

ECONOMIC IMPACT OF ALTERNATIVE RESOLUTIONS  
OF NEW MEXICO PUEBLO INDIAN WATER RIGHTS  
Volume II

An Economic and Demographic Profile  
of New Mexico Pueblo Indians:  
An Historical Perspective

by

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## PREFACE

This report represents one of three volumes that contain results of a three-year research project entitled "The Economic Impact of Alternative Resolutions of New Mexico Pueblo Indian Water Rights." The project was funded by the New Mexico Water Resources Research Institute through the U.S. Department of the Interior, Office of Water Research and Technology.

Volume I, Pueblo Indian Water Rights: Struggle for a Precious Resource, discusses the various legal doctrines that may form the basis for ultimately determining the priority and quantification of Pueblo Indian water rights. This volume is available in hardcover from the University of Arizona Press, 1615 E. Speedway, Tucson, AZ 85719.

Volume II, An Economic and Demographic Profile of New Mexico Pueblo Indians: An Historical Perspective, WRRRI Report No. 201, provides a reference source for the specific implementation of legal scenarios with respect to the quantification of Pueblo Indian water rights, whether it be a historic use, expanding right or practicably irrigable acreage standard. This volume is available from the New Mexico Water Resources Research Institute, Box 3167, NMSU, Las Cruces, NM 88003. Appendices D.1-D.14, which are listed in the table of contents, profile each pueblo by population, land use, and economy. Each appendix carries a copy charge and is available separately as WRRRI Report No. 201-D.1-D.14.

Volume III, Economic Impacts of Alternative Resolutions of Pueblo Indian Reserved Rights in the Rio Grande Basin, WRRRI Report No. 202, discusses the economic results of the simulation of several alternative resolutions of Pueblo Indian water rights using an input/output model of the Upper Rio Grande basin. This volume also is available from the New Mexico Water Resources Research Institute. The technical appendix to Volume III carries a copy charge and is published separately as WRRRI Report No. 202-TA.

## ABSTRACTS

### Volume I

Pueblo Indian Water Rights: Struggle for a Precious Resource, explores the richness and diversity of legal theories applicable to the water rights of the New Mexico Pueblo Indian, the original settlers of the Upper Rio Grande. Under each theory the key issues are the priority right in time of the Pueblo Indians and the quantity of the water right. Three separate, but applicable legal doctrines--aboriginal, treaty and Winters--are discussed along with the complications arising from the Pueblo Lands Acts of 1924 and 1933. Aboriginal water rights theory reflects the status of the Pueblo Indians as the original settlers of this region and give the Pueblo Indians a paramount water right priority in time. However, the actual quantity which arises with this aboriginal right remains debatable under either an historic use or expanding right doctrine.

The treaty right theory rests on the applicability of Spanish and Mexican water law to the Pueblo Indians based on their status as Mexican citizens at the time of the Treaty of Guadalupe-Hidalgo. This treaty right theory would provide the Pueblo Indians a priority based upon the principles of the prior appropriation doctrine with quantification based upon an expanding need principal which considers the rights of third parties and community equity. The Winters right rests upon a reservation right as developed in the Winters v. United States and Arizona v. California decisions. Priority of the Pueblo Indian water right would be determined by the date of "reservation" and the quantity by the principle of "practicably irrigable acres."

The Pueblo Lands Act of 1924 and 1933 have complicated the entire issue of Pueblo Indian water rights. The State of New Mexico argues that this law

limited the Pueblo Indian water rights by the water rights appurtenant to non-Indian lands. However, the Pueblo Indians argue that this law can be interpreted as giving the Pueblo Indians an aboriginal water right with a practicably irrigable acreage standard for quantifying those rights. Six different new interpretations of Pueblo Indian water rights are explored as arising from the Pueblo Land Acts.

This volume concludes with a presentation of the historical evidence of the inability to resolve the issue of Pueblo Indian water rights, a discussion of the physical parameters of a judicial resolution, and an outline of the legal and political realities which represent potent obstacles to an eventual resolution. In the concluding chapter a resolution is suggested based upon principles of equity and fairness but which can be accommodated within the basic framework of existing state water laws. Existing water rights can be purchased by the federal government and given to the Pueblo Indians in accordance with their expanding needs as a community.

## Volume II

An Economic and Demographic Profile of New Mexico Pueblo Indians: An Historical Perspective, provides a reference for the specific implementation of Pueblo Indian water rights quantification based upon different legal scenarios. As explored in Volume I, quantification can take the form of historic use of water, an expanding use to water based upon an expanding Pueblo economy and/or practicably irrigable acres. In each instance specific data are required concerning each Pueblo for determination of an appropriate quantity of water right.

Volume II, then, presents a comprehensive picture of the Pueblo Indian economy from earliest recorded history to the present day. Historical data series are included for population, irrigated acres, and where possible, crop

values and livestock inventory. A thorough search of all available literature on the Pueblo Indians from the history, political science, anthropology and economics fields was made. The data are sometimes conflicting and many gaps in the historical series occur. The quality of data on the New Mexico Pueblo Indians is quite inadequate. One expects this of their earliest recorded history, but it is true even of data from the 1980 Census. Substantial revisions of the 1980 population estimates were made in 1982, and there is much confusion in the data between Pueblo Indians living on and off the reservation. Recent federal welfare assistance programs have provided incentives for distortions in Pueblo Indian data. The Pueblo Indians themselves measure labor force and unemployment data which are used in the allocation of federal assistance funds. There is a great incentive to overstate unemployment in order to receive a greater share of federal assistance. Thus, you observe great discrepancy between data reported by the Pueblo Indians through the Bureau of Indian Affairs and data reported by the New Mexico Employment Security Commission and the U.S. Department of Labor.

### Volume III

Economic Impacts of Alternative Resolutions, discusses the specific economic consequences of different legal outcomes of Pueblo Indian water rights in the Upper Rio Grande basin. These impacts, although expressed in different economic forms according to the scenario modeled, describe the social opportunities precluded by specific alternative quantifications of Pueblo Indian water rights. The specific impacts are described using solutions of an input/output linear programming model of five regions in New Mexico, with each region consisting of 24 economic sectors. The model is specified for three regions in the Upper Rio Grande basin (i.e., above Elephant Butte Reservoir), with constraint on the model solution provided by available water resources.

The analysis projects economic growth and other changes affecting the region to the year 2000, with the model originally calibrated to reflect observed economic conditions in 1975. Naturally available water supplies in the Upper Rio Grande are augmented in the 2000 projection by the San Juan-Chama transmountain diversion. The baseline solution (before change in Pueblo Indian water rights over 1975 levels) describes output in the sectors of each Upper Basin region and concludes that no absolute water scarcity condition will exist in the Upper Rio Grande Region which would constrain this economic development projection. Alternative scenarios from these baseline conditions associated with increased Pueblo Indian agriculture generally describe increases in output and water scarcity. An alternative scenario, describing the leasing of water by the Pueblo Indians, shows specific economic impacts which are dependent on the lease price charged. In general, the model describes changes in the geographic distribution and use of available water resources in the Upper Rio Grande basin. On the whole, the economic impacts associated with the specific quantifications of Pueblo Indian water rights appear at worst neutral, with the potential for positive net economic benefits in the Upper Basin associated with specific resolution scenarios. These economic impacts are described as changes in output and water utilization by Upper Basin society (both Indian and non-Indian), but are unable to assess the cultural impacts associated with the specific Pueblo Indian water right scenario modeled.

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SECTION 1  
INTRODUCTION

I. Identification of the Pueblos

This study aims at drawing socioeconomic profiles at 14 Pueblos located in the Rio Grande basin in the state of New Mexico. The Pueblo of Zuni is excluded because it is situated outside the basin, whereas the Pueblos of Nambe, Pojoaque, San Ildefonso, and Tesuque are excluded entirely from this study because of the pending litigation of their water rights in the Aadmott case.

The Rio Grande bisects the lands of six of the 14 Pueblos and borders the lands of two others. Tributaries of the Rio Grande run through each of the six other Pueblos. The lands of the Pueblos under study are located in nine New Mexico counties, and may be classified according to four linguistic groups: Tiwa, Tewa, Towa, and Keresan. Table 1 lists the names of the Pueblos, their respective languages, their locations by county, and the rivers which run through or border their lands; a map labeled Diagram 1 is also provided for reference.

II. Brief Historical Overview

Early Contact

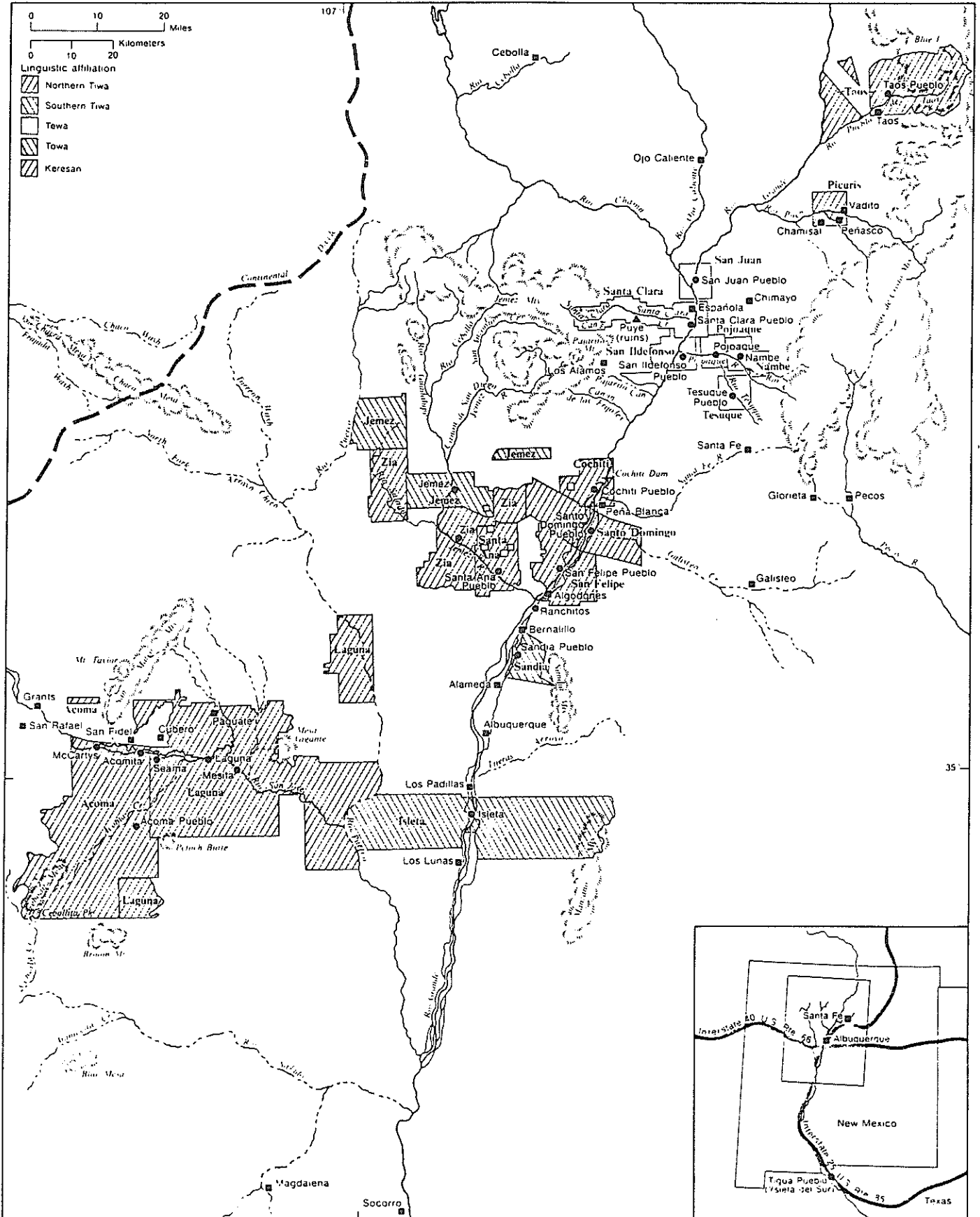
The first European mention of the Pueblos dates back to the 1530's. There were reports of agricultural communities inhabiting large towns in the upper Rio Grande. Centuries before initial contact with Spanish colonial settlers, however, the Pueblos had been sedentary inhabitants of the Rio Grande basin and adjacent regions in the southwest. Evidence of domestic plants grown in the southwest dates back to at least as early as 2000 B.C.<sup>1</sup> Settled village life based on irrigated agriculture was already quite developed by 900 A.D.<sup>2</sup> By

TABLE 1

IDENTIFICATION OF PUEBLOS BY NATIVE LANGUAGE,  
COUNTY LOCATION AND RELEVANT RIVER(S)

Name	Language	County	River(s)
Taos	Tiwa (Northern)	Taos	Rio Grande, Rio Pueblo de Taos, Rio Lucero
Picuris	Tiwa (Northern)	Taos	Rio Pueblo
San Juan	Tewa	Rio Arriba	Rio Grande, Rio Chama
Santa Clara	Tewa	Rio Arriba, Santa Fe, Los Alamos	Rio Grande, Santa Clara Creek
Cochiti	Keres	Sandoval	Rio Grande, Santa Fe River
Santo Domingo	Keres	Santa Fe, Sandoval	Rio Grande
Jemez	Towa	Sandoval	Jemez River, Rio Puerco
Zia	Keres	Sandoval	Rio Salado, Jemez River
Santa Ana	Keres	Sandoval	Jemez River
San Felipe	Keres	Sandoval	Rio Grande
Sandia	Tiwa (Southern)	Bernalillo, Sandoval	Rio Grande
Isleta	Tiwa (Southern)	Torrance, Valencia, Bernalillo	Rio Grande, Rio Puerco
Laguna	Keres	Sandoval, Bernalillo, Valencia, Cibola	San Jose River, Rio Puerco, Rio Paguate
Acoma	Keres	Cibola	San Jose River

DIAGRAM 1  
INDIAN PUEBLOS OF NEW MEXICO



about the year 1000 A.D.:

evidence of soil and water control devices...that would have improved the productivity of fields becomes (sic) abundant... These devices occur in a variety of...forms: irrigation ditches, terraces, linear grids, field borders, and check dams.<sup>3</sup>

A principal motivation for the early Spanish explorers and settlers of the region was the illusion of gold and silver to be found in the north. Soon after the earliest reports on the Pueblos reached the Spanish, an expeditionary force lead by Francisco Vasquez Coronado was dispatched. A number of Pueblos were subdued by force and others received Coronado and his men with demonstrations of friendship. The Coronado and other sixteenth century expeditions set the pattern for Spanish-Indian relations that prevailed during the first half of the colonial period. The Coronado expeditionary force, for example, imposed levies on the native peoples in order to sustain itself. Those who rebelled under the forced burden were brutally punished. Women were molested, whole villages leveled and people burnt at the stake, leading, in the case of the Tiwa Pueblos, to mass abandonment of villages.<sup>4</sup>

Forced levies of food and clothing and the excesses of friars who wished to enforce Christianity upon the natives lead to numerous rebellions by the latter, always followed by sanguinary encounters. Many Pueblos were either destroyed or abandoned and the surviving inhabitants joined other Pueblos or nomadic tribes in the region.

The records of early Spanish expeditions in the 1500's mention 70 to 75 Pueblos, not including several language groups whose communities were not encountered. Juan de Oñate, who completed the conquest of New Mexico towards the end of the sixteenth century and established the first permanent settlements,

named more than 130 Pueblos. Population figures for the latter part of the sixteenth century vary widely, ranging from 16,000 to 248,000.<sup>5</sup>

Clearly, the population figures mentioned above present a problem to the researcher. Nevertheless, historians agree that the Spanish colonial period, at least until the middle of the eighteenth century, witnessed a great reduction in the Pueblo populations.

#### The Condition of the Pueblos and the 1680 Revolt

Although the number of Indians was considerably larger than that of non-Indian up to the end of the seventeenth century, the impact of colonial settlement was drastic. Around 1680 the Pueblos totaled approximately 17,000, while the non-Indian population did not exceed 3,000 including "mixed-bloods," Negroes and mulattos, as well as Spaniards.<sup>6</sup> In addition to the killing and destruction, the Indians were ravaged by famine and diseases. Their traditional way of life was cruelly encroached upon. Although land was still very plentiful, some of the Pueblos had to abandon their original lands and moved to other villages for safety. No longer were the native peoples free to establish new settlements when they felt that the soil in the cultivated land about their villages became depleted. Their religions, intimately tied to their mode of subsistence, were brutally repressed. Annual tribute in kind, generally in the form of maize and cotton blankets, was exacted through the encomiando system. The repartimiento system of forced labor, as well as the less common outright slavery, were particularly depised by the natives. According to Simmons the ratio of Spaniards to Indians up to about 1665 was such that the former's need for labor was more than adequately met. After 1665, however, famine and disease so reduced their numbers that they were

hard pressed to meet their labor obligations to the Spaniards, and had little time left to tend their fields.<sup>7</sup>

There were laws and royal ordinances nominally protecting the natives from Spanish excesses, but these were generally ignored. The Spaniards, particularly the friars at the missions, introduced to the Pueblos new crops and agricultural methods. They developed native animal husbandry and taught mechanical arts such as iron tool-making and repair.

Whatever benevolence there was on the part of the Spanish, however, fell far short of appeasing the deep discontent of the Pueblos, as the 1680 Pueblo Revolt clearly demonstrated. Tradition has it that delegations representing 19 Pueblos met in the Jemez and agreed to stage the rebellion.<sup>8</sup> Over 400 colonists, including 21 missionaries, were killed and the Spaniards forced to retreat. Twelve years of Pueblo independence followed. During that time, there were repeated Spanish attempts to reconquer New Mexico and internal conflict among the Pueblos themselves. In 1693 de Vargas reconquered the territory. Hundreds of Pueblo Indians were massacred or executed, and women and children were sold into slavery. Many Pueblos were again destroyed or abandoned. The Pueblo population dropped from about 17,000 to 14,000 as a result of death, starvation and enslavement of Indian prisoners who were sent south to work in the mines.<sup>9</sup>

### The Eighteenth Century

A new era began at the outset of the eighteenth century. The Pueblos were given royal land grants.<sup>10</sup> The encomienda system of tributes and the repartimiento system of forced labor were abolished. The friars toned down missionary zeal, which had often bred bitterness and caused confrontation. The Spanish colonists soon surpassed the Indians in numbers, but relations

between the two groups were now more cordial. The large haciendas which had ruthlessly exploited the labor of the Indians gave way, for the most part, to small family farms. Despite the continued cruelty of the district officers and the alcaldes, the Indians now had more recourse to the governors in Santa Fe who frequently acted to redress wrongs committed against the natives.<sup>11</sup>

The Pueblos, the mestisos and the Spaniards drew closer together against the common threat of the Apache, Navajo and Comanche. This threat was greatly reduced when Governor Juan Bautista de Anza secured in the 1780's a peace agreement with the Comanche, Ute, Navajo and Jicarilla Apaches. Only the remaining Apaches remained hostile.<sup>12</sup>

The overall situation of the Pueblos improved after the beginning of the eighteenth century. This is not to say that the Pueblos did not face great problems and hardships. Probably the most serious among these were the continued loss of land and the ravages of diseases which were brought by the settlers and against which the natives had no immunity.

Up until the year 1812, the Indians of New Mexico were held to be of minority status, formally--and for the most part nominally--under the protection of the Spanish Crown. They were exempt from certain tax and tithe obligations paid by ordinary citizens. The 1812 Spanish Constitution opened the way for formal equality under the law. By the end of the Spanish period, most of the Pueblos had established formal local governments.

#### The Mexican Period

Mexico gained its independence from the Spanish Crown in 1821. The Treaty of Cordoba made all Indians, including the Pueblos, nationals of the new republic.



Pueblo lands previously recognized by the Spanish Crown were given formal protection by the Mexican regime. There was not much change in the condition of the Pueblos after the declaration of Mexican independence. In fact, the central authority in Mexico City exercised little influence on New Mexico.

The laxity of local officials and the increasing immigration into New Mexico escalated the loss of Pueblo Indian lands and water rights to non-Indians. The condition of the Pueblos was further aggravated by the failure of the peace with the majority of the Plains Indians. This peace, which had been achieved by Governor de Anza, did not last during the Mexican period due to the negligence and negative attitude of the local officials. Again, the Pueblos and the Spanish-speaking population faced a common danger of raids by the nomadic tribes.

Increasingly, the interests of the Pueblos and the Spanish-speaking poor were converging. The Pueblos strongly opposed an 1835 plan by the governor to establish a public school system which they felt threatened their traditional way of life. In August, 1837 rumors that a direct tax was to be imposed upon local people angered both Indians and non-Indians. A bloody rebellion of poor Hispanos and Pueblo Indians successfully overthrew the Governor, who was replaced by Jose Gonzales, son of a genizaro (acculturated Plains Indian) and a Taos mother.<sup>13</sup> As the rebel leaders were preparing to send a delegation to Mexico City to explain their plight and declare loyalty, they were defeated by General Manuel Armijo at the outset of 1838.

Besides the growing closeness between the Pueblos and the rural Hispanos, another important development during the Mexican Period was the notable decline in the number of missionaries and the influence of the Church. By the 1830s

the Pueblos started bringing back to the open religious practices which they had been forced to relegate to secrecy. Religious identification, of course, continues to be a potent force influencing all aspects of Pueblo life.

### The Early American Period

Despite a Spanish ban on U.S. trade with New Mexico, there were sporadic attempts by traders to penetrate the region.<sup>14</sup> Following Mexican independence, regular trade was established over the historic Santa Fe Trail. Charles Bent, later to become governor of New Mexico, and Kit Carson were among the many who participated in the profitable business over the Trail, which was often subject to raids by the nomadic Indian tribes.

In 1841 the then independent Republic of Texas sent an army to conquer the eastern portion of New Mexico up to the Rio Grande. The Texans were routed by the Mexicans. Six years later, the U.S. Army of the West lead by General Kearny took control of New Mexico, facing virtually no opposition.

The Anglo-American conquerors promised the inhabitants freedom of religious worship and protection of their lands. The Treaty of Guadalupe Hidalgo formally declared New Mexico, which then included Arizona and southeastern Colorado, as a territory of the U.S. In accordance with the Treaty, Congress confirmed in 1848 35 grants made to the Pueblos.

There had been signs that the leaders of the Pueblos welcomed the U.S. conquest. Nevertheless, in January, 1847, Mexicans and Pueblo Indians rebelled against the Americans, killing Charles Bent, the first governor. Tomasito, the Taos Chieftain, and many other were killed in reprisal. The principal motive behind the uprising seemed to have been problems and increasing frustrations growing out of land grant conflicts.<sup>15</sup>

To the Hispanos who encroached upon Pueblo Indian lands were now added land-hungry Anglo settlers. The Pueblo Indians were firmly restricted to what remained of their grant lands, even portions of these were still subject to danger. According to Simmons<sup>16</sup> the danger of the loss of agricultural tracts and water rights became greater than during the Mexican period. Pueblo delegations to the sympathetic Governor Calhoun frequently complained that emigrants and California gold seekers forcibly took sheep, food and other material goods. A controversy over the issue of statehood for New Mexico resulted in sometimes extreme harassment of the Pueblo Indians by the partisans of both sides of the controversy.

Raids by nomadic Indians continued and the Pueblos pleaded for adequate protection. Indians from several Pueblos were recruited in campaigns to pacify the Navajo and Apache. Kit Carson defeated the Navajos in 1864, but the danger of raids continued until General Nelson A. Miles forced the surrender of Apache Chief Geronimo in 1887.

Although there was no more loss of life due to warfare, disease continued to endanger the Pueblo population. There was deep distrust of the Anglo-American and his ways. This distrust extended to the white man's medicine. As late as 1898-1899, a smallpox epidemic took a heavy toll in human lives in the western Pueblos. The Zuni's rejected government attempts to vaccinate them.

Towards the end of the nineteenth century, however, some Pueblos witnessed a reversal of the historical trend of decrease in their population. William F. Army, appointed Special Agent for the Indians of New Mexico in 1870, investigated the conditions of the Pueblos and started campaigning for measures to improve their lot. Some Pueblos were already showing interest in receiving government aid.

By 1913 there were already some signs that things might turn to the better for the Pueblos. Specifically, a 1913 Supreme Court decision extended to the Pueblos the same protection to which other Indian tribes in the U.S. were entitled. This and later government actions will be discussed in the following sections.

### III. Pueblo Population

As mentioned earlier, there were widely divergent reports about Pueblo population during the early years of Spanish colonization in New Mexico. Onate's figure of 16,000 can probably be considered a minimum estimate, whereas Sosa's figure of over 200,000 is considered a gross exaggeration.

Considerable numbers of Pueblo Indians were killed by the Spanish in wars of conquest and in reprisals following Pueblo revolts and uprisings. Onate's storming of Acoma in January, 1599, left hundreds of Indians dead. Numerous uprisings during the first few decades of Spanish rule were dealt with very harshly. Rebel suspects and innocent people were hanged or burned, villages destroyed or abandoned for more secure locations, and hundreds of people sold as slaves. In 1640 a severe drought and famine reportedly caused 3,000 deaths among the Indians of the region. Another drought and famine lasting from 1663-1699 also took hundreds, if not thousands of lives.<sup>17</sup> These hardships were aggravated by the oppressive weight of forced labor which took the Indians away from their own fields, often leaving their crops vulnerable to the settlers' cattle. The Indians naturally had no immunity to the diseases which the Spaniards carried from the Old World, and these quickly became the foremost enemy of the native population. The reconquest of New Mexico after the 1680 Revolt reduced the population from an estimated 17,000 to about 14,000.<sup>18</sup>

According to Simmons:

The greatest losses both in population and number of villages, were sustained during 1650-1700, although the nadir was not reached until about 1750. The rapid decrease in villages in the early contact period was owing partially to diminution of population, but also to voluntary consolidation of Indians in larger communities for defense.

Population decline was the result of multiple causes: drought and famine, warfare with Spaniards and nomads, and epidemic disease, but the last of these was the most important.<sup>19</sup>

Simmons mentioned epidemics of typhus, influenza, measles and smallpox as having caused thousands of deaths over the years. Over five thousand Pueblo Indians died in one smallpox epidemic between 1780-1781.

Before the first Spanish census of 1752, population figures for the Pueblos were cited by travelers and missionaries. Some of the early figures, therefore, are not very reliable. Fray Alonso de Banavidas provided some of the earliest figures (Table 2). He became chief prelate of New Mexico in 1626, and during the next few years, his friars reported having baptized about 30,000 Indians. Some students of Pueblo history consider these figures to be exaggerated in order to impress superiors and gain support for missionary efforts.<sup>20</sup>

Table 2 gives aggregate population figures for 14 of the 19 New Mexico Pueblos over a period exceeding three centuries. Despite the unreliability of some of these figures, a number of observations can be made with a fair degree of certainty:

1. Early contact with the Spaniards probably lead to a precipitious decline in Pueblo population.
2. The ravages of disease often took disastrous proportions as evidenced by the fact that there was hardly any growth in the population of the Pueblos over most of the eighteenth and nineteenth centuries.

TABLE 2  
 POPULATION OF FOURTEEN<sup>1</sup> NEW MEXICO PUEBLOS  
 1680-1980

<u>Year</u>	<u>Population</u>	<u>Notes</u>
1630	26,500 <sup>2</sup>	
1680	15,650 <sup>3</sup>	
1706	5,040 <sup>4</sup>	
1744	1,070 <sup>5</sup>	
1749	6,835	
1752	4,077 <sup>6</sup>	
1760	6,685 <sup>7</sup>	
1776	5,585	
1789	5,335	
1793	6,631	
1797- 1798	7,140 <sup>8</sup>	
1805	5,963	
1810	7,023	
1821	6,544	
1860- 1861	5,009 <sup>8</sup>	
1881	7,122	
1890	6,328	
1900- 1905	7,062 <sup>8</sup>	
1910	6,840	
1920	8,127	
1930- 1932	8,976 <sup>8</sup>	
1943	10,961	
1948- 1950	12,153 <sup>8</sup>	
1964	19,970	
1970	22,640	13,769 Indian residents according to the 1970 Census of Population

TABLE 2  
(continued)

Year	Population	Notes
1976	25,944 <sup>9</sup>	18,636 Indian residents according to the New Mexico Office of Indian Affairs; 22,974 according to the BIA Labor Force Reports.
1980	28,038 <sup>9</sup>	17,457 Indian Residents according to the 1980 Census of Population; 26,740 according to the BIA Labor Force Reports.

1 The following Pueblos are included: Taos, Picuris, San Juan, Santa Clara, Cochiti, Jemez, Santo Domingo, Zia, San Felipe, Santa Ana, Sandia, Isleta, Acoma, and Laguna.

2 Includes the following: 7 Keresan Pueblos, 15-16 southern Tiwa Pueblos, 8 Tewa Pueblos, the Pueblos of Acoma, Jemez, Picuris, and Taos.

3 Includes some Spaniards living in Taos and Acoma; does not include the Pueblos of Laguna and Zia.

4 Does not include Isleta Pueblo.

5 Generally considered an underestimate.

6 Does not include Zia Pueblo.

7 Includes 95 Hopis living in Sandia.

8 Figures are annual average estimates.

9 The seemingly inconsistent figures may be partly due to differences in the definitions of "Indian." The BIA Labor Force Reports are prepared by the Tribes themselves, and their membership criteria differ from those used by the BIA itself, which provides the tribal membership figures used in the main column.

Source: Marc Simmons, "History of Pueblo-Spanish Relations to 1821," (1630-1821, 1900-1905, 1930-1932, and 1948-1950 figures), Handbook of North American Indians, Vol. 9, editor Alfonso Ortiz (Washington: Smithsonian Institution, 1979); U.S. Department of Commerce, Bureau of Census, Indian Population in the U.S. and Alaska, 1910, (1881 and 1910 figures) (Washington: U.S. Government Printing Office, 1915); U.S. Department of Commerce, Bureau of the Census, Moqui Pueblo Indians of Arizona and Pueblo Indians of New Mexico, (1890 figure), Extra Census Bulletin, 11th Census, 1890 (Washington: U.S. Government Printing Office); "Annual Report, 1920," Section V, (1920 figure), Industries, Northern and Southern Pueblo Indian Agencies to Commissioner of Indian Affairs (Washington D.C.); United Pueblo Agency, Reservation Program, Part I-Basic Data (1943 figures), March, 1944; 1964-1980 figures from Bureau of Indian Affairs Census rolls.

3. There has been a gradual, sustained increase in population since the beginning of the twentieth century, especially since the end of the third decade. This is doubtlessly due to the acceptance by the Pueblos of modern medicine after a long tradition of distrust.

It is important to note that many Indians left their Pueblos and became integrated into the general population through intermarriage. As early as the 1749 Census, the number of Pueblo Indians reported living among the Spanish-speaking population was substantial. The figures given in 1749 listed 570 Pueblo Indians in Santa Fe and 200 in Albuquerque. There were probably many more "mixed-bloods" who became increasingly more acculturated into the Spanish-dominated society. In some cases, the offspring of mixed marriages gradually constituted themselves into independent communities close to the Pueblos. Such was the case of the mestizo town of Guachupangue next to the Pueblo of Santa Clara. By the late eighteenth century, the Pueblos were already a definite minority in their lands.

Table 2A lists some recent figures for the resident Indian population of the Pueblos. The figures clearly vary from source to source, the tribes themselves usually reporting higher proportions of their membership residing on the reservations than other sources. Nevertheless, it is clear that a considerable number of Pueblo Indians have left their reservations permanently. Even among the more "traditional" of the New Mexico Pueblos, many families and individuals continue to emigrate in search of better employment opportunities.

The apparent discrepancies in recent population figures for the Pueblos demonstrate the difficulty of research in this area (Table 2, footnote 9).



An example of this difficulty is demonstrated in Table 3 which lists the figures for the population of selected Pueblos as given by the 1980 Census of population before and after revisions were made.

The figures for the American Indian category were not revised. Yet the total population was revised upward. In the case of Picuris, the revision was a multiple of the original by a factor of approximately 4.6. The inhabitants of the villages of Penasco, Chamisal and Vadito which lie within the external boundary of the Picuris Grant were obviously included in the revision. Such explanations, however, are not always readily available.

#### IV. Pueblo Lands

Land has always played a central role in all aspects of Pueblo Indian life, and it continues to do so. The Pueblo Indians had developed an agricultural economy long before the arrival of the Spanish colonists. The abundance of land allowed them to occasionally move to new sites in order to avoid overcultivation of the land. Whenever the size of a particular community grew too large for the carrying capacity of the site that it occupied, an offshoot community would be established on a new site.

This condition of abundance of the land resource was reversed with the arrival of the Spaniards. These newcomers, and the Anglo-Americans after them, restricted the land base of the native peoples. During the early Spanish period, the decline in both the number of Pueblo villages and in Pueblo population went hand-in-hand with a dwindling of the land base. Large agricultural tracts were among the lands that were lost to the Pueblos.<sup>21</sup>

TABLE 2A  
 1980 CENSUS OF POPULATION FIGURES  
 FOR SELECTED PUEBLOS

<u>Name of Pueblo</u>	<u>Original Figure (Total)</u>	<u>Revision (Total)</u>	<u>American Indian</u>
Picuris	337	1,539	116
Sandia	683	2,692	217
San Juan	4,365	4,105	852
Santa Clara	1,421	4,693	716

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Source: U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population, Vol. 1, Characteristics of the Population, Chapter B, General Population Characteristics, Part 33, New Mexico, PC80-1-B33, (Washington: U.S. Government Printing Office, May, 1982).

The Spanish, the Mexican and the early Anglo-American regimes in New Mexico stipulated legal protection of lands assigned to the Indians or recognized to have belonged to them. Instances of trespass and encroachment upon these lands, however, were quite common. Recourse to local officials generally proved useless. Often those very officials were themselves implicated in the theft of Indian lands or, later at the outset of the Anglo-American period, involved in promulgating legislation that would facilitate the alienation of lands from Indian possession.

During the Spanish period, the Pueblo Indian land base comprised roughly the land grants proclaimed by the Spanish monarch and some surrounding marginal lands that were used for grazing. The Mexican regime and the Anglo-American territorial administration recognized these grants. Shortly after the U.S. conquest, the Treaty of Guadalupe Hidalgo was signed by the U.S. and Mexico. Articles VII and IX stipulated that the rights to private property established under the Spanish and Mexican regimes should be honored by the U.S.<sup>22</sup>

A surveyor general of New Mexico was appointed to study claims to private property within the territory. The Pueblos of Acoma, Cochiti, Jemez, Laguna, Picuris, San Felipe, San Juan, Santo Domingo, Zia and Zuni presented the original Spanish grant documents which they had received in 1689. These are known by the name of the Cruzate Grants. Sandia's grant was issued in 1748. The Pueblos of Isleta, Nambe, Pojoaque, San Ildefonso, Santa Ana, Santa Clara, Taos, and Tesuque did not have their original grant papers, but their delegates testified that they had occupied their lands within the memories of their oldest members.

Between 1858 and 1891 the original Spanish land grants of all the existing Pueblos were confirmed by acts of Congress, and patented by the President. The confirmations and patents of the grant lands, however, left a myriad of unsolved problems regarding the question of Pueblo Indian lands. There were numerous non-Indians residing within the grants, often on choice agricultural tracts.

An 1876 Supreme Court decision in the Case of U.S. vs. Joseph (94 U.S. 614) ruled that, since the Pueblos had reached a higher level of cultural and economic attainment than other Indians in the U.S. and its territories, they did not need the protection of the June 30, 1834 Act. This act extended U.S. protection to Indian tribes and their lands. The upshot of the 1876 ruling was that the Pueblos were considered free agents who could alienate their land in commercial transactions.

Also in the 1870s special agent for the Indians, William F. Arny, reported that there were numerous non-Indians, mostly Hispanos, residing on Pueblo grants. In 1881 1,000 whites were reported "unlawfully" residing on Pueblo Indian lands.<sup>23</sup> (Compare with Indian population for that year as given in Table 2). It was increasingly evident that the very existence of the Pueblo Indians was threatened unless some form of protection was extended to them.<sup>24</sup> The Enabling Act of 1910 calling for the incorporation of New Mexico as a state in the Union paved the way for extending U.S. protection over the Pueblo Indians. In a 1913 ruling, the Supreme Court reversed its 1876 decision.<sup>25</sup> This was tantamount to opening a "Pandora's box," as a great deal of controversy over land titles followed. An investigation revealed that approximately 3,000 non-Indian families, comprising

about 12,000 persons, maintained claims within Pueblo grants. The disputed area did not exceed one-tenth of the total area of Pueblo lands, but it was of utmost importance to the Indians, for most of it was irrigable land.<sup>26</sup>

Much surveying and investigation followed during the next 11 years, leading up to the June 7, 1924 Act which created the Pueblo Lands Board. The Board was assigned the task of drawing up reports and recommendations in order to pave the way for adjudicating claims to land titles and water rights relating to the Pueblos.<sup>27</sup> Thanks to the 1924 Act, the Pueblos were compensated for their losses of land, water rights and improvements "in those cases where title was extinguished by reason of negligence on the part of the U.S."<sup>28</sup> "Compensation Funds" were finally appropriated in 1935. These monies were deposited in the U.S. Treasury in trust for the Indians, later to be used largely for the purchase of land, and to a lesser extent for purposes of improving agricultural production on the Pueblos. Some of the non-Indian claimants had their titles confirmed while others were compensated for lands which they had settled in good faith prior to 1912.<sup>29</sup>

The confirmed non-Indian holdings scattered among the Indian community lands posed a land use problem. This problem, however, was largely dealt with using the "Compensation Funds" to acquire numerous tracts. The Pueblos also exchanged some outlying lands for lands owned by non-Indians. The Indian Reorganization Act of 1934 also appropriated funds for the purchase of lands within reservations.

The scene was set for the enlargement of Pueblo land holdings and use areas, often far beyond the boundaries of the original grants. The loss of traditional grazing areas adjacent to the Pueblos was partly compensated by

acquisitions of submarginal lands by the federal government. These acquisitions are usually referred to as "Resettlement Administration Purchases."<sup>30</sup> Lands were also set aside for Pueblo Indian use by orders of the Secretary of the Interior.

There remained in the 40's and 50's other complaints by certain Pueblos concerning lands which they felt rightfully belonged to them, but which remained outside their control. Most Pueblo Indian lands claims, however, have been dealt with satisfactorily over the years. The disputed Espiritu Santo Grant remained in title for the Hispanic Baca family until portions of it were purchased by the U.S. in trust for the Jemez and Zia Pueblos in 1956. Zuni, Zia, Laguna, and many other Pueblos benefitted from similar purchases and grants from the federal government. In 1970, a Congressional Bill was signed deeding about 50,000 acres, including the sacred Blue Lake, to Taos Pueblo. The long support of Anglo Americans, sympathetic to the Pueblo Indians, helped the people of Taos, as it did many other Pueblos.<sup>31</sup>

The approximately 600,000 acres of Pueblo Indian land grants, confirmed by the U.S. by the end of the nineteenth century, constituted less than half of the lands owned by the 19 Pueblos in 1933. By 1944, the 19 Indian Pueblos of New Mexico comprised an area of over 1,300,000 acres, but their total use area extended, through leases, to approximately 1,900,000 acres. According to a 1974 publication of the U.S. Department of Commerce, the 19 Pueblos comprised approximately 2,000,000 Acres (Table 3). In 1978 this figure was increased by approximately 4,850 acres and 16,250 acres of public domain placed in trust for the Pueblos of Zia and Santa Ana, respectively (Table 3). Table 3 indicates that the Indian Pueblos' land increased at least threefold since 1860. The 14 Pueblos in this study account for about 1,500,000 acres out of a 19 Pueblo total of about 2,000,000 acres.

TABLE 3  
LANDS OF NEW MEXICO INDIAN PUEBLOS

	<u>19 New Mexico, Indian Pueblos<sup>1</sup></u>	<u>14 New Mexico, Indian Pueblos<sup>2</sup></u>
Patented Spanish Grants <sup>3</sup>	604,747	525,241
1864	434,846	na
1873	505,657	na
1876	439,664	na
1890	906,845	629,935
1920	1,018,675	na
1933	1,278,486	na
1944 <sup>4</sup>	1,355,983	944,991
1962 <sup>5</sup>	1,864,547	1,386,367
1970	1,884,824	1,403,898
1974 <sup>6</sup>	1,974,001	1,493,078

na Not available.

1 Acoma, Cochiti, Isleta, Jemez, Laguna, Nambe, Picuris, Pogoague, San Felipe, San Ildefonso, San Juan, Sandia, Santa Ana, Santa Clara, Santo Domingo, Tesuque, Taos, Zia, and Zuni.

2 Acoma, Cochiti, Isleta, Jemez, Laguna, Picuris, San Felipe, San Juan, Sandia, Santa Ana, Santa Clara, Santo Domingo, Taos, and Zia.

3 Most of the grants were issued by the Spanish Grant in 1689 and patented by the U.S. in 1864. The Laguna Pueblo Grant and the Pueblo of Santa Clara Grant were the last to be patented in 1909.

4 Approximately 590,000 additional acres were leased by the 19 Pueblos for grazing. Of these, approximately 510,000 acres were leased by the 14 Pueblos.

5 Approximately 55,000 additional acres were leased by the 19 Pueblos for grazing. Of these, approximately 46,000 acres were leased by the 14 Pueblos.

6 A 1979 BIA publication indicates that the land status of New Mexico Indian Pueblos in 1979 was almost identical to the one depicted in the 1974 figures with two significant exceptions resulting from Acts of Congress dated October 21, 1978 (92 Stat. 1672 and 92 Stat. 1679). The two acts places title in the U.S. in trust for the Pueblo of Zia on 4,849.34 acres of public domain and for Santa Ana on 16,249.98 acres of public domain.

Source: Branch of Real Estate Services, "New Mexico Indian Pueblos, Land Status Report-1979," Albuquerque Area Office, Bureau of Indian Affairs, February 1, 1979.

The 14 Indian Pueblos in this study account for a substantial portion of the New Mexico counties in which they are located (Table 1). The percentage of Pueblo Indian lands in individual counties is complicated by the fact that some Pueblos' lands extend over more than one county. Isleta Pueblo lands, for example, are located in Bernalillo, Tarrant and Valencia. Isleta lands in Bernalillo alone, however, comprise about 17 percent of the total area of the county (about 130,000 acres out of about 750,000). Laguna and Acoma lands account for a substantial portion of the counties of Cibola and Valencia. On the low side, San Juan Pueblo accounts for less than 0.5 percent of Rio Arriba County.

#### V. The Decline of the Pueblo Subsistence Economy

Obviously, the amount of irrigable land available to the Pueblo Indians is of utmost importance. The question of Indian water rights has been the subject of much controversy over the years. Today, not only the Pueblo Indians, but also many other American Indian tribes, consider the availability of water as the most important factor in their future. According to one observer:

[n]othing is more important to the future of America's Indian reservations than water, and no subject has been fraught with more confusion or been more bitterly contested than Indian water rights... Fifty-five percent of the nation's 241 federal Indian reservations and nearly seventy-five percent of the country's 370,000 reservation Indians are in the arid and semiarid West where land without water is virtually valueless... [T]he capacity of Indians to survive as culturally distinct communities depends to a great extent on their success in obtaining a supply of water adequate enough to permit them to remain on their reservations.<sup>32</sup>

This view regarding the centrality of the water resource factor in the future of Indians seems to have many adherents among Pueblo Indian officials and advocates. Joe S. Sando, a Jemez historian and a prominent advocate for



Pueblo rights, believes that the loss of water resources to the Pueblos is a "far greater threat" than that of land alienation that faced the Pueblos in the late nineteenth and early twentieth centuries. He cites a number of statements made by Pueblo officials and public tribal petitions to back his views on this matter.<sup>33</sup>

The loss of agricultural lands has been a major concern for the Pueblo Indians since the early colonial period. When some of the Pueblo Indians abandoned their villages for safety, they left behind large tracts of irrigated lands, to most of which they never returned. The remaining lands were not under severe pressure at the outset, for enough marginal lands were available to satisfy the relatively small number of Spanish settlers. By the late eighteenth century, however, the Spanish population of 20,000-25,000 was more than twice the size of the Pueblo Indian population. The dwindling Pueblo population ravaged by warfare, famine and disease, left more agricultural tracts vacant. These were distributed by the Spanish authorities to new settlers.<sup>34</sup>

Much of the land that was lost to the Pueblo Indians in the Spanish, Mexican and the early Anglo-American periods was agricultural land, as has already been mentioned. Simmons states that the encroachment upon the Pueblo's agricultural tracts was particularly severe during the period of U.S. territorial rule, more so than during the Spanish and American periods.<sup>35</sup> Not until the court ruling in the 1913 case of the U.S. vs. Sandoval did the federal government recognize as its duty the protection of Pueblo lands against alienation.

The 1924 Act not only freed Pueblo Indians from the danger of further land alienation, but allowed for considerable expansion of the areas of the

reservations. Despite the substantial expansion that did occur, however, few Pueblos increased their irrigable acreage appreciably, and many experienced considerable reductions in this category of land (Table 4). Some of the variation over time in the number of irrigable acres as shown in Table 4 is due to the different definitions used (see notes on Table 4) and differences--and possibly errors--in reporting. The table starts with the year 1920, for which approximately 34,000 irrigable acres were reported for 18 Pueblos (all New Mexico Indian Pueblos except Zuni). Earlier reports, however, give aggregated figures for the agricultural and irrigable acreage of New Mexico Indian Pueblos. Late 19th century agricultural data reported by the Commissioner of Indian Affairs give the impression of very extensive agricultural land. The 1876 report of the Commissioner put the number of "tillable" acres for the 19 Pueblos at 50,000. The 1844-1879 figures of 132,000 acres of "tillable" land includes lands of Muache, Ute, and Jicarilla Indians of New Mexico as well as the Pueblos'. The 1887 and 1889 figure for the Pueblos (only) was given at 100,000 acres of "tillable" land. The figures given by the Commission of Indian Affairs for the 1910-1920 period, however, are very close to the 1920 figure in Table 4.<sup>36</sup>

The total figures for the year 1940 in Table 4 appear inconsistently small, while those for 1951 may be overestimates. The 1979 figures, on the other hand overstate Pueblo Indian ownership of irrigable land because they include some non-Indian owned land within the external boundaries of the Pueblos. The 1936, 1943, 1962, and 1970 figures are quite reliable (see sources of Table 4 figures) and they indicate that there was a definite decline in irrigable acreage for most of the Pueblos. The irrigable acreage reported for San Felipe, Zia, Sandia, and Laguna in 1962 was less than half

TABLE 4  
IRRIGABLE ACREAGE OF NEW MEXICO PUEBLOS  
1920-1979

Pueblo	1920 <sup>2</sup>	1936 <sup>3</sup>	1940 <sup>4</sup>	1943 <sup>5</sup>	1951 <sup>6</sup>	1962 <sup>7</sup>	1970 <sup>8</sup>	1979 <sup>9</sup>
Taos	3,887	6,800	2,015	5,700	8,000	3,272	3,272	5,163
Picuris	764	351	220	350	350	215	215	2,650
San Juan	2,828	2,020	922	1,998	2,000	1,200	1,200	2,964
Santa Clara	2,252	1,787	700	1,500	2,000	920	950	2,344
Cochiti	1,250	1,680	1,364	1,867	1,900	880	880	1,204
Jemez	1,570	2,500	1,600	2,407	2,500	1,828	1,828	1,405
Santo Domingo	1,680	4,138	3,478	4,278	4,545	3,611	2,384	2,494
Zia	1,505	1,000	650	1,000	2,500	516	516	561
San Felipe	1,097	3,333	3,230	3,836	4,116	1,670	1,670	1,872
Santa Ana	580	1,113	714	1,114	1,382	1,150	1,150	1,240
Sandia	2,700	3,418	1,618	3,418	3,547	1,550	1,760	2,471
Isleta	4,000	6,206	4,683	6,183	6,352	4,570	4,570	4,133
Acoma	982	2,500	1,850	2,300	2,500	1,800	1,800	1,720
Laguna	<u>7,020</u>	<u>5,000</u>	<u>3,400</u>	<u>3,700</u>	<u>5,000</u>	<u>1,690</u>	<u>1,690</u>	<u>1,750</u>
TOTAL (14)	<u>31,660</u>	<u>41,846</u>	<u>26,444</u>	<u>39,651</u>	<u>46,692</u>	<u>24,872</u>	<u>23,885</u>	<u>31,971</u>
TOTAL (18) <sup>1</sup>	<u>33,830</u>	<u>45,070</u>	<u>28,104</u>	<u>41,851</u>	<u>52,862</u>	<u>26,273</u>	<u>25,286</u>	<u>35,632</u>

1 Includes Nambe, Pojoaque, and San Ildefonso as well as the 14 Pueblos in the study.

2- "Ultimate acres irrigable and susceptible to irrigation with apparent water supply, New Mexico Pueblo Indians." "Ultimate" irrigable acres for Taos, Picuris, San Juan, and Santa Clara were estimated based upon 1920 population figures; only total irrigated acres for all northern Pueblos were available for the year 1920.

3 "Estimated Total of Irrigable Lands," including "Area Under Constructed Canals." During the year 1936, the figure for the "area under constructed canals" for the 18 Pueblos was given as 34,624 acres, which amounts to about 77 percent of the "estimated total of irrigable lands."

4 Farmland--arable acreage, probably all irrigable.

5 "Ultimate Acres Irrigable and Susceptible to Irrigation with Apparent Water Supply, New Mexico Pueblo Indians."

6 "Ultimate Irrigable area."

7 "Presently Developed Irrigated Area Under Ditch."

8 Irrigated farmland including cropped, fallow and idle acres.

9 "Estimated Currently Irrigable Acres within (External) Boundaries of Pueblos," includes acres owned by non-Indians within the external boundaries.

TABLE 4  
(continued)

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Sources: 1920 and 1921 Annual Report of Northern and Southern Pueblo Indian Agencies to Commissioner of Indian Affairs, Washington, D.C.; 1936 Annual Report by District 5 of the United States Indian Irrigation Service, National Archives Record Group 75; letter from Alan Laflin to Fred O'Cheskey, June 24, 1940, LS, RG75, FRC, Denver; James A. Vlasich, "Transition in Pueblo Agriculture, 1938-1948, New Mexico Historical Review, Albuquerque (55:1, 1980) p. 31; Reservation Program, United Pueblo Agency, March, 1944, Part I-Basic Data, U.S. Bureau of Indian Affairs; letter from the Soliciter General to the Attorney General with a tabulation showing the ultimate irrigable acres of the New Mexico Indian Pueblos, March 7, 1952, National Archives Record Group 60; Texas v. New Mexico, Supreme Court No. 9 Original, October term, 1951 (letter is filed separately in National Archives Record Group 48, Reclamation Bureau File No. 8.3 entitled, "Rio Grande-Distribution of Waters-Compact (Part 4)"); Margaret M. Meaders, "The Indian Situation in New Mexico," New Mexico Business, (Albuquerque: Bureau of Business Research, 1963), Vol. 16, no. 1, 3, 7, and 8 (January, March, July, and August, 1963) pp. 1-2; Bureau of Indian Affairs, Albuquerque Area Office, "Annual Crop Reports" New Mexico Indian Pueblos, 1970; and "Regional Aquifer Systems Analysis," preliminary data provided by the New Mexico State Engineer's Office, 1979.

than that for 1943. In fact, only for Santa Ana was the 1962 figure higher than that for 1943, and even then the gain was very small. The total figure of about 42,000 fell about 40 percent to about 25,000 in 1970.

The factors involved in the changes in irrigable acreage are numerous and very complex. There have been a number of government programs aimed at improving Pueblo Indian agriculture. Some of these programs have resulted in definite progress in some areas, but the benefits have been rather limited. Often, the Pueblo Indians did not cooperate with government officials out of distrust or basic disagreement with governmental schemes.

During the last three decades of the nineteenth century, there were complaints by the Republic of Mexico that increasing use of the Rio Grande waters by North Americans was hurting Mexican communities to the south. These complaints resulted in the commissioning of a study of Rio Grande water use, the results of which were published in 1896. The study concluded that new irrigation projects in Colorado were actually diminishing the water supply of New Mexico, as well as that of El Paso, Texas and Juarez in Mexico. The issue was raised again in January of 1940 by the Upper Rio Grande Drainage Basin Committee, formed under the National Resources Planning Board. According to Vlasich:

The committee's purpose was to allow various parties to discuss irrigation projects and protect against the possible loss of water rights to new developments along the [Rio Grande]. Because projects in Colorado, New Mexico, and Texas utilized almost all of the water of the Rio Grande, the future of new irrigation among the Pueblos was in jeopardy.<sup>37</sup>

Important socioeconomic changes in Pueblo Indian life have resulted in a general decline in Pueblo agriculture. The conquest of New Mexico by the U.S. and its subsequent and gradual integration into a cash economy accompanied by an influx of new settlers had profound effects on the subsistence-based Pueblo social organization. When New Mexico became a territory of the U.S., the

volume of trade with the U.S. began to rise at an accelerating rate. The advent of the railroad in 1880 naturally resulted in further trade expansion. At the time, subsistence agriculture dominated Pueblo Indian economic life. Yet the expanded trade with Anglo-Americans made numerous products, including foodstuffs available to the natives of New Mexico. By the turn of the century a substantial number of Pueblo Indians engaged in work off the reservation. There is some evidence that men were encouraged to work off the reservations for seasonal wage work.<sup>38</sup> According to Brown<sup>39</sup> this movement to wage work may have been a factor in the decline of agriculture at Picuris. In many cases railroad construction and the operation of timber companies on Pueblo lands resulted in damages to irrigation systems and loss of farmlands.<sup>40</sup>

Besides the expansion of Pueblo land holdings, the late 1930's also witnessed the start of a number of government assistance programs, mostly of a technical nature. An Indian Irrigation Service, affiliated with the Bureau of Reclamation, an Indian Roads Division, and an Indian Division of the Civilian Conservation Corps were formed. The Soil Conservation Service, the Agricultural Adjustment Administration (AAA), and other government outfits associated with the New Deal, were represented in assistance programs for the Pueblos.

According to Aberle:

During the years 1934-1944, the following facilities were constructed [in Pueblo reservations]: 4 large and 53 smaller bridges, 318 miles of truck and secondary trails, 95 miles of stock trails and driveways, 1.25 miles of boundary and cross fencing, 56 cattle guards, 35 corrals; planting of 20,000 trees, 584 acres of range grass, 6,732 acres of chamiza; contour furrowing 5,685 acres; terracing 16 miles; and some 1,085 gulleys or arroyos were plugged with stone and wire structures; 47 deep and 9 shallow wells were drilled; 122 springs were developed; 119 stock tanks or small reservoirs; 119 stock tanks or small reservoirs, and some 263 impounding, spreader or diversion dams were constructed.<sup>41</sup>

The Agricultural Adjustment Administration offered cash incentives to Pueblo Indians who participated in certain agricultural improvement activities, such as renovating alfalfa fields, leveling of lands, manure-plowing, and fertilizer use.<sup>42</sup> The United Pueblos Agency ran two boarding schools which emphasized vocational training, including instruction in craftwork and agricultural techniques. One school, in Santa Fe had approximately 550 students and the other in Albuquerque about 700.<sup>43</sup> Improved seed and fruit trees were introduced, and emphasis laid on the use of fertilizers and on crop rotation.<sup>44</sup> Other efforts included instruction in food preserving, the creation of a fund for different types of agricultural credits, and the introduction of modern farm machinery.<sup>45</sup>

The Middle Rio Grande Conservancy District was created in 1925 with the aim of planning, constructing, and operating a coordinated modern irrigation and flood control project. Six Pueblos are located within the exterior boundaries of the District: Cochiti, Santo Domingo, San Felipe, Santa Ana, Sandia and Isleta. The Bureau of Indian Affairs undertook the financial responsibilities of the six Pueblos towards the District. The six Pueblos have gained some benefits to their agricultural lands from work associated with the Conservancy district. The water supply has become more reliable,<sup>46</sup> and land consolidation into larger, more economical tracts has benefitted San Felipe, Isleta, and especially Sandia.<sup>47</sup>

The government programs of the late 1930's and early 1940's had mixed results. Aberle compares Pueblo agricultural production in the years 1936 and 1943 and notes improvements in animal husbandry (see following section) and in

some farming categories. Forage crops, cereal crops and garden produce increased by about 30 percent, 13.5 percent, and 123.5 percent, respectively. Fruit production declined by about 51 percent, a decline which she attributed to the replacement of old, unproductive trees by potentially better species which had not yet reached maximum productive capacity.<sup>48</sup>

Joe S. Sando, despite his recognition of some improvements brought about by government projects, expressed some important reservations. Sando pointed out that the federal government "did not hesitate to charge the Indians" for many of its services.<sup>49</sup> In some cases, he charged, the Indians were charged for services which proved to be useless. The Pueblos were burdened with debts and liens against them. This may have hampered possibly better cooperation on the part of the Indians. Sando also criticized federal soil conservation projects which encouraged the Pueblo farmers not to plant in some cases.<sup>50</sup>

Improvements in land and irrigation, such as the projects of the Middle Rio Grande Conservancy District, may have attracted newcomers. In any event, population growth in the Pueblo region increased demands on the Indians' water supply. According to Vlasich:

The usurpation of Pueblo water rights by users upstream led to yearly water shortage for seven of the tribes, and the demands of farmers downstream caused additional loss of water.<sup>51</sup>

Often, the Pueblo Indians refused to cooperate with government projects. The use of fertilizer was opposed by most of the Pueblo farmers, who relied on silt deposits to enrich their soils. Many failed to see how refraining from planting their fields would help them. Government projects also emphasized individualism and competition rather than accepting the communal nature of Pueblo agriculture.<sup>52</sup>



In the spring of 1941, the Rio Grande overflowed causing severe flooding. A great deal of agricultural land, including many Pueblo tracts, were washed away.<sup>53</sup>

Another extremely important reason why there were no important gains in Pueblo agriculture in the 1930's and 1940's is the reluctance of non-Indians to sell agricultural lands. Of the nearly 77,500 acres which the Pueblos acquired between 1933 and 1943, only 2,869 acres were farmland acres. Over the same ten years, 1,000 more acres were added to existing farmland through government assisted efforts. That is, a total of 3,869 acres of farmland<sup>6</sup> were added to Pueblo ownership.<sup>54</sup>

Since the 1940s, other factors have contributed to a further decline in the relative importance of agriculture in Pueblo Indian economies. Land inheritance patterns among Pueblo Indians have resulted, over the years, in numerous, small, uneconomic units.<sup>55</sup> There is clearly a great need for land consolidation and redistribution in most Pueblos.

Joe S. Sando refers to certain more recent government projects as a further threat to Pueblo Indian irrigation. The diversion of the waters of the San Juan and Chama Rivers over the Continental Divide into the Rio Grande is seen as a factor adding to the complexity of Indian water rights. Some Indians fear that they may be the losers in a resolution of the present controversies over these rights. Another fear expressed by Sando pertains to the activities of the U.S. Army Corps of Engineers. Dams and reservoirs built by the Corps may lead to water uses which endanger the supply of water to the Pueblos. Projects such as these also encourage development schemes around the new recreational sites which also add to the pressure on the water supply.<sup>56</sup>

The lack of capital among Pueblo Indians has also hindered economic development. Commercial loans and the Farm Home Administration both require acceptable collateral against agricultural loans. Indian land, however, has not been accepted as collateral because of its trust status. As for the Bureau of Indian Affairs, some observers believe that it did not give sufficient attention to the problem in question. A report by a special task force appointed by the American Indian Policy Review Commission points to the relatively small volume of the BIA's agricultural loans in 1975 as evidence of the BIA's shortcomings in the area of agricultural development. Table 5 gives a percentile breakdown of the BIA's revolving loans by type for fiscal year 1975. Only 16 percent of the BIA revolving funds went to agriculture, as compared to 34.6 percent for housing.

A 1979 report by a Task Force on Reservation and Resource Development and Protection charges that the BIA has long favored a policy of encouraging Indians to lease their farmlands to non-Indians. BIA officials base this policy, according to the report, on the following: the small size of individually owned plots, the alleged Indian dislike of farming as compared to ranching, and the lack of capital and technology.<sup>57</sup>

In 1959, Dorner reported the following:

There are no plans to speed up the development of irrigable land. There is no program to get Indians established on sufficient-sized units. There is no program to solve the problems of land, management, and inadequate credit for undertaking development. Nor are such programs being planned.<sup>58</sup>

The integration the Pueblo Indians into a cash economy has been an exceedingly important factor in the relative decline of agriculture in Pueblo economic life. In this respect, Indian communities experienced socioeconomic changes similar to other previously subsistence-based economies. In the case

TABLE 5

DISTRIBUTION BY TYPE OF NEW BIA REVOLVING LOANS  
TO INDIVIDUALS, FISCAL YEAR 1975

<u>Type of Loan</u>	<u>Percent</u>
Agriculture	15.9
Farming	8.4
Livestock	7.6
Business Enterprise	22.7
Consumer Credit	11.3
Education	0.4
Fisheries	1.3
Land	5.8
Housing	34.6
Refinancing	7.9
TOTAL PERCENT	<u>99.9</u>
TOTAL	<u>15,315,532</u>

Source: U.S.D. Taken from Report on Reservation and Resource Development and Protection by Task Force Seven, Final report to the American Indian Policy Review Commission, p. 34.

of the Pueblo Indians, exchange in kind, based on a type of credit system, was the rule as late as the early 1940s.<sup>59</sup> Agriculture was a less profitable endeavor to many Pueblo Indians than off-reservation wage work. A number of observers believe that this decline in agricultural employment was particularly true after World War II.<sup>60</sup> It should be noted that the Pueblo Indians enlisted in the Army and Navy in a greater percentage than any other group in the U.S. during the war years.<sup>61</sup> Many of those who returned from the war, perhaps considerably more "acculturated" than others in their Pueblos, sought work outside the reservations. The now escalated trend continued until the present time.

Some observers charge the federal government with exercising paternalism vis-a-vis the Indians which is partly responsible for perpetuating a high level of unemployment. The high level of dependence upon government aid is cited by these observers as an important factor in the relative decline in agricultural activity. Curiously enough, as early as 1860, Indian Agent Silas Kendrick warned against U.S. government paternalism towards the Indians:

They (the Pueblos) are eminently a self-supporting race, and it would be an injury to them to sap their independence by teaching them to rely to any extent upon the government for their means of subsistence.<sup>62</sup>

Only more detailed and specialized studies can establish which factors were actually involved in the decline of Pueblo Indian agriculture. That it did decline, however, is beyond doubt. Table 6 clearly demonstrates that the total area cultivated by the Pueblo Indians certainly did not keep pace with their population trends as shown in Table 2. The early figures in Table 6 manifest considerable fluctuations, with peaks in the early 1880s and the middle of the second decade of the nineteenth century. Another peak was

TABLE 6  
 NEW MEXICO INDIAN PUEBLOS  
 CULTIVATED ACREAGE  
 1865-1973

<u>Year</u>	<u>All New Mexico, Indian Pueblos</u> <sup>1</sup>	<u>14 Pueblos</u> <sup>2</sup>
1865	12,360	na
1873	13,940	na
1876	13,000	na
1879	18,000	na
1881	28,000 <sup>3</sup>	na
1884	25,000	na
1887	10,000	na
1889	4,500	na
1891	5,000	na
1900	18,379 <sup>4</sup>	12,863
1911	16,600	na
1914	31,900	na
1918	27,160	na
1920	14,714 <sup>5</sup>	14,152
1935	16,921	14,693
1936	15,917	13,307
1937	25,241	20,310
1939	18,852	15,454
1940	19,308	15,833
1943	17,933 <sup>6</sup>	17,159
1945	19,872	16,947
1950	17,036	13,764
1955	13,859	10,990
1960	14,631	11,485
1965	14,920	11,621
1970	13,955 <sup>6</sup>	13,218
1973	14,234	12,334

TABLE 6  
(continued)

- 
- na Not available.
- 1 Except where specified, the following 19 Pueblos are included: Acoma, Cochiti, Isleta, Jemez, Laguna, Nambe, Picuris, Pojoaque, San Felipe, San Ildefonso, San Juan, Sandia, Santa Ana, Santa Clara, Santo Domingo, Tesuque, Taos, Zia, and Zuni.
  - 2 The following Pueblos are included: Acoma, Cochiti, Isleta, Jemez, Laguna, Picuris, San Felipe, San Juan, Sandia, Santa Ana, Santa Clara, Santo Domingo, Taos, and Zia.
  - 3 Include lands cultivated by Muache, Ute, and Jicarilla Indians. The majority of the 28,000 acres, however, were probably cultivated by the Pueblos; compare with the 1884 figure.
  - 4 The source gives the total figure for 19 individual Pueblos as 18,378  $\frac{3}{4}$  acres, whereas the 19 figures add up to 18,268  $\frac{3}{4}$ . Clearly, there is an error in the tabulated figures in the source (see sources).
  - 5 This figure does not include Zuni's cultivated acreage. The 1920 Report of the Commissioner of Indian Affairs to the Secretary of Interior gives a different figure for the 18 Pueblos (that is, excluding Zuni), namely 15,256 acres--a difference of 542 acres.
  - 6 The 1943 and 1970 figures do not include Zuni's cultivated acreage.
- Source: U.S. Department of the Interior, U.S. Bureau of Indian Affairs, Report of the Commissioner of Indian Affairs to the Secretary of the Interior (1865-1918 figures), 1965-1918, (Washington: U.S. Government Printing Office); "1920 Annual Report of Northern and Southern Pueblo Indian Agencies to Commissioner of Indian Affairs," (1920 figures), (Washington D.C.); "Annual Reports by District 5 of the United States Irrigation Service," (1935-1939 figures), National Archives, Record Group 75; 1940 and 1950-1965 data are from a document on file at the New Mexico State Engineer's Office; the source of this document is unknown but is believed to be the Bureau of Indian Affairs. The 1943 figures are from a letter from Alan Laflin to Fred O'Chesky, June 24, 1940, LS, Record Group 75, FRC, Denver; James A. Vlasich, "Transition in Pueblo Agriculture, 1938-1948," New Mexico Historical Review, Vol. 55, No. 1 (Albuquerque, 1980), p. 31; Bureau of Indian Affairs, Albuquerque Area Office, (1970 figures), "Annual Crop Reports for all the [New Mexico] Pueblos," 1970; Bureau of Indian Affairs (1973 figures), Division of Economic Development, "Gross Value of Products Grown and Harvested by Means Other than Livestock," Form 5-210A, 1973.

achieved in the mid-1930s, coinciding with active U.S. government aid and incentives. Cultivated acreage declined from over 25,000 acres in 1937, to approximately 20,000 acres in 1945 and 14,000 acres in the early 1970s. Actually, the decline was even more severe than what is demonstrated by these figures; for more than two-thirds of the cultivated acreage in the 1970s represented low-value hays, pasture, and forage. Earlier agricultural data certainly did not indicate such a high percentage of these low-value crops.

The outlook for Pueblo irrigated farming is very uncertain. The past few years witnessed a definite decline in sources of Pueblo employment which had earlier seemed promising. Most of the mines in Grant County which used to employ many Lagunas and Acomas have closed down; so have a number of manufacturing plants and commercial concerns on the reservations themselves. Government employment which engaged a substantial portion of the Pueblo labor force has also suffered from recent budget cuts. Land and water have therefore, again proved to be the most important natural resources for the Pueblos.

Developments in the future of both the Western States and the Indians of the West are heavily dependent on the outcome of the struggle over Indian water rights. If the eventual outcome restricts the Pueblos' water rights under the "prior beneficial use" standard, Indians will probably have to increasingly rely on off-reservation employment, and reservation economies may face grave dangers. If, on the other hand, wider definitions of Indians' water rights are accepted, the non-Indian economy of the Western States will be substantially dependent on Indian-controlled water resources. Different definitions of irrigable acreage are of utmost importance in the present controversy. For example, a total of about 145,000 acres of Acoma land has been

determined as irrigable land from low intensity soil surveys.<sup>63</sup> Other Pueblos, such as Laguna and Isleta which also own huge areas of arid and semiarid flat lands can similarly claim extensive irrigable acreage. Given a permissive interpretation of the Winters Doctrine, such claims would allow the Indians to claim rights to the entire water supply of the Rio Grande basin. Furthermore, some observers believe that the Indians claim to water rights should not necessarily be judged on the basis of irrigation needs. In the words of Hundley:

(If) the amount of Indian rights was to be determined by irrigation needs (regardless of whether the needs were those as measured at some point in the past or future), did this not constitute an unjust restriction on the Indians? Should the Indians, for example, be required to use their water for irrigation when they might prefer to use it for such other "civilized pursuits" as tourism, operating a nuclear power plant, mining, fishing, or any number of other activities?<sup>64</sup>

#### VI. Summary

It is exceedingly difficult, let alone presumptuous, to attempt to summarize the rich and complex history of a group of people in a few paragraphs. There are a few major observations, however, which may be made regarding the Indian Pueblos of New Mexico with a fair degree of certainty. The Indian Pueblos interaction with the Spaniards, and later the Anglo-Americans has left its indelible imprint on Pueblo life and its course of development. The initial traumatic experience of conquest by aliens was followed by the ravages of European diseases to which the native people had not developed natural immunity. The willful cruelty of the conquistadores in their subjugation of the native peoples was dwarfed next to the devastating effects of the diseases which they brought with them.



The Pueblo Indians' relationship with the land and their economic organization--the outcome of a long tradition of sedentary life--was altered radically, and the Pueblo Indians had no effective means of resisting the changes. Their landbase was severely restricted, in most cases, so that the traditional pattern of moving away from an older location to a newer one to avoid the depletion of natural resources (for example, soil fertility) was no longer practicable. Forced labor, and levies of food and other products further eroded the native's socioeconomic organization and subjected the Pueblo Indians to exploitation. Encroachment by the Spaniards, the "Mexicans," and later the Anglo-Americans upon the Indian Pueblos' lands continued at least through the first decade of the twentieth century.

Some observers mention a number of positive impacts on Indian Pueblo life. The Spaniards introduced a number of agricultural crops, domestic animals, and agricultural tools and techniques which were readily adopted by the Pueblos and became, in some cases, basic elements in their economic life. The Pueblos are also said to have benefitted considerably from the control of the nomadic and semi-nomadic Indians who raided their settlements and expropriated the products of their labor. There were numerous occasions wherein the Pueblo Indians and the non-Indian settlers of New Mexico joined together in defense against the Utes, Apaches, and Navajos.

The Pueblo Indians resisted the introduction of European medicine and cures until the turn of this century. The introduction of modern medicine has certainly improved Pueblo Indian health over the conditions that prevailed between the mid-sixteenth and late nineteenth century. This improvement is evidenced by the definite and sustained increase in Pueblo population since the turn of the century.

The Pueblo Lands Board proceedings and decisions in the late 1920s and early 1930s started a process whereby the land effectively controlled by the Indian Pueblos was greatly expanded. There were also some significant efforts by the federal government to assist Pueblo farming and ranching. Nevertheless, Indian Pueblo agriculture has increasingly lost ground in Pueblo economic life. The transition from agriculturally-based subsistence economics to a cash economy based largely on wage labor has been another traumatic experience for the Pueblo Indians, as it has also been for many marginal farmers and ranchers of other ethnic groups in New Mexico. Very high rates of unemployment and low levels of per capita income are major features of contemporary Indian Pueblo life.

The Indian Pueblos of New Mexico control vast expanses of land containing very important natural resources. The outcome of the current struggle for water rights in New Mexico will doubtlessly influence the future economic development of the Indian Pueblos as well as the state in a very significant manner.

## INTRODUCTION FOOTNOTES

- 1 Richard B. Woodbury and Ezra B.W. Zubrow, "Agricultural Beginnings, 2000 B.C.-A.D. 500," Handbook of North American Indians: Southwest, Volume 9, editor Alfonso Ortiz (Washington: Smithsonian Institution, 1979), pp 43-51.
- 2 Paul S. Martin, "Prehistory: Mogollon," and Fred Plog, "Prehistory: Western Anasazi," Handbook of North American Indians: Southwest, Volume 9, editor Alfonso Ortiz (Washington: Smithsonian Institution, 1979), pp. 64-69 and pp. 111-116.
- 3 Plog, Ibid.
- 4 Paul A. F. Walter, "Outline of New Mexico History," Bureau of Indian Affairs, Southern Pueblo Agency, p. 2.
- 5 Albert H. Schroeder, "Pueblos Abandoned in Historic Times," Handbook of North American Indians: Southwest, Volume 9, editor Alfonso Ortiz (Washington: Smithsonian Institution, 1979), p. 254.
- 6 Marc Simmons, "History of Pueblo-Spanish Relations to 1821," Handbook of North American Indians: Southwest, Volume 9, editor Alfonso Ortiz, (Washington: Smithsonian Institution, 1979), p. 186.
- 7 Ibid., p. 183.
- 8 Joe S. Sando, "The Pueblo Revolt," Handbook of North American Indians: Southwest, Volume 9, editor Alfonso Ortiz (Washington: Smithsonian Institution, 1979), p. 195. It should be noted that some mixed bloods and others who spoke Spanish participated in the rebellion.
- 9 Simmons, loc. cit.
- 10 The grants afforded the Pueblos at least formal security from encroachment upon the lands that were assigned to them, although much encroachment continued to take place anyway. Actually, the grants were a mixed blessing, for they were also intended to confine Indians, prevented them from moving to new locations when their natural resources were depleted.
- 11 Simmons, op. cit., pp. 188-189.
- 12 Charles H. Lange, "Relations of the Southwest with the Plains and Great Basin Indians," Handbook of North American Indians: Southwest, Volume 9, editor Alfonso Ortiz (Washington: Smithsonian Institution, 1979), p. 203.

- 13 Walter, op. cit., pp. 6-7.
- 14 Ibid., p. 5.
- 15 Simmons, op. cit., pp. 209-210.
- 16 Ibid.
- 17 Ibid., p. 184.
- 18 Ibid., p. 186.
- 19 Ibid., p. 193.
- 20 Ibid., p. 181.
- 21 U.S. Congress, Senate, Committee on Indian Affairs, Survey of Conditions of the Indians in the United States: Hearings before a Subcommittee of the Committee on Indian Affairs, Part 26, U.S. Senate, 72nd Congress, 1st session (Washington: Government Printing Office, 1932), pp. 10916-11012.
- 22 Branch of Real Estate Services, Albuquerque Area Office, Bureau of Indian Affairs, New Mexico Indian Pueblos, Land Status Report: 1979, February 1, 1979.
- 23 Report of Commissioner of Indian Affairs to the Secretary of Interior, 1881, (Washington: Government Printing Office, 1881) p. 302.
- 24 Report of Commissioner of Indian Affairs to the Secretary of Interior, 1860-1890, (Washington: Government Printing Office, 1860-1890). See the numerous letters from the Indian Agents in New Mexico to other Indian government officials describing the conditions of the Pueblos.
- 25 United States vs. Sandoval (231 U.S. 28).
- 26 Simmons, op. cit., p. 215.
- 27 Ibid., p. 210. The question of water rights had already been emphatically raised. As early as 1852, Indian Agent John Griener reported numerous complaints made to him by Pueblo delegations concerning non-Indians encroaching upon their water resources.
- 28 Sophie D. Aberle, "The Pueblo Indians of New Mexico: Their Land, Economy, and Civil Organization," Memoirs of the American Anthropological Association 70 (Menasha, Wisconsin, 1948) p. 9.
- 29 Ibid.
- 30 Branch of Real Estate Services, op. cit., p. 11.

- 31 Fred Egan, "Pueblos: Introduction," Handbook of North American Indians: Southwest, Volume 9, editor Alfonso Ortiz (Washington: Smithsonian Institution, 1979), pp.231-234.
- 32 Norris C. Hundley, Jr., "The Dark and Bloody Ground of Indian Water Rights," Economic Development in American Indian Reservations, editor Rozanne Dunbar-Ortiz (Albuquerque: University of New Mexico Press), p. 43.
- 33 Joe S. Sando, The Pueblo Indians (San Francisco: Indian Historian Press, 1976), pp. 100-110, 127-130.
- 34 Simmons, op. cit., p. 182.
- 35 Ibid., p. 210.
- 36 Report of Commissioner of Indian Affairs to the Secretary of Interior, 1876-1920, (Washington: Government Printing Office, 1876-1920).
- 37 James A. Vlasich, "Transitions in Pueblo Agriculture, 1938-1948," New Mexico Historical Review, Volume 55, No. 1, 1980, p. 33.
- 38 Report of Commissioner of Indian Affairs to the Secretary of Interior, 1906, (Washington: Government Printing Office, 1906) pp. 6-9.
- 39 Donald Brown, "Picuris Pueblo," Handbook of North American Indians: Southwest, Volume 9, editor Alfonso Ortiz (Washington: Smithsonian Institution, 1979), p. 272.
- 40 Ibid.
- 41 Aberle, op. cit., pp. 17-18.
- 42 Vlasich, op. cit., pp. 28-29.
- 43 Ibid., p. 35.
- 44 Aberle, op. cit., p. 21.
- 45 Ibid., pp. 18-21; and Vlasich, op. cit., p. 40.
- 46 Charles H. Lange, "Cochiti Pueblo," Handbook of North American Indians: Southwest, Volume 9, editor Alfonso Ortiz (Washington: Smithsonian Institution, 1979) p. 368.
- 47 Anne M. Smith, New Mexico Indians: Economic, Educational, and Social Problems, Research Records, No. 1 (Santa Fe: Museum, 1966), p. 126.
- 48 Aberle, op. cit., p. 89.
- 49 Sando, op. cit., p. 99.

- 50 Vlasich, op. cit., p. 32.
- 51 Ibid.
- 52 Ibid., pp. 37-43.
- 53 Ibid., p.34.
- 54 Aberle, op. cit., pp. 84-85.
- 55 Ibid., pp. 21-22; and John Bodine, "Taos Pueblo," Handbook of North American Indians: Southwest, Volume 9, editor Alfonso Ortiz (Washington: Smithsonian Institution, 1979), pp. 99 and 106.
- 56 Sando, op. cit., pp. 103-104 and p. 124.
- 57 Task Force Seven: Reservation and Resource Development and Protection, Report on Reservation and Resource Development and Protection, Final Report to the American Indian Policy Review Commission, p. 35.
- 58 Peter Paul Dorner, The Economic Position of the American Indian, (Cambridge: Harvard University, 1959), p. 218.
- 59 Aberle, op. cit., pp. 17-19.
- 60 Joe S. Sando, "Jemez Pueblo," Handbook of North American Indians: Southwest, Volume 9, editor Alfonso Ortiz (Washington: Smithsonian Institution, 1979), p. 428; Vlasich, op. cit., p. 36.
- 61 Aberle, op. cit., p 22.
- 62 "Letter to A.B. Greenwood, Commissioner of Indian Affairs, September 2, 1860," Report of Commissioner of Indian Affairs to the Secretary of Interior, 1860, (Washington: Government Printing Office, 1860), p. 167.
- 63 Velma Garcia-Mason, "Acoma Pueblo," Handbook of North American Indians: Southwest, Volume 9, editor Alfonso Ortiz (Washington: Smithsonian Institution, 1979), p. 452.
- 64 Hundley, op. cit., p. 50.

APPENDIX A

## APPENDIX A

Population figures have been obtained from a number of sources which have been designated by letters of the alphabet in the tables. These sources are as follows:

- a Marc Simmons, "History of Pueblo-Spanish Relations to 1821," Handbook of North American Indians, Vol. 9, editor Alfonso Ortiz (Washington: Smithsonian Institution, 1979), p. 185. Simmons sources consist mainly of the writings of Spanish ecclesiastics assigned to the Pueblos or to other posts in New Mexico. The 1752, 1789, and 1810 figures were taken respectively from the General Census of New Mexico (Archive General de la Nacion, Mexico Provincias Internas), the Census of Governor Fernando de la Concha, and the New Mexico Census (both from the Ritch Papers, Huntington Library, San Marino, California). The 1793 figures belong to the historian, Hubert H. Bancroft, and the 1805 figures to Governor Real Alencaster.
- b Edward P. Dozier, The Pueblo Indians of North America, (New York: Holt, Rinehart, and Winston, 1970) quoted in Marc Simmons, "History of the Pueblos Since 1821," Handbook of North American Indians, Vol. 9, editor Alfonso Ortiz, (Washington: Smithsonian Institution, 1979) p. 221.
- c U.S. Department of the Interior, Census Office, Moqui Pueblo Indians of Arizona and Pueblo Indians of New Mexico, Extra Census Bulletin, 11th Census, 1890 (Washington: U.S. Government Printing Office, 1893), p. 92.
- d U.S. Department of Commerce, Bureau of the Census, Indian Population of the United States and Alaska, 1910 (Washington: U.S. Government Printing Office, 1915), pp. 85-86 and 104-105.
- e Northern and Southern Pueblo Indian Agencies to Commissioner of Indian Affairs, Annual Report, 1920, Section V-Industries (Washington).
- f United Pueblo Agency, Reservation Program, Part I-Basic Data, U.S. Bureau of Indian Affairs.
- g Elsie Parsons, "Taos Pueblo," General Series in Anthropology, #2, Menasha, Wisconsin, 1936 (Reprinted: Johnson Reprint, New York, 1971).
- h Donald N. Brown, "Picuris Pueblo," Handbook of Northern American Indians, Vol. 9, editor by Alfonso Ortiz (Washington: Smithsonian Institution, 1979), p. 271.



- i Nancy S. Arnon and W. W. Hill, "Santa Clara Pueblo," Handbook of North American Indians, Vol. 9, editor Alfonso Ortiz (Washington: Smithsonian Institution, 1979), p. 298. The authors cite the "U.S. Bureau of Indian Affairs 1854-1871 Records" as the source for their figures.
- j Charles H. Lange, Cochiti: A New Mexico Pueblo, Past and Present (Austin: University of Texas Press, 1959), p. 426.
- k John J. Bodine, "Acculturation Processes and Population Dynamics," New Perspectives on the Pueblos, editor Alfonso Ortiz (Albuquerque: University of New Mexico Press), p. 273.
- l Pauline Turner Strong, "Santa Ana Pueblo," Handbook of North American Indians, Vol. 9, editor Alfonso Ortiz (Washington: Smithsonian Institution, 1979), p. 406.
- m Elizabeth A. Brandt, "Sandia Pueblo," Handbook of North American Indians, Vol. 9, editor Alfonso Ortiz (Washington: Smithsonian Institution, 1979), p. 345.
- n Florence Hawley Ellis, "Isleta Pueblo," Handbook of North American Indians, Vol. 9, editor Alfonso Ortiz (Washington: Smithsonian Institution, 1979), p. 355.
- p Velma Garcia Mason, "Acoma Pueblo," Handbook of North American Indians, Vol. 9, editor Alfonso Ortiz (Washington: Smithsonian Institution, 1979), p. 458. The author cites the U.S. Census Office, U.S. Bureau of Indian Affairs as the source of her figures.
- q Florence Hawley Ellis, "Laguna Pueblo," Handbook of North American Indians, Vol. 9, editor Alfonso Ortiz (Washington: Smithsonian Institution, 1979), p. 438.
- r U.S. Congress, Senate, Committee on Indian Affairs, Survey of Conditions of the Indians of the United States, Part 26, "Laguna Pueblo." Hearings before a subcommittee of the Committee on Indian Affairs, U.S. Senate, 72nd Congress, 1st Session (Washington: U.S. Government Printing Office, 1932), p. 10920.
- s U.S. Bureau of Indian Affairs, Northern Pueblos Agency, Pueblo population.
- t U.S. Bureau of Indian Affairs, Southern Pueblo Agency, Pueblo population.
- u U.S. Bureau of Indian Affairs, Southern Pueblos Agency. This source is cited as the source of population figures in Elizabeth A. Brandt, "Sandia Pueblo," and Joe S. Sando "Jemez Pueblo," Handbook of American Indians, Vol. 9, editor Alfonso Ortiz (Washington: Smithsonian Institution, 1979), pp. 346 and 423.

- v Alfonso Ortiz, "San Juan Pueblo," Handbook of American Indians, Vol. 9, (Washington: Smithsonian Institution, 1970), p. 293. Ortiz's figures were checked against other sources and found to be quite adequate, although, as in the case of other Pueblos, some inconsistencies do appear for certain years. The general sources mentioned above can be consulted by the interested reader.

Resident population figures are taken from the following sources:

- 1 U.S. Department of Commerce, Bureau of the Census, 1970 Census of Population, First Count Summary Tapes.
- 2 U.S. Department of Interior, Bureau of Indian Affairs, Southern Pueblo Agency and Northern Pueblo Agency, "Report of Labor," Form 5-2119, 1970, 1975, 1976 and 1980. These reports are submitted to the BIA by the individual tribes seeking CETA funds, and are signed by the Superintendents of the Southern and Northern Pueblo Agencies.
- 3 New Mexico Office of Indian Affairs, "Indian Population, New Mexico, 1970 and 1976." The data appears in the form of a table received in correspondence with the New Mexico Office of Indian Affairs. The 1970 figures are identical to those given by the 1970 Census of Population.
- 4 U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population, Vol. 1, Characteristics of the Population, Chapter B, General Population Characteristics, Part 33, New Mexico, PC80-1-B33 (Washington: Government Printing Office, May, 1982).

APPENDIX B

## APPENDIX B

Following are the sources for the tables on irrigated acreage of individual Pueblos:

- a U.S. Department of the Interior, Census Office, 11th Census, Mogui Pueblo Indians of Arizona and Pueblo Indians of New Mexico, Extra Census Bulletin, 11th Census, 1890 (Washington: U.S. Government Printing Office, 1893), pp. 99-126.
- b Report of Agent in Charge of Pueblo, Albuquerque Pueblos, August 7, 1905, Annual Reports of Commissioner of Indian Affairs to the Secretary of Interior (Washington D.C.: U.S. Government Printing Office, 1905), p. 265.
- c 1920 Annual Report Northern and Southern Pueblo Indian Agencies to Commissioner of Indian Affairs, Washington, D.C.
- d "Middle Rio Grande Conservancy Project," Albuquerque, New Mexico, House of Representatives Documents, 70th Congress, 1st Session, January 13, 1928 (Washington D.C.: U.S. Government Printing Office), p. 21.
- e Annual Reports (1936, 1937, 1938 and 1940), District 5 of the United States Irrigation Service, National Archives Record Group 75.
- f Letter from Alan Laflin to Fred O'Chesky, June 24, 1940, LS, RG 75, FRC, (Denver); Vlasich, James, A., "Transition in Pueblo Agricultural, 1938-1948," New Mexico Historical Review, Albuquerque (55:1, 1980), p. 31.
- g United Pueblo Agency, Reservation Program, March, 1944, Part I--Basic Data, U.S. Bureau of Indian Affairs.
- h "18 Indian Pueblos in Upper Rio Grande Basin-Irrigation Information, March 7, 1952," letter from the Solicitor General to the Attorney General, National Archives Record Group 48, Reclamation Bureau File No. 8.3 entitled "Rio Grande-Distribution of Waters-Compact (Part 4)."
- i Margaret, Meaders, "The Indian Situation in New Mexico," New Mexico Business, (Albuquerque: Bureau of Business Research, 1963), Vol. 16, No. 1, 3, 7, and 8 (January, March, July, and August, 1963), pp. 1-2.
- j Bureau of Indian Affairs, Albuquerque Area Office, Annual Crop Reports for the New Mexico Indian Pueblos under the Jurisdiction of the Southern Pueblo Agency, 1969, 1972; and the Annual Crop Report for all the Pueblos, 1970.

- k Middle Rio Grande Conservancy District, Indian Land--Water Use Census, 1975.
- l State Engineer's Office and U.S. Geological Survey Joint Study, "Regulated Aquifer Survey of Agriculture," (Santa Fe: New Mexico State Engineer's Office, 1979).

APPENDIX C

## APPENDIX C

Following are the sources for the tables on cultivated acreage of individual Pueblos:

- a U.S. Department of the Interior, Census Office, 11th Census, Moqui Pueblo Indians of Arizona and Pueblo Indians of New Mexico, Extra Census Bulletin, 11th Census, 1890 (Washington: U.S. Government Printing Office, 1893), pp. 99-126.
- b Report of Commissioner of Indian Affairs to the Secretary of Interior, 1900 (Washington: U.S. Government Printing Office, 1900), pp. 260-265.
- c Report of Commissioner of Indian Affairs to the Secretary of Interior, 1904 (Washington: U.S. Government Printing Office, 1904), pp. 256-258.
- d Annual Report (1920) Northern and Southern Pueblo Indian Agencies to the Commissioner of Indian Affairs, Washington, D.C.
- e "Middle Rio Grande Conservancy Project," Albuquerque, New Mexico, House of Representatives Documents, 70th Congress, 1st Session, January 13, 1928 (Washington: U.S. Government Printing Office) p. 21.
- f Annual Reports (1936, 1937, 1938, and 1940), District 5 of the U.S. Irrigation Service, National Archives Record Group 75.
- g Data on file with the New Mexico State Engineer's Office.
- h United Pueblo Agency, Reservation Program, March, 1944, Part I-Basic Data, U.S. Bureau of Indian Affairs.
- j Bureau of Indian Affairs, Albuquerque Area Office, Annual Crop Reports for the New Mexico Indian Pueblos and the Jurisdiction of the Southern Pueblo Agency, 1969, 1972, and the Annual Crop Report for all Pueblos, 1970 and work sheets for 1973.
- k Middle Rio Grande Conservancy District, Indian Land-Water Use Census, 1975-1979.