

NAVAJO INDIAN IRRIGATION PROJECT

New Mexico Interstate Stream Commission

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The Navajo Indians of northwestern New Mexico, northeastern Arizona, and southeastern Utah have a long tradition as a farming people. According to archaeologists of the Museum of New Mexico, the Athapascan migrants entered the drainage of the San Juan River from the north sometime around 1500, bringing with them a High Plains type of corn and other types of vegetables. According to the same authorities, the Navajo possessed no domesticated livestock until contact had been made with Spanish colonists and Pueblo Indians in New Mexico, perhaps 100 years after their arrival on the San Juan. In the interim, they supported themselves by hunting and by growing such crops as corn, squash, beans, and melons.

Archaeological excavations at the Navajo Reservoir site in recent years have yielded stores of such crops in quantities so large as to eliminate the possibility that they might have been acquired in trade. Indeed, there is general agreement among Southwestern linguists that the term Navajo itself is a Spanish rendition of a Pueblo Indian word which meant "farmer." Early Spanish explorers remarked that the Navajo method of cultivation did not differ materially from methods employed by village Indians of present Arizona and New Mexico.

For more than 200 years the Navajo alternately fought and fraternized with the Pueblo tribes and with Spanish and Anglo-American colonists. During the American Civil War the tribe took advantage of disruptions in New Mexico to intensify their raiding forays, and troops of the United States Army

invaded their traditional homeland to take them captive and remove them to a reservation in the environs of present Fort Sumner, New Mexico, where they were held for several years before being permitted to return to Navajoland. Military personnel who participated in the Navajo campaigns described the tribe's numerous small fields of vegetables and productive peach orchards.

The Navajo Indian Reservation was created in 1868 and originally included some 3 1/3 million acres in Arizona and New Mexico. The boundaries have been modified many times, and the reserve now embraces more than 15 million acres in Arizona, New Mexico, and Utah. Of the total area, about 3 1/2 million acres are in New Mexico. An additional area of checkerboarded Indian Allotment Lands (sections alternating with sections of grant lands of the AT&SF Railway) borders the reservation on the south and east.

In general, the lands assigned to the Navajo nation by the treaty of 1868 were the poorer, more arid lands of the Four Corners region -- the more desirable areas being reserved for white settlement. From 1868 until the present, the principal agricultural activity has been the breeding and grazing of livestock, principally sheep. Dry farming is not practicable, except in a few isolated areas in the higher elevations where certain crops can be raised in favorable years. Irrigated farming has become of increasing importance through the years.

Most existing Indian irrigation projects were initiated by the Navajo themselves who, during their wanderings over the reservation in quest of grass for their sheep and goats, planted small fields on the flood plain of the San Juan River and on the fans of ephemeral washes where crops could be irrigated by spreading flood waters from simple ditches. In time -- in particular after their sojourn at Fort Sumner where they learned more sophisticated techniques -- they undertook more difficult projects, diverting from streams and springs by

means of canal-ditch systems which transported water longer distances to larger tracts of arable land. By the turn of the century, irrigation farming had become an important factor in the Navajo economy, and the Federal government began to assist Indian farmers in laying out and constructing irrigation projects -- generally providing materials and engineering services, with the Indians providing labor.

About 1900 a small ditch was dug to divert irrigation water from the San Juan River about 9 miles upstream from the Shiprock agency. The heading was in solid rock and consisted of 75 feet of tunnel with a timber headgate built by the Indian Service. A ditch about 400 feet long was constructed by the Indians at their own expense. The cost to the government was \$350.00. Surveys to expand the project were commenced in 1909 and continued through 1911. The result became the Hogback Project, largest and most successful Navajo Irrigation development to date. The Cudai Project, which diverts from the San Juan below the Hogback Project, was developed in the same period and under like circumstances.

White development for irrigation in the New Mexico portion of the San Juan basin, east of the Indian lands, was initiated during the 1870's, utilizing community ditch systems and small privately capitalized irrigation companies.

In 1901, Jay Turley -- colorful southwestern promoter of large water developments -- began formulating plans for an irrigation project along the San Juan River in New Mexico. Turley's plans provided for storing water in a reservoir at a site near present Navajo Reservoir and for irrigating as many as 1.3 million acres from the San Juan River and its tributaries. He made numerous efforts to interest private capital and the Federal government in development of the project along the lines of his proposal and he conducted a

number of preliminary surveys of lands and water-storage sites along the San Juan, Animas, and La Plata Rivers.

Turley failed to find backing for his ambitious plans, but white development financed by private capital continued to flourish, and interest in many of his ideas persisted for years. In 1915 the U.S. Reclamation Service issued two reconnaissance reports on the potentiality of developing waters of the San Juan River for irrigation of new lands: Irrigation Possibilities in the San Juan River Basin in Colorado, New Mexico, Arizona, and Utah, by C. B. Smith, and Report on Reconnaissance of Storage Possibilities on the San Juan River and Tributaries above Farmington, New Mexico, by K. Sawyer. The latter report concluded that the Turley site was the most suitable of several considered in the investigation.

In 1916 James McKittrick of the Reclamation Service made further study of dam and reservoir sites in the San Juan basin -- including Chaco, Hogback, and Turley. He concluded that all projects were economically infeasible at the time. A 1923 reconnaissance investigation of the Turley Project by C.C. Fisher of the Reclamation Service showed that most of the lands proposed for development were within the Navajo Reservation. This fact was reported to the Indian Service, and at that agency's suggestion the investigation was abandoned. (Fisher, C. C., 1925, Report and Estimate on Pine River Project, Colorado; also Brief Review of Other Irrigation Possibilities in the San Juan Basin in Colorado, New Mexico, Utah, and Arizona, U.S. Bureau of Reclamation, p. 149-150.)

In the middle 1920's, some 50,000 acres in New Mexico were being irrigated by white farmers diverting from the Animas, La Plata, Los Pinos, and San Juan Rivers, and development had progressed about as far as it could go without investments in storage and distributary systems which were beyond the means of the local ditch companies to finance.

The Colorado River Compact of 1922 contemplated apportionment of the waters of the river and its tributaries among riparian states, and following

its execution interest in developing waters of the San Juan River system in New Mexico was rekindled. During the period 1927-30 State Engineer Herbert W. Yeo conducted extensive irrigation-project feasibility surveys in the basin in New Mexico. From these investigations came a proposed development plan called the San Juan Project. Among other things the plan called for construction of a storage dam at the Pump Canyon site to create a reservoir with a capacity of 1 million acre-feet. The area proposed for irrigation totaled 280,000 acres on the Navajo Reservation and embraced lands now in the Navajo Irrigation Project. Also, the general canal and reservoir layout pattern of the Yeo-proposed project was similar to that adopted for the presently authorized development.

Yeo estimated total cost of his project at \$57.5 million, 1927 prices, with per-acre costs of \$221.22. His report concluded that "This cost is prohibitive at this time, but the rights of the State of New Mexico to use the waters of the San Juan River should be preserved so that irrigation of the area can be accomplished."

Navajo irrigation on the reservation was expanded somewhat during the 1930's with funds provided by U.S. public works agencies. Among the developments thus financed was the Fruitland Project which initially irrigated some 1,000 acres on the site of an old Indian development. Most developments during this period, however, were small and scattered, diverting from springs and small storage reservoirs along ephemeral washes which impounded floodwaters during wet seasons. In 1942, the Bureau of Indian Affairs reported that some 7,500 acres of reservation land in New Mexico were being irrigated in 30 projects, including Hogback, Cudai, and Fruitland. Total investment was estimated at more than \$2 million. A great many crops were being grown, but most were of the subsistence variety: corn, beans, squash, and garden vegetables.

Development of irrigation farming on the reservation failed to keep pace

with expanding Navajo population, and the economic plight of the nation's largest Indian tribe revived interest in a large-scale Indian irrigation project, such as had been suggested by Yeo, as a means of helping the reservation residents to help themselves. As early as 1933 the Bureau of Reclamation and Bureau of Indian Affairs, at the direction of the Secretary of the Interior, had launched an extensive series of reconnaissance-type surveys of various possibilities of water-development projects in the San Juan basin to serve both Indians and whites. These investigations were carried on through the early 1940's -- when, with the nation embroiled in war, the Federal government cut back its program of internal improvement and the surveys were suspended.

After the war's end in 1945, the nation once more took up the problem of developing the waters of the Colorado River. In March 1946 the Department of the Interior prepared for Congress a comprehensive report describing tentative plans for proceeding with Colorado River development; included were potential plans for six major irrigation projects in the San Juan basin in New Mexico or partly in New Mexico: Dulce-Chama-Navajo, South San Juan, Hammond, Shiprock, Pine River Extension, and Animas-La Plata. As proposed, Shiprock (70,000 acres) was to benefit the Navajo exclusively, Animas-La Plata was to benefit both Indians and non-Indians (25,000 acres Indian, 86,000 acres non-Indian), and the remaining four would irrigate lands exclusively in non-Indian ownership. The Shiprock Project proposed a storage dam on the San Juan River near Arboles, Colo., a diversion dam near Blanco, N. Mex., and a gravity conduit 75 miles long to irrigate lands south of Shiprock. The South San Juan Project contemplated an aqueduct heading on the West Fork of the San Juan River in Colorado and running southwestward for 300 miles to furnish irrigation water for some 75,000 acres of land south of the San Juan River in New Mexico, extending east-west from the reservation boundary to the Continental Divide near Cuba.

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In addition, the 1945 report proposed consideration of 67 small potential "miscellaneous" projects on the Navajo Reservation, plans for which had been drawn by the Office of Indian Affairs to provide for full irrigation of some 49,000 acres of Indian land in New Mexico.

During the years immediately following issuance of the Department of the Interior's report to Congress, there was much informal discussion among states and agencies relative to merits of the various plans for developing the waters of the upper Colorado River, but it was not until the Upper Colorado River Basin Compact had been negotiated in 1948 that there could be formal negotiation looking toward actual selection of projects to apply to beneficial use the river's unappropriated waters.

In the meantime, the economic plight of the Navajo continued to attract national attention, and a plan for a long-range program for their rehabilitation, submitted to the 80th Congress by the Secretary of the Interior early in 1948, proposed development of a San Juan River irrigation project of 117,000 acres, 115,000 of which would be Indian lands.

Pursuant to a Memorandum of Understanding dated February 1948, the Bureaus of Reclamation and Indian Affairs undertook cooperatively an investigation of the engineering and economic feasibility of constructing a large irrigation project for the Navajo in the Shiprock area. Included in the study were 1) land-classification surveys, 2) exploration of dam and materials sites, and 3) preparation of designs, specifications, and cost estimates for storage dams, power plants, and other structures. And on April 28, 1949, less than a month after the Upper Colorado River Basin Compact became operative, Commissioner of Indian Affairs, John R. Nichols, addressed a letter to Geraint Humpherys, counsel for the BIA, stating in part:

It is particularly urgent that Indian water rights in New Mexico be defined and fixed at an early date in order that final plans may be developed for the proposed Shiprock and other irrigation units on the Navajo Reservation The need of the Navajos for as large an area of irrigated land as can feasibly be developed is generally admitted, and every effort should be made to secure the recognition by New Mexico of Indian water rights sufficient to permit the development of as large an area as possible within the State of New Mexico It is desired therefore that you immediately undertake negotiations with the appropriate New Mexico State officials in an effort to arrive at an understanding as to the quantity and priority of water which are available for use on Indian lands out of New Mexico's allocation

Also in 1949 a Bureau of Reclamation status report on the South San Juan Project suggested, as an alternative to the 300-mile gravity-flow canal or aqueduct from Colorado, the possibility of storing project water in New Mexico at either the Pump Canyon site or the Martinez site (about a mile upstream from present Navajo site) and pumping into canals which would transport water to irrigate 100,000 acres of lands south and east of the river. "Compensating for the cost of pumping would be a shorter main canal and greater potential water supply averaging possibly 490,000 acre-feet annually. Whether sufficient power for pumping could be developed at Martinez Dam or Pump Canyon over and above requirements for Indian lands under the potential Shiprock Project of the Bureau of Indian Affairs has not yet been studied."

The report presented no conclusion and no recommendation of one plan over the other. Rather, it recommended both for further study.

On October 29 and 30, 1949, the Upper Colorado River Commission, created by the compact to administer its provisions, held its first annual meeting in Salt Lake City, in joint session with the Colorado River Basin States Committee, to consider recommendations to the Congress for legislation authorizing development of the river and its tributaries above Lee Ferry. At this meeting, the Commission recommended authorization for construction of Martinez Dam in New Mexico to impound 1 million acre-feet of water, as a unit of the Colorado River

Storage Project. New Mexico recommended that certain other projects be included in the initial list of participating units to be authorized for construction, with the understanding that the listing would not be exclusive. Recommended were the "New Mexico unit of the La Plata Project; New Mexico part of the Pine River Extension; the Hammond Project; and, if the feasibility report is completed, the Shiprock Project." New Mexico's proposals were unanimously adopted.

Officials of New Mexico and the Department of the Interior subsequently conferred several times on the matter of New Mexico projects. These conferences confirmed New Mexico's fears that competition for water supply was developing among potential New Mexico projects.

As a result of this confirmation, Assistant Secretary of the Interior William E. Warne on July 26, 1950, addressed to Secretary of the Interior Oscar L. Chapman a memorandum recommending formation of a coordinating committee to correlate technical data on the proposed New Mexico projects and to "provide a basis for close collaboration among Regions 4 and 5 of the Bureau of Reclamation and the Bureau of Indian Affairs." Approved by the Secretary on August 30, 1950, the Warne Memorandum also recommended study of an Indian project for irrigation of between 113,900 and 100,000 acres, and a San Juan River transmountain diversion of between 200,000 and 300,000 acre-feet, with water to be devoted to municipal supply and supplemental irrigation, leaving about 75,000 acre-feet of water for irrigation of 20,000 acres of new white lands in the San Juan basin, including extension of existing projects.

The memorandum continued:

Once a feasible project is reached which will combine the San Juan-Shiprock area and the San Juan-Chama diversion, while allowing for irrigation of 20,000 acres of white lands, the entire project should be included in one report. Any irrigation of Indian lands in the Animas-La Plata

project should be left for later consideration. The Bureau of Indian Affairs through Superintendent Harper should present this matter to the Navajo Tribal Council at the first opportunity, and see that they are kept informed.

The memorandum concluded with the recommendation "That the Department complete, by January 1, 1952, a feasibility report to be used as a basis for seeking project authorization."

In December 1950 the Bureau of Reclamation transmitted to the states concerned its interim comprehensive project planning report, Colorado River Storage Project and Participating Projects, Upper Colorado River Basin, which presented a plan for construction of the overall upriver project. Navajo Dam at its present site was among the storage dams recommended for authorization, and among the 12 participating projects recommended for authorization were Hammond in New Mexico and Pine River Extension in Colorado and New Mexico. Action on other proposed New Mexico projects was deferred, pending further study.

Working under authority of the Warne memorandum, the Technical Committee coordinated the efforts of the Interior agencies involved in San Juan River planning. In its first progress report, dated January 26, 1951, the Technical Committee presented calculations which indicated that, of the 838,000 acre-feet available to New Mexico under the Colorado River Compact, 600,000 acre-feet of San Juan River water was available for development of new projects in New Mexico after reserving water for 1) existing development (80,000 acre-feet), 2) New Mexico's share of Colorado River main stem reservoir losses (92,000 acre-feet), 3) Navajo Reservoir losses (26,000 acre-feet), Hammond Project (8,400 acre-feet), 5) La Plata Unit of Animas-La Plata Project (3,500 acre-feet), and 6) authorized small Indian projects (28,000 acre-feet). The report also presented technical data pertaining to a number of alternative sizes for the San Juan-Chama, Shiprock, and South San Juan Projects to utilize the water

supply available from the San Juan and its tributaries above Blanco. The report also recognized other potential in-basin uses -- including an Animas-La Plata Project of 40,000 acres, additional potential small irrigation projects totaling 24,000 acres, and potential M & I uses of at least 20,000 acre-feet.

In March 1951 the Bureau of Indian Affairs released a preliminary report on the Shiprock Project, intended as a "compendium of the factual data obtained and the results of the studies made during the course of the recent surveys and investigations of the proposed Shiprock Indian Irrigation Project on the Navajo Reservation." The report contemplated storage in Navajo Reservoir and foresaw development of a project to irrigate some 114,000 acres of land in the Shiprock area south of the San Juan River. It presented several alternative plans, one of which provided for a coordinated Shiprock-South San Juan Project of 181,600 acres, with 142,700 acres in Indian land and 38,900 in non-Indian lands.

A conference of interested parties was held on March 27, 1951, in the office of Assistant Secretary Warne in Washington. It was at this conference that representatives of the Navajo Tribal Council first participated in negotiations. Tribal delegates stated they felt they should have an active voice

in all negotiations and particularly in determining sizes of New Mexico projects to apply San Juan River water to beneficial use. In a policy statement issued following the conference, New Mexico recommended to the Secretary of the Interior that not less than 70,000 acre-feet of the 600,000 acre-feet under discussion be reserved to utilize New Mexico's portion of Animas River water and to assure eventual use of all of the State's compact allocations; and that the following projects be studied to determine their feasibility within the limiting sizes indicated.

A. Navajo Reservoir Project:

1. Shiprock (Navajo) Project

Sufficient water by gravity flow to take care of a reasonable Indian acreage.
Suggested limits: 95,000 to 105,000 acres.

2. South San Juan Project:

Sufficient water for an economically feasible "white-lands" project of not to exceed 20,000 acres.

B. San Juan-Chama Project:

Sufficient water to supply domestic, municipal, and industrial needs and supplemental irrigation requirements.
Suggested limits: 200,000 to 250,000 acre-feet per year.

In order to familiarize the Tribal Council with its work, the Technical Committee appeared before the council at Window Rock, Ariz., during the first week in May 1951. Sam Ahkeah, council chairman, and Howard Gorman, chairman of the Council Resources Committee, met with the Technical Committee on several occasions thereafter, along with Dean H.T. Person of the University of Wyoming College of Engineering, the Council's consulting engineer.

In February 1952, the Navajo Tribal Council adopted a resolution recommending construction of a Shiprock Project which would irrigate 122,000 acres of Indian land.

A second progress report of the Technical Coordinating Committee, issued March 7, 1952, considered plans for constructing Shiprock Project at 100,000 acres, 113,900 acres, and 121,700 acres -- South San Juan at 67,700 acres, 57,000 acres, and 29,450 acres. After issuance of the report, Governor Mechem of New Mexico requested a meeting with Undersecretary of the Interior R. D. Searles and representatives of the Tribal Council. The meeting was held in Santa Fe on April 29, 1952; in attendance were members of the Governor's San Juan Policy Committee, made up of representatives of in-basin and transmountain interests, and officials of the Interstate Stream Commission. Purpose of the meeting was to attempt to come to agreement concerning selection of projects to be studied for feasibility, and the size to which each project should be built.

No agreement was reached at the conference. Three questions were raised which the conferees felt could not be answered at the time: 1) Should the Shiprock and South San Juan Projects (and possibly the Hammond Project) be combined into a single unit? 2) Could lands in the South San Juan area within the reservation be irrigated in lieu of lands west of Chaco River in the Shiprock area? 3) What were the proper diversion requirement rates for irrigating crops in the Shiprock-South San Juan area?

The unanswered questions were referred to a Special Technical Committee. The committee enlisted the services of Harry F. Blaney and C. H. Diebold, irrigation specialists of the U.S. Department of Agriculture, to determine water requirements of crops grown in the basin. The committee report, delivered in November 1952, concluded that:

1. With good irrigation practices, the required rates of diversion per acre of land irrigated would be 5.0 acre-feet for the Shiprock Project and 4.0 acre-feet for the South San Juan Project.

2. It is possible to modify the irrigation plan for the Shiprock Project or combined Shiprock-South San Juan Project to irrigate lands within the easterly portion of the Navajo Reservation located above the gravity canal instead of other lands within the Shiprock Project previously considered for irrigation The details regarding lands to be exchanged should be reserved for future study.

In June 1952 the Bureau of Reclamation released a status report titled South San Juan Project, New Mexico, which summarized various plans to construct the project, at the various acreages considered by the Technical Committee. The report remarked that "These alternatives must be weighed against the other potentialities for using the limited water supply, New Mexico's compact apportionment of Upper Colorado River Basin water, including possibilities for exporting part of the water southeastward to the Rio Grande basin, before a final choice of the basin plan can be made by the State and other interests concerned. This report, although treating primarily only one phase of the basin situation, provides data that will be useful in considering the broader problem."

During the autumn months of 1952, the State attempted to arrange further conferences with representatives of the Secretary of the Interior and the Tribal Council. The efforts were not successful, and the State then arranged to meet with Navajo representatives in January 1953. On this occasion Sam Ahkeah, chairman of the Tribal Council, outlined the position of the Navajo as follows:

1. Accepted the diversion rate of 5 acre-feet per acre per year for irrigating Indian lands.
2. Concurred in the suggested modification of the Shiprock Project plan to pump water to lands located above the gravity canal in the easterly portion of the reservation in order to have the irrigated lands located in a compact unit.
3. Concurred in feasibility of combining Shiprock and South San Juan Projects.

4. Claimed the right to divert and use 580,000 acre-feet of San Juan River water annually on a Shiprock Indian Irrigation Project containing a net irrigable project of 122,000 acres.

New Mexico's policy regarding development of water of the main stem of the San Juan River in New Mexico was set forth in a letter from Governor Mechem to Secretary McKay, dated March 4, 1953. Accompanying the letter was a 39-page report, prepared by the State Engineer and Interstate Stream Commission, which summarized problems faced by New Mexico and her efforts to find solutions. Titled A Review of the San Juan River Problem in New Mexico, the report in its appendices presents comprehensive backup material, including many of the documents cited above.

The Governor's letter of March 4, 1953, requested that the Secretary of the Interior make studies of the three major main-stem New Mexico projects which would compete directly with each other for the common water supply: Shiprock, South San Juan, and San Juan-Chama. It requested that feasibility studies be made of 1) a Shiprock Project (later Navajo Irrigation Project) which would include a Shiprock Unit and a South San Juan Unit, the latter to furnish water to both Indian and non-Indian lands -- the entire project requiring an annual diversion of not more than 630,000 acre-feet of water a year; and 2) a San Juan-Chama Project to transport water from tributaries of the San Juan River in Colorado to the Rio Grande basin in New Mexico by means of a transmountain diversion of not more than 235,000 acre-feet a year.

The letter pointed out that Navajo Dam was included as an initial unit of the Colorado River Storage Project and that its early authorization was being sought. It pointed out further that the dam was an integral part of the Shiprock Project but that it could be constructed and operated as a regulation reservoir in the storage project. The letter also established the

State's policy in regard to development priorities among competing projects as follows:

The competition for water between the in-basin and transmountain projects necessitates closely coordinated operation. Neither project (Shiprock-South San Juan or San Juan-Chama) can assert a superior right as against the other without virtually destroying the other. Hence, it has been necessary to seek simultaneous authorization and an understanding that the two projects will be so operated. It is recognized that the two projects may not be able to proceed simultaneously with construction, and every effort must be exerted to protect each from encroachment by the other

In a letter to the Secretary dated April 17, 1953, the Governor further requested that in its overall plan for use of San Juan waters in New Mexico the Bureau of Reclamation reserve sufficient water under the State's compact allocation so that the Animas-La Plata Project could be feasibly developed as an interstate project.

In January 1955, the Bureau of Indian Affairs issued its feasibility report titled Navajo Project, New Mexico. The project the Bureau found feasible included two units: Shiprock, to irrigate 109,000 Indian acres within the Navajo Reservation, and South San Juan, to irrigate 28,250 Indian and non-Indian acres outside the reservation boundaries. The two units required an annual diversion of about 630,000 acre-feet (508,600 Shiprock, 121,100 South San Juan) from Navajo Reservoir. Total cost of the project, including costs of constructing Navajo Dam and Reservoir, was estimated at \$212,037,000.

In March 1955 a draft of a proposed Bureau of Reclamation report on the San Juan-Chama project was completed and forwarded to the states concerned for comment in accordance with established procedures.

On October 19, 1955, in conference with members of the Tribal Council, officials of New Mexico proposed 1) that the Shiprock and South San Juan Divisions of the Navajo Project be combined and developed wholly as an Indian

project of about 115,000 acres, and 2) that lands in the South San Juan Division owned by the State and Federal governments which could be served by a gravity canal be exchanged for an equal acreage of nonirrigable reservation lands. It was pointed out that such a relocation of project lands would permit the blocking of irrigable land areas and eliminate long, narrow, and isolated areas included in the original project. Reconnaissance studies indicated that the plan had merit and would reduce the cost of project construction. The Tribal Council ultimately accepted the proposal.

In April 1956 a bill authorizing construction and operation of the initial units of the Colorado River Storage Project was signed into Public Law 485, 84th Congress. Authorized were four storage units (Curecanti, Flaming Gorge, Navajo, and Glen Canyon) and nine participating projects. The statute provided that construction of the four storage dams would be financed out of Storage Project power revenues. It provided further that "In the event that the Navajo participating project is authorized, the costs allocated to irrigation of Indian-owned tribal or restricted lands within, under, or served by such project, and beyond the capability of such lands to repay, shall be determined, and, in recognition of the fact that assistance to the Navajo Indians is the responsibility of the entire nation, such costs shall be nonreimbursable."

Public Law 485 also gave priority to completion of planning reports on 25 additional participating projects, among which were Navajo, San Juan-Chama, and Animas-La Plata.

In August 1956 the Secretary of the Interior submitted his coordinated report on the San Juan-Chama and Navajo Irrigation Projects for consideration by the State of New Mexico.

In November 1956 the New Mexico Interstate Stream Commission approved a resolution pertaining to the Navajo Irrigation and San Juan-Chama Projects.

The resolving clause of that resolution reads as follows:

NOW, THEREFORE, BE IT RESOLVED that the Interstate Stream Commission hereby requests the Secretary of the Interior to complete the studies of the Navajo Irrigation and San Juan-Chama Projects using the study size determined in 1953 with the understanding that the Shiprock Division of the Navajo Irrigation Project to be authorized will not exceed 115,000 acres in size and that the initial phase of the San Juan-Chama Project to be authorized will not exceed 110,000 acre-feet average diversion per annum with the further understanding that the authorizing legislation will provide that in the event of water shortage the diversion to the two projects shall be in proportion to their diversion requirements.

Governor Simms in December 1956, in commenting on the reports of the San Juan-Chama and Navajo Irrigation Projects, concurred in the expression of the Interstate Stream Commission resolution. As a result of the conference with the Navajo Tribal Council, Governor Simms requested that the Navajo Project report be modified to effect the following changes: the lands developed should be solely for Indian use, should include the most suitable lands in the Shiprock and South San Juan divisions, and should not exceed 115,000 acres with a diversion requirement not to exceed 508,000 acre-feet per annum. The letter requested that the Department of the Interior proceed with all practical speed toward completion of the reports on the San Juan-Chama and Navajo Irrigation Projects in a form suitable for authorization request.

On October 17, 1957, the New Mexico Interstate Stream Commission conducted an open meeting in Farmington to publicly discuss proposed legislation authorizing the Navajo and San Juan-Chama Projects. After extended discussion, in which the audience by invitation participated, the Commission adopted a resolution approving in principle legislation which would authorize construction of both projects in accordance with its resolution of November 28, 1956.

Also on October 17, 1957, the Secretary of the Interior released to the States of Colorado and New Mexico reports which supplemented the San Juan-Chama

and Navajo Project feasibility reports of 1955. The 1957 reports modified both projects in compliance with recommendations of the states and coordinated the projects for simultaneous authorization.

As modified, the Navajo Irrigation Project contained a net acreage of 110,630 acres, including Indian allotments, State and Federal lands formerly in the South San Juan Division, and reservation lands formerly in the Shiprock Division. Total cost of construction -- excluding costs of Navajo Dam and Reservoir, which were to be paid out of Storage Project power revenues -- was estimated at \$126,865,300. Cost-benefit ratio was 1.39:1.

On December 12, 1957, the Navajo Tribal Council approved in principle a draft of proposed legislation to authorize the Navajo Indian Irrigation Project and the initial stage of the San Juan Project, as approved earlier by the Interstate Stream Commission. Section 7 of the proposed bill read as follows:

Notwithstanding any provision of existing law, the annual water supply available from the San Juan River and its tributaries above Navajo Dam for the projects authorized herein and all other uses hereafter lawfully initiated in New Mexico shall be shared in proportion to the respective diversion requirements for said projects and uses in any year in which the Secretary of the Interior finds that the annual water supply in addition to water in storage will be inadequate for said projects and uses.

In accordance with established procedures, the Secretary of the Interior requested that Colorado and New Mexico review the coordinated plan for authorization of the projects and that they transmit to him their formal comments and recommendations within a period of 90 days. By letter dated February 13, 1958, Governor Mechem recommended that the Secretary of the Interior seek Congressional authorization of both projects in accordance with the plan of development set forth in the coordinated report of October 17, 1957.

Colorado, on the other hand, was reluctant to approve exportation of water

from the San Juan basin within her borders until she had firm assurance that New Mexico's compact water allocations and power revenues under the Storage Project would be adequate to permit operation of the Navajo and San Juan-Chama Projects and still serve the New Mexico portion of the Animas-La Plata Project (the construction and operation of which was thought to be a condition of the economic feasibility of the Colorado portion of the project).

In January 1958, Colorado requested of the Secretary of the Interior a 6-month extension of time in which to prepare her comments on the Navajo and San Juan-Chama Projects. The Secretary replied that 6 months would constitute an undue delay, but agreed to defer transmittal of the coordinated report to Congress for a "reasonable" length of time.

On January 30, 1958, in an effort to expedite matters, the New Mexico State Engineer met with Colorado water officials and representatives of local Colorado interests to discuss the upstream state's problems. At this meeting it was established that Colorado felt no real concern about possible effects of proposed New Mexico developments upon established Colorado water uses, and the issues were narrowed to 1) concern on the part of Colorado "western slope" interests that operation of the projects sought by New Mexico would not leave sufficient water within New Mexico's allowable depletion to serve New Mexico acreage in the Animas-La Plata Project, and 2) concern of the same interests that New Mexico had committed to the San Juan-Chama and Hammond Projects all power revenue credits that would accrue to her account under the Storage Project for 60 years -- reserving few if any such credits for construction of her portion of Animas-La Plata. To safeguard her interests Colorado insisted that the Animas-La Plata Project be given the same water-priority date as the San Juan-Chama and Navajo Projects.

The New Mexico State Engineer assured Colorado that there was adequate

water for Animas-La Plata under its existing priority date (about 1 year later than the New Mexico intrastate projects). He pointed out further that proportioning New Mexico's power revenue credits among all New Mexico projects, as proposed by Colorado, would not advance construction of Animas-La Plata, but would merely delay construction of all projects. In reply, the Colorado "west slope" interests demanded a duly ratified interstate compact guaranteeing their demands as a condition of their supporting authorization of the New Mexico projects.

On February 6, 1958, the Interstate Stream Commission approved a draft of legislation which would authorize the Secretary of the Interior to construct and operate and maintain the Navajo Indian Irrigation Project and the initial stage of the San Juan-Chama Project as participating projects of the Colorado Storage Project.

On June 26, 1958, the Secretary of the Interior let the first contracts for construction of Navajo Dam and Reservoir. Fifth largest earth-fill dam in the world, Navajo was designed to contain more than 23 million cubic yards of material and to impound 1,709,000 acre-feet of water.

In July 1958 hearings were held before the Senate Subcommittee on Irrigation and Reclamation on S. 3648, a bill which would authorize simultaneously the San Juan-Chama and Navajo Indian Irrigation Projects. This bill passed the Senate on August 15, 1958. No action was taken by the House on legislation introduced to authorize these projects.

In March 1959 hearings were held before the Senate Subcommittee on Irrigation and Reclamation on S. 72, a bill which would authorize the San Juan-Chama and Navajo Indian Irrigation Projects. On May 19, 1959, S. 72 passed the Senate.

In February 1960 the Interstate Stream Commission met with Colorado officials to discuss Colorado's proposed amendments to S. 72.

In May 1960 hearings were held before the House Subcommittee on Irrigation and Reclamation on H.R. 2352, H.R. 2494, and S. 72, with differences between Colorado and New Mexico resolved. The history of negotiations between New Mexico and Colorado is reported fully in the record of these hearings. No additional action was taken by the House on these bills.

On March 15, 1961, hearings were held before the Senate Subcommittee on Irrigation and Reclamation on S. 107, a bill to authorize the San Juan-Chama and Navajo Projects. This bill passed the Senate on March 28, 1961.

Hearings were held April 24 through 26 and on June 1, 1961, before the House Subcommittee on Irrigation and Reclamation on H.R. 2552, H.R. 6541, and S. 107.

On July 10, 1961, a report -- No. 685, from the House Committee on Interior and Insular Affairs -- was submitted to accompany H.R. 7596, a clean bill which included all amendments adopted by the Committee to H.R. 2552, and to other bills.

On April 11, 1962, the House Rules Committee reported favorably on a rule for H.R. 7596.

On May 22 and 23, 1962, the House debated on H.R. 7596, and on May 23, 1962, the legislation was enacted.

On May 29, 1962, the Senate approved the House version of the legislation and the bill was sent to the President for signature.

On June 13, 1962, the President signed into Public Law 87-483 H.R. 7596, the bill authorizing the construction of the San Juan-Chama and Navajo Indian Irrigation Projects.

Navajo Dam and Reservoir were dedicated on September 15, 1962. Costs of construction to June 30, 1963, totaled \$36,772,966.

On April 9, 1964, bids were opened on the first major work in

construction of the \$135-million Navajo Indian Irrigation Project which the Bureau of Reclamation is building for the Bureau of Indian Affairs. Work involved includes excavation of earth and rock in installing the main-canal headworks at Navajo Dam and a 10,000-foot concrete-lined tunnel 18 feet in diameter (tunnel no. 1) through which water to serve the irrigation project will be diverted from the reservoir to Gobernador Canyon about 2 miles south of the dam. From Gobernador Canyon a complex of tunnels, siphons, and canals will extend the system an additional 150 miles.

On May 5, 1964, contract on the initial work which will take approximately 2½ years to complete was awarded to Fenix and Scisson, Tulsa, on a bid of \$5,402,994.

The President's budget for fiscal 1965 requests \$4,700,000 to continue construction of canal headworks in Navajo Reservoir and tunnel No. 1, to initiate construction of tunnel No. 2 southwest of Gobernador Canyon, and to perform other items of construction and preconstruction in connection with the lateral system and drainage system on the project lands.