tribes is ruthless at best, and racial discrimination at worst.<sup>361</sup>

Likewise, tribes are victims of degradation of the quality of their water from past ineffective water policies and virtual obstruction, resulting in a reduction in the water left in streams. Tribes that rely upon fishing for revenue are suffering as a result of circumstances, such as the ecological crisis surrounding traditional salmon runs in the Northwest.<sup>362</sup> The Endangered Species Act can be an instrument protecting tribal water rights or used as a tool to deny tribal water rights. It is these tribal water rights that must be protected when an endangered species can be preserved by cutting back non-Indian diversion, for in this way and only this way, is

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356. See 1 TRENDS AND DIRECTIONS IN FEDERAL WATER POLICY, *supra* note 341, at 16.

357. See 1 *id.* Without water, paper rights will not stop junior non-Indian users; only actual diversion will cut into non-Indian supplies. See 1 *id.*

358. See 1 *id.* at 18.

359. See 1 *id.* Tribes must play by the non-Indian Prior Appropriation rules as to priority dates, and the quantification of those rights, but are denied the same treatment as to leasing or transferring water. See 1 *id.*

360. See 1 *id.*

361. See 1 *id.* Non-Indian gain from this patently inequitable marketing of water rights stems from water being left in a stream because the tribe can not use it, and allows free use by non-Indian junior appropriators. See 1 *id.*

362. See 1 *id.* at 19.

the federal government acting as the trustee it is mandated to be. Tribes must obey the Endangered Species Act, which by its nature involves water use or non-use.<sup>363</sup>

Good management of water resources is evident in the success realized by the Navajo Agricultural Products Industry (NAPI). Additionally, watershed management, which stresses inter-connection of all aspects of a watershed, along with rehabilitation of destroyed land within that watershed, is an imperative for any agricultural endeavor on a reservation.

#### E. Stream-Wide Adjudications and Settlements

The future undoubtedly will include litigation and settlements of water rights for users in the western states. Tribal water rights will be decided, quantified, and settled. This Article will not address the myriad of issues raised by the settlement process. It is sufficient to say that it will be rife with conflicting interpretations and extremely complicated. With all the reaches of new technology, the courts themselves do not comprehend or understand whether stream-wide adjudication should include stream water as well as groundwater, or just one or the other. However, this settlement process is complicated, and guidelines are critical. When a settlement is reached, it is not uncommon to have a tribe enter into a compromise agreement, whereby the tribe gives up a quantifiable claim to water in exchange for funds from the United States to be used for the creation of storage reservoirs and ways to divert the water. This, however, puts tribal agricultural land in an inferior position to non-Indian agricultural land.

Sue Williams, a Native American Indian and an expert on stream adjudications, spoke at length on this important subject. As to Native American Indian tribes, Williams noted that the United States can be sued for money damages for breach of the trust duty by failing to stop up-stream diversions that caused a tribe's farm project to fail.<sup>364</sup> Water rights vest at the time of creation of the reservation; thus, it is a property right. From this legal position it is not difficult to conclude that water taken by a non-Indian is a breach of the federal government's trust.<sup>365</sup> Williams continued by stating that for the most part, tribal members view water as a sacred resource, rather like a living being, deserving of protection for all

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363. 16 U.S.C. §§ 1531-1544 (1994). *See generally* United States v. Billie, 667 F. Supp. 1485 (S.D. Fla. 1987) (finding that the Seminole Indians are not exempted from compliance with Endangered Species Act); United v. Dion, 752 F.2d 1261 (8th Cir. 1985) (holding that the Endangered Species Act does not exempt the Yankton Sioux from its provisions).

364. *See* 1 TRENDS AND DIRECTIONS IN FEDERAL WATER POLICY, *supra* note 341, at 24. Williams comments that the Commission should address the issue of the trust responsibility in the context of money damage relief for tribes whose water rights have not been protected. *See* 1 *id.*

365. *See generally* 1 *id.* (explaining the United States' position in protecting tribal use of reserved water).

365. *See* 1 *id.* at 24. The non-Indian water users claim that did not know that the water they were diverting belonged to a tribe. *See* 1 *id.*

time.<sup>366</sup> The large problem facing tribes in the future is: because stream-wide adjudication is fashioned by a quantification of how much water goes to whom, how can a tribe quantify its water right for “all time” under the general stream adjudication rule?

The salient question a tribe must ask before becoming involved in a general stream adjudication is whether or not the tribe will be treated with fairness in the proceeding, both substantively and procedurally. This should be a paramount consideration when a tribe is an agriculturally-oriented tribe and the quantity of water they can use will be based on the PIA standard. The PIA standard standing alone raises salient issues, over and above the dispute inherent in quantifying a right. Without a quantification of the amount of water in a stream belongs to a tribe, other users are free to take with impunity.<sup>367</sup>

The last speaker for the day was Chelsea Congdon, who spoke on the environmental effects flowing from water use. She stated that environmental management of watersheds is necessary to meet current unmet tribal demands for water is to be achieved.<sup>368</sup> Congdon encouraged tribes to use the leverage given to them by treaties to call for more action by the federal government to protect and resolve tribal water issues.<sup>369</sup> However, she acknowledged it will take large sums of money to change tribal paper water rights into the “real thing”—water.<sup>370</sup>

Various tribes sent representatives to the forum, and several of the representatives took the podium and spoke eloquently about their people’s relationship with water. Ronnie Lupe, Chairman of White Mountain Apache Tribal Council, spoke of the ongoing pumping of the groundwater underneath the White Mountain Reservation.<sup>371</sup> The Coconino Aquifer is being pumped dry by industries, and Lupe fears the reservation’s abundant forests will die from lack of root water.<sup>372</sup>

Albert Hale, President of the Navajo Nation, stated that water is survival to the Navajo.<sup>373</sup> He also mentioned that Indian reserved water rights, although based on law, are not respected in all situations.<sup>374</sup> Supporting this contention, he cited that when the water from Colorado river was being parceled out to Wyoming, Colorado, New Mexico, Utah, Arizona, California, and Nevada, no one in Congress mentioned

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366. See 1 *id.* at 26.

367. See 1 *id.* at 27.

368. See 1 *id.* at 40.

369. See 1 *id.* at 41. The fiduciary obligation imposed upon the United States government to secure water rights for tribes must be enforced for the tribes to have an equal voice in the western water policy. See 1 *id.*

370. See 1 *id.* at 45.

371. See 1 *id.* at 55.

372. See 1 *id.* Ronnie Lupe is a frequent speaker for tribal rights, and has a broad base of knowledge of the many issues facing tribes today.

373. See 1 *id.* at 59.

374. See 1 *id.* at 60-61.

Indian water rights.<sup>375</sup> Hale related a story that describes a lack of diligence on the part of the federal government in securing water for tribes that rely on agriculture for their livelihood. Hale related the details of an agreement between the Navajo Nation and the federal government over the Navajo right to use the water flowing in the San Juan River.<sup>376</sup> The Navajo Nation agreed to not assert its water right, in order that the water could be diverted to the Rio Grande River basin for an extensive irrigation system, which would irrigate of 110,000 acres of Navajo agricultural land.<sup>377</sup> Completion of the diversion works took ten years, while the federal government's promise of constructing irrigation on reservation land is still incomplete at this time.<sup>378</sup> Moreover, Hale questions why constitutional rights—such as due process of law, protection of property rights, and equal protection of the law—are ignored when Native American Indians assert reserved water rights.<sup>379</sup> It is his position that all Indian nations across the United States want is consistency and fairness to prevail in water rights adjudication.<sup>380</sup>

The forum continued into a second day, with speakers from both the federal government and tribal communities. The highlight speaker of the day was Secretary of the Interior Bruce Babbitt, who noted that the first water rights settlement attempt was in Arizona, when he was Governor.<sup>381</sup> From the dialogue presented at the forum, and from many other sources of discussion, it is apparent that one cannot escape recognizing that many divergent, conflicting, and compelling interests are bound together in water rights settlements.<sup>382</sup> Constituting a commission, such as the one above, may be the plug in the bucket tribes need to contain their water within their respective reservations. Although not bestowed with legal powers, the Commission's report should place Indian water rights on equal footing with non-Indian users. Today, tribal governments are fully aware and educated as to the importance of water in the West; not only to the tribes, but to the business sector. It is doubtful that any tribe will allow their reserved water to be taken to their own detriment.

It is estimated that at least fifty-five tribes are participating in water rights adjudication.<sup>383</sup> Unfortunately, this participation often does not translate into resolved issues. Indeed, tribes may be confronted with the problem of delivery of decreed water.<sup>384</sup> In spite of the myriad of issues that are inherent in stream-wide

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375. See 1 *id.* Hale may be accurate in the result; even if *Winters'* rights were mentioned, they quickly withered and died on the proverbial vine.

376. See 1 *id.* at 62.

377. See 1 *id.*

378. See 1 *id.*

379. See 1 *id.* at 63.

380. See 1 *id.* at 64.

381. See 2 *id.* at 63-64.

382. See 2 *id.*

383. See Morrison, *supra* note 8, at 10. Morrison's article is an excellent study of settlement by adjudication.

384. See *id.*

adjudications, and the ensuing settlement process, the tribes may take some solace in the fact that the *Winters* doctrine has survived for ninety years. It remains firmly anchored to reservation soil under the doctrine of *stare decisis*.

#### F. *The Colorado River Indian Tribes Reservation*

The Colorado River Indian Tribes Reservation was established by Act of Congress during the presidency of Abraham Lincoln.<sup>385</sup> The Mojave and the Chemehuevi tribes were the first beneficiaries of the reservation, but in 1945 the Navajo and the Hopi were granted a portion of the reservation as well.<sup>386</sup> The reservation lies in a valley and straddles the Arizona and California border.<sup>387</sup> The cropland is fertile and is the willing recipient of spring snowmelt as it courses down from the mountains to the Colorado River, flooding the farmland as the water spills over the banks.<sup>388</sup> Abundant fields of corn, beans, melons, pumpkins, and wild herbs grow in a climate where the sun scorches the earth, reaching daytime highs of over one hundred degrees fahrenheit.<sup>389</sup> The reservation, in existence for over 133 years, is large: “225,995 acres in Arizona and 42,696 acres in California,” all of which are low, arid river bottom land.<sup>390</sup>

The available water is used for irrigating crops on 84,500 acres where cotton, alfalfa, wheat, feed grains, and lettuce grow.<sup>391</sup> More than 50,500 acres remain viable for production.<sup>392</sup> In the river and irrigation canals, plentiful trout, bass, catfish, crappies, and bluegills abound for the fishermen.<sup>393</sup> The reservation water draws waterfowl, dove, and quail; rabbit and other game roam the land.<sup>394</sup> The tourism industry flourishes, as does other industry on the reservation.<sup>395</sup> “The Colorado River Tribes Industrial Park is fully improved with rail and highway access” to ship the produce to the waiting market.<sup>396</sup>

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385. See *Colorado River Reservation* (visited Nov. 17, 1998) <<http://thememall.com/Tribes/colorado.htm>>; *Partnerships Across Nations*, *supra* note 318. The purpose of the Act was to establish a reservation for the “Indians of said river and its tributaries.” See *Living In Arizona Colorado River Indian Tribes* (visited Nov. 17, 1998) <<http://www.azcentral.com/depts/azliving/indian/profile05.shtml>>.

386. See *Living in Arizona: Colorado River Indian Tribes*, *supra* note 385.

387. See *Colorado River Reservation*, *supra* note 385.

388. See *id.*

389. See *id.*

390. *Colorado River Indian Tribes Public Library/Archives* (visited Nov. 17, 1998) <<http://www.critlibrary.com>>.

391. See *id.*

392. See *id.*

393. See *id.*

394. See *id.*

395. See *id.*

396. *Id.*

The most important feature of the Colorado River Indian Reservation is the senior water rights the tribes hold: 717,000 acre-feet of the Colorado River belong to the tribes.<sup>397</sup> This is considerable because the tribes hold almost a third of the allotment for the entire state of Arizona.<sup>398</sup> The AIARMA might seem superfluous in this situation, but it is not. The AIARMA is available if the Colorado River Indian Tribes irrigation water decreases. The PIA standard would pertain to any water rights adjudication, thus insuring continued production on the reservation and fulfilling the purpose of its creation.

## VI. CONCLUSION

Native American Indians have achieved success as farmers in the past and continue to realize success as we approach the twenty-first century. Native American Indians' staple crops, such as beans, corn, and squash are still planted, both here in the United States and all over the world. The USDA is cognizant of Native American Indians' unselfish contribution to our agricultural sector. This is the impetus for the USDA to establish government-to-government relations with Native American Indian tribes.<sup>399</sup> In addition, Congress has stepped in, albeit in a less than result-oriented manner. The AIARMA may be fraught with unplugged holes. The absence of any provision in the AIARMA for funding irrigation projects on Indian reservations is not just a hole; it is a crack in the dam. A dam with a crack in it cannot be counted on to hold water. If the *Winters* decision remains intact, survives state-wide adjudication of Indian reserved water rights, and the APHIS fulfills its purpose, the tribes should be able to retain one water, one air, one Mother Earth. It has been a long time since the land of the ancient Hohokam appeared as a "sea of green," and, although not all tribes are agriculturally tied to the land, it is fair to say that reservation land is tied to the tribe. Water, a blessing from which many other blessings flow, must forever flow on Native American Indian reservations, before, during, and after a long *Winters* season.

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397. See *Living in Arizona: Colorado River Indian Tribes*, supra note 385.

398. See *id.*

399. See *Partnerships Across Nations*, supra note 318.