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Administration of Water Resources in New Mexico
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PREFACE

This publication on the Administration of Water Resources in New Mexico brings together information on the type of organizations through which water questions are handled. Included is a very brief statement regarding the functions of each of the state, local and federal agencies dealing with these problems and a reference to their legal origin. Also included is a table which brings together a summary of all agencies reviewed in the publication.

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THE ADMINISTRATION OF WATER RESOURCES

IN

NEW MEXICO

By

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New Mexico's most obvious socio-economic problem is the meagerness of its water resources. Since the demand, and potential demand, is far greater than the available supply of water, its distribution and use are of exceptional importance in shaping the state's future. Administration of the water resources is based upon the policies established by the state legislature and the Congress of the United States as modified by legal interpretations of the meaning of those policies. A summary knowledge of the water law of the state is therefore necessary for an understanding of its administration.

New Mexico follows the doctrine of prior appropriation in the administration of its water resources. The state's constitution is brief, but explicit, on this point.

Section 1. All existing rights to the use of any waters in this state for any useful or beneficial purpose are hereby recognized and confirmed.

Section 2. The unappropriated water of every natural stream, perennial or torrential, within the State of New Mexico, is hereby declared to belong to the public and to be subject to appropriation for beneficial use, in accordance with the laws of the State. Priority of appropriation shall give the better right.

Section 3. Beneficial use shall be the basis, the measure and the limit of the right to the use of water. (Constitution of the State of New Mexico, Article XVI, Sections 1-3)

Essentially, the constitution says that the first in point of time to apply water to a beneficial use has prior right to as much of it as he continues to employ beneficially. This creates a property right of a high order in the use of the water so long as it is not forfeited by nonuse.

The appropriation doctrine is followed generally in the semi-arid and arid states. It recognizes that there will be diversions of water which will reduce the stream flow, as opposed to the common-law riparian rights doctrine (prevalent in the eastern states) which assures a riparian owner of an unrestricted and unpolluted flow of water from above.

At the time of statehood for New Mexico, the primary concern was with surface water; however, with the development of techniques for

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tapping underground sources cheaply and easily, the use of ground water became increasingly important. New Mexico pioneered in state control of ground water in its Code of 1931, which provided: The water of underground streams, channels, artesian basins, reservoirs, or lakes, having reasonably ascertainable boundaries are hereby declared to be public waters and to belong to the public and to be subject to appropriation for beneficial use. (N. Mex. Stat., 1953, Ann., Replacement Vol., 1968, 75-11-1; the underground water code, with amendments, is Ibid., 75-11-1 through 75-12-12.) The result of this legislation was to bring ground water as well as surface water under the administrative control of the state.

The underlying principle governing western water law dictates that it will be more complex and require more administrative agencies than prevail in the eastern states. Additional complications arise because many stream channels cross state lines and there must be an equitable distribution of their waters among the several states through which they flow. Furthermore, the federal government has become increasingly involved in water-resource problems through the twentieth century, and many state agencies are the by-product of congressional action. The result is that there are many agencies -- federal, state, and local -- associated with the administration of the water resources of New Mexico, and their success depends in large part upon effective intergovernmental and interagency cooperation.

STATE AGENCIES

State Engineer. The administration of the water resources of New Mexico centers in the Office of the State Engineer. He is specifically charged with "general supervision of waters of the state and of the measurement, appropriation, (and) distribution thereof. . ." (Ibid., 75-2-1).

The Office of the State Engineer is necessarily both a planning and an action agency. Of basic importance, the State Engineer is responsible for determining the water resources of the state and long-term planning for their orderly use. A closely associated function is that of assisting in the coordination of the work of many federal and state agencies charged with various water-resource programs.

Much of the action program is also designed to meet future needs and problems. The responsibility for making hydrographic surveys and of conducting studies for the accumulation of hydrologic data, as well as studies of water use, imply future action. This not only includes later disposition of undecreed waters of the state, but also the collection of data which can be used in advising various public and quasi-public agencies regarding their water problems.

The immediate action program which is most widely known is the continuing one of processing water rights applications. The basic function of the State Engineer in apportioning water is one of determining if there is unappropriated water and, if so, can the applicant appropriate it. In performing his duties, he has the authority to divide the state into water districts and to appoint watermasters who are in immediate charge in their respective districts. The State Engineer also has responsibilities with respect to reservoirs for impounding water for irrigation purposes. With minor exceptions, he must review plans and specifications of dams impounding in excess of ten acre-feet of water or exceeding ten feet in height, approve them on completion, and periodically inspect their maintenance. He also serves as Secretary of the Interstate Stream Commission.

Appeals from the rulings of the State Engineer are made to district courts. As a result of a constitutional amendment adopted in 1967, such appeals are tried de novo.

The law requires that the State Engineer be a registered engineer. He is appointed for a two-year term by the Governor with the approval of the state Senate, is removable only for cause, and his salary is fixed by the state legislature. Of necessity, the staff of his office, for the most part, must be made up of highly-trained specialists. The headquarters are at Santa Fe, but the pressure of state-wide demands has led to the establishment of branch offices at Roswell (1931), Deming (1951), and Albuquerque (1956). (Ibid., 75-2-1 through 75-2-16 deals specifically with the state engineer, but various responsibilities are listed throughout Chapter 75 and scattered through other chapters of the statutes.)

The Interstate Stream Commission. For the purpose of settling controversies with other states and attempting to secure an equitable distribution of the waters of interstate streams by negotiation, in 1935 the New Mexico Legislature created the Interstate Stream Commission. It has additional authority to cooperate with the federal government in conducting investigations for the purpose of developing interstate streams originating or flowing through New Mexico, and of doing everything necessary for protecting, conserving, and developing all waters and stream systems in the state, whether interstate or not. It is specifically charged with making plans for developing reservoirs and improving the channel of the Rio Grande. In 1955 the powers were extended to include investigations and plans for a comprehensive state-wide water program, limited only by the existing law governing water rights and by the State Engineer's control of ground water. Specific projects must qualify as part of a state-wide program, and demonstrate their potential to assume the financial obligations of operation, maintenance, repair, and amortization of construction costs through the sale of water and other services. The Commission has the power to implement this program through revenue bonds or through grants from the federal government.

At present, the Interstate Stream Commission is a nine-member body, eight of whom are gubernatorial appointees from various irrigation districts. The ninth is the State Engineer, who is ex officio secretary. (Ibid., 75-34-1 through 75-34-39)

State Planning Office. The State Planning Office encourages "long range, comprehensive, balanced development of the state's natural, economic and human resources" (Ibid., 1965 Replacement Vol., 4-20-2), by preparing, recommending, and keeping current programs for coordination, guidance, and use by the various agencies involved in the development, exploitation, and conservation of these resources. It engages in continuing comprehensive studies, cooperating with but not infringing on the legal powers of those state and local agencies responsible for programs involving the state's resources. It is specifically charged with establishing a library and a bibliography of water resource studies, and with developing plans "indicating benefits to be derived from water development, including but not limited to irrigation, flood control, domestic and industrial water requirements and recreation." (Ibid., 1965 Replacement Vol., 4-20-3). This includes applying for participation in appropriate federal recreational programs.

The State Planning Officer, appointed by the Governor with the advice and consent of the State Board of Finance, heads the agency. He is authorized to appoint such advisory committees representing economic and public groups as he deems necessary. (Ibid., 1965 Replacement Vol., 4-20-1 through 4-20-7)

State Soil and Water Conservation Committee. This Committee operates under the terms of the Soil and Water Conservation District Act of 1965, which superseded the act of 1937 initially providing for a similar committee. The stated purpose is to protect the soil and water resources of the state through control of erosion and flooding, much of which has resulted from poor tillage and grazing practices. Its activities, however, are not confined to agricultural uses alone, but include the promotion of the use of impounded water for recreational purposes, the propagation of fish and wildlife, and the satisfaction of urban and industrial needs.

The state committee assists district supervisors in carrying out their programs, acts as a clearing house between the districts in promoting cooperation and coordination of their activities, and is the liaison between the soil and water conservation districts and other state, federal, and private agencies. It gives aid, within its budgetary limits, to district activities, encourages the formation of additional districts where needed, and disseminates general information on district activities and programs. It may also purchase or lease equipment, tools, machinery, construction materials, and other personal property for use by the districts under such conditions as it establishes.

The committee consists of eleven members: six district supervisors selected from a panel of candidates, one at-large member chosen because of his active interest in the conservation or development of the state's natural resources, and four ex officio members (the Governor, the Associate Director of the State Cooperative Extension Service, the Associate Director of the State Agricultural Experiment Station, and the State Conservationist for the Federal Soil Conservation Service). (Ibid., 1965 Replacement Vol., 45-5-45 through 45-5-47)

State Park and Recreation Commission. The basic function of this Commission is to promulgate and publish rules and regulations governing the development, maintenance, management, and use of state parks and recreational areas. It has the power to acquire lands for such purposes and to transfer excess lands to other state agencies or bodies. The commission shares with other agencies the control over its water-recreation areas at sites where multiple use is made of the waters. It also cooperates with the State Game and Fish Department in regulating hunting and fishing in the areas under its jurisdiction. The Boat Act of 1959 added to the responsibilities of the commission the duties of licensing motor boats for use on state waters, promulgating and enforcing rules and regulations regarding watercraft safety, and authorizing regattas, races, marine parades, and other boating events on state waters.

The State Park and Recreation Commission has seven members, six of whom are appointed by the Governor for terms of four years; the seventh is the State Highway Engineer. The Commission appoints the Director, who is in immediate charge of its programs. (Ibid., 53-1-2 through 53-5-10; Ibid., 1965 Supp., 7-35-1 through 75-35-21).

New Mexico Department of Game and Fish. The Department makes all the rules and regulations, and establishes such services as are necessary, for carrying out the laws relating to game and fish and for collecting and disbursing money received under state law for their protection and propagation. It is specifically directed to cooperate with the federal government in carrying out the wildlife restoration programs provided for by various acts of Congress. Its conservation and preservation activities, as they relate to water resources, include operating fish hatcheries for stocking public waters, and, for consideration, private ponds; closing public streams when necessary to protect recently stocked waters, spawning areas, or any species from undue depletion; and propagating, transporting, or selling any species of game or fish needed for restocking. The Commission also supervises the restocking of game-fish streams by any persons using such streams for floating logs or timber. Related functions include establishing open and closed seasons; prescribing methods and devices for taking game and fish, and licensing hunters, fishermen, trappers, guides, and operators of private parks and lakes.

The Commission, which enjoys the power of eminent domain, may acquire lands for fish hatcheries and other animal conservation areas, and for "dams, lakes, ditches, flumes, waterways, pipelines . . . for all purposes incidental to the propagation, preservation, protection, and management of the game, birds, fish, and wildlife of the State of New Mexico." (N. Mex. Stat., 1953 Ann., 53-4-1)

It is a five-member bipartisan department appointed by the Governor with the advice and consent of the state Senate for five-year staggered terms. It selects a director to administer the functions of the department. In addition to the salaried staff, the department has authority to appoint non-salaried reserve conservation officers who have the power to enforce the fish and game laws and to perform such other services as are assigned to them for the protection and propagation of game and fish. (Ibid., 53-1-1 through 53-5-10 and 4-9-21; Ibid., 1967 Supp., 53-2-3)

Health and Social Service Department. The Health and Social Service Department came into existence in 1967 as the result of the consolidation of the State Department of Health and the State Department of Public Welfare. The water-related functions of the department arise from its responsibilities for regulating drainage, water supply sewage, and water disposal insofar as they relate to the public health, and specifically for regulating sanitary conditions at recreational resorts and camps and at swimming pools. The department also administers the Sanitary Projects Act.

The five-member board is appointed by the Governor for six-year staggered terms; the board in turn selects a director who is responsible for the administration. (Ibid., 12-1-1 through 12-1-17; Ibid., 1967 Supp., 14-28-1 through 14-28-19)

Water Quality Control Commission. Created by the legislature in 1967, this ex officio commission is the state's water pollution control agency, formed to carry out the functions prescribed by the Federal Water Pollution Control Act of 1965 and the Clear Water Restoration Act of 1966. It is charged with adopting comprehensive programs designed to assure the quality of the state's waters and to prevent or abate their pollution. Representatives of the agencies which collectively comprise the commission are charged with adopting a comprehensive water quality program; establishing water quality standards as guidelines to pollution control; and adopting, promulgating, and publishing regulations for the state as a whole or for specific geographic areas within the state. Specific administrative responsibilities may be assigned to each of the several constituent agencies. The commission and these agencies encourage voluntary cooperation in preventing or abating pollution; however, they may initiate injunctive relief when conscious violations of their rules occur.

The members of the commission are the Director of the New Mexico Department of Public Health, the Director of the New Mexico Department of Game and Fish, the State Engineer, the Secretary of the Oil Conservation Commission, the Director of State Parks and Recreation, and the Director of the New Mexico Department of Agriculture, or designated members of their respective staffs. (Ibid., 1968 Replacement Vol., 75-39-1 through 75-39-12)

Weather Control and Cloud Modification Commission. This agency was legislated into existence in 1965 to regulate rain-making schemes which possibly could injure New Mexico and the surrounding states. The commission may license such projects after investigating the qualifications, financial responsibility, objectives, and methods of the operators, and the circumstances surrounding specific attempts at cloud modification. It has the power to make rules and regulations governing all such activities, and to conduct field investigations and inspections necessary for enforcing its regulations. The commission is required to file periodic reports on weather control activities within the state.

Enforcement is in the Board of Regents of New Mexico Institute of Mining and Technology, which is instructed to appoint a three-member board for the purpose. All fees collected are placed in a fund to carry out the provisions of the Weather Control Act. (Ibid., 75-37-1 through 75-37-15)

State Research and Educational Services. In addition to the educational services carried on by all water resources agencies, the higher educational institutions teach courses in various water resources areas and majors are offered in hydrology, water resources engineering, and water resources economics, to name a few.

The following units were created specifically to perform research and educational functions. Each unit conducts work in the water resources area.

The Water Resources Research Institute is the most comprehensive, since it is dedicated exclusively to water resources research and to the training of scientists through such research. The Water Resources Research Act of 1964 (P.L. 88-379) established a Water Resources Research Institute or Center in the 50 states and Puerto Rico. By the terms of the Act, the Institute is located at the state land grant university, New Mexico State University, but its responsibility for the conduct of research and the training of scientists is state-wide. It extends financial support to departmental, interdisciplinary, and inter-university projects, and at present is sponsoring research at the University of New Mexico, New Mexico State University, and New Mexico Institute of Mining and Technology. New Mexico State University, through the Water Resources Research Institute, sponsors the Annual Water Conferences held at Las Cruces.

The Agricultural Experiment Station, established under the Experiment Station Act of 1887, conducts water research projects at the main station at New Mexico State University, and may conduct projects at any or all of its seven branch stations located in various areas of the state.

The Engineering Experiment Station is located at New Mexico State University. Climatic conditions being what they are, much attention is given to the water problems of arid to semi-arid regions. The Engineering Experiment Station studies a wide variety of water-engineering problems.

The Cooperative Agricultural Extension Service and the Department of Agricultural Services are located at New Mexico State University. These agencies also give much attention to the water problems of arid and semi-arid regions. The Extension Service carries the most recent developments in agriculture directly to farmers and ranchers through its state specialists and county agents, and through the use of mass communication media. The Agricultural Services conducts on-farm plot demonstrations.

At the University of New Mexico, the Bureau of Business Research, the Division of Government Research, and the Bureau of Engineering Research are all involved with water-related problems, while its School of Law publishes the Natural Resources Journal, which is particularly concerned with water law.

The New Mexico Institute of Mining and Technology conducts resource research through its Research and Development Division. Some of this work is in cooperation with the State Bureau of Mines.

Bulletins, circulars and other types of releases are made by each of these research and educational agencies in carrying out their specific functions within the state.

LOCAL WATER CONTROL AGENCIES

Community ditches (acequias). The acequia, or community ditch, is the oldest local water-control agency in New Mexico, with a history dating far back into the Spanish period. After New Mexico passed to the United States, the first territorial legislature guaranteed existing acequias against disturbance. In 1874 the legislature provided that all inhabitants of the territory had the right to construct either private or common acequias, taking water where they could but paying just compensation to the owners of land through which the ditch might run.

Acequias are the property of those who construct them; no one else can use them without the consent of the majority of the owners, and then only upon payments and services proportionate to those of other users. The law provides that acequias will be controlled by three commissioners, elected for one-year terms by those holding water rights in the ditch and who are not delinquent in their assessments, and by an elected mayordomo. The commissioners exercise general control while the mayordomo superintends work on the ditch, distributes its waters, and collects fines and money paid in lieu of fatigue work. The acequias are maintained by the owners, either by working on them or making payments in lieu of work, and by assessments. In 1903 the territorial legislature modified the law regarding the operation of acequias in certain counties; as a result, there is some variation in the laws governing them, depending on their location. (Ibid., 75-14-1 through 75-15-10)

The legal status of acequias is not entirely clear. They are quasi-public but have no taxing power and therefore have difficulty in borrowing. The legislature attempted to clarify the status of acequias in 1965 by declaring them to be political subdivision of the state, and authorizing them to contract indebtedness for the purposes of the district, to borrow money and to accept grants from the United States and its agencies, and to secure payment of its obligations by mortgaging or pledging its assets to guarantee repayment. (Ibid., 1968 Replacement Vol., 75-14-21.1, 75-14-25.1)

Water Users' Associations. The federal Reclamation Act of 1902 revolutionized local water control agencies in New Mexico. Before that date, those who were not on acequias were compelled to depend upon their own resources, securing water either by maintaining private ditches or by buying water from private companies. The Reclamation Act anticipated two projects in New Mexico--Elephant Butte and Carlsbad--contingent upon the assurance that the impounded water would be put to beneficial use, and that the bulk of the costs of construction and operation would be repaid by the beneficiaries of the projects. As provided by the law, the Secretary of the Interior required the organization of "water users' associations" to assume these responsibilities as a condition precedent to any further action by the federal government. Under authority granted by the territorial legislature, the Elephant Butte and Carlsbad associations were formed in 1905.

The benefits arising from these associations accrued only to the water users within the respective projects, but the potential advantages of cooperative effort, even in the absence of a federal reclamation project, were quite apparent. As a result, in 1909 the legislature enacted a measure providing that: "Whenever the owners of lands, reservoirs or irrigation ditches . . . may desire to enter into mutual undertakings to construct, maintain and operate storage reservoirs, diversion dams, irrigating ditches, canals or other irrigation works or to combine their several irrigating ditches, canals or other works into one or more

irrigation systems, or to improve, enlarge or add to the same, for their mutual advantage, they may organize a water users' association. . . ." (Ibid., 75-17-1). Such associations were authorized to take rights-of-way across lands belonging to the territory for their canals and other works, and to acquire other lands under eminent domain. The law specified the method by which they could assume corporate organization, a status specifically spelled out in the legislation. (Ibid., 75-17-2 through 75-17-9) In this way a corporate form of local water-control organization took its place alongside the existing acequias.

Irrigation districts. In 1919, the state legislature provided for the creation of two types of irrigation districts: those cooperating with the federal government under the various reclamation acts, and those which were not. This distinction was the result of federal legislation of August 11, 1916, which provided that public lands lying within a legally-created irrigation district could be brought within the jurisdiction of that district and be entitled to the same rights and privileges, except that it could not apply in any district in which the majority acreage was unentered land. The costs of the district would be equitably distributed among private owners, lands legally covered by unpatented entries, and unentered public lands, with all legally assessed charges a lien on the land. All district projects must fall within the framework of the rules and regulations established by the Bureau of Reclamation and be subject to review by the Secretary of the Interior. (U. S. Code, Title 43, Ch. XIII, par. 621-630)

Despite some variances in the initial legislation, and subsequent amendments of substantial importance, many of the provisions for the two types of district are identical. Both provide that proposed districts (which in the non-cooperating districts are permitted to take the name "water-," "conservancy-," or "irrigation district") must be initiated by a petition, signed by a majority of resident freeholders owning more than one-half of the land to be included, to the board of county commissioners. Once the board has established the fact that the petition meets all the legal requirements, it calls an election of the qualified electors to vote on the proposal and to elect one member from each division within proposed district to serve on its board of directors. Districts not cooperating with the federal government have three divisions, those cooperating, from three to nine depending on the acreage.

The boards of directors have the power to construct, purchase, or otherwise secure canals, ditches, reservoir sites, water rights, and rights of way necessary for the purposes of the district, and to maintain and operate them; and to construct drainage facilities to prevent waterlogging, but all large contracts must be approved by the qualified electors of the district. Subject to certain limitations, a board may contract to acquire water from outside sources or to deliver surplus water to occupants of lands outside the district. If the volume of

water should be insufficient for the season, the board may establish a schedule for the delivery of water to the various localities, subject to the proviso that there can be no diversions to the detriment of those having prior rights to the use of the waters in question. It can also deny water to those in arrears on assessments.

In carrying out its responsibilities, each board of directors has the power to issue bonds, after their approval by the qualified voters, and to provide for their retirement by tax levies and assessments. In 1925 the state legislature created a board, composed of the Attorney-General, the State Engineer, and the State Bank Examiner, to certify the bonds of irrigation and conservancy districts after investigation of the financial conditions of districts in question, and of the feasibility and desirability of the projects for which bonds are to be issued. Districts not cooperating with the United States are, nonetheless, authorized to negotiate the sale of their bonds to various federal agencies.

One requirement of non-cooperating districts is that, as soon as practicable after its organization, its board shall employ a competent hydraulic engineer to determine potential water supply of the district from all sources, with an estimate of the average amount of water available annually for irrigation and storage, such report to be reviewed by the State Engineer. (N. Mex. Stat., 1953, Ann., 1968 Replacement Vol., 75-22-1 through 75-22-60, and 75-27-1 through 75-27-8)

Districts cooperating with the United States are authorized to enter into obligations or contracts with the United States for the construction, operation, and maintenance of necessary works for the delivery and distribution of water, and for drainage. This includes the right to convey to the federal government such property as might be needed for works beneficial to the district. The United States can, if it chooses, make such districts its fiscal agent. These districts are permitted to join with those of adjoining states for cooperative action in irrigating lands, and also for projects involving the production, sale, and distribution of hydroelectric power. All existing districts are permitted to come under the provisions of this act by securing the approval of the majority of their qualified electors. (Ibid., 75-23-1 through 75-24-54)

The state legislature has provided for "electrical irrigation districts" to serve the needs of those living in areas depending upon ground water. They are given extensive authority to provide power or fuel for pumping water for irrigation purposes, but thus far no electrical irrigation districts have been created. (Ibid., 75-25-1 through 75-25-57)

Drainage districts. Drainage, as well as irrigation, is a serious problem in many areas of the state because of the inefficiency of primitive acequias which had waterlogged the land, and of river-bed silting which caused flooding and seepage in their valleys. The Constitution of

New Mexico authorized legislation for the organization and operation of drainage districts and systems (Article 16, Sec. 4), a power exercised in the first legislative session after statehood. One-fourth of the adult landowners collectively owning at least one-quarter of the lands in the proposed district may petition the district court to organize a drainage district with power to construct, maintain, and operate drainage ditches, or to purchase any already constructed. The district is controlled by a board of elected commissioners who are, however, at all times subject to supervision by the district court. The board has the initial responsibility of employing a competent drainage engineer to draft a comprehensive plan, estimating the anticipated benefits or injuries resulting from such works, but final determination of specific drainage routes is the responsibility of the commissioners themselves. They have the authority, acting as a board, to assess the landowners benefitting from the district's activities and to borrow money and to issue bonds in carrying out its responsibilities. (Ibid., 75-19-1 through 75-20-56)

State legislation of 1917 provided for the creation of drainage districts within the limits of federal reclamation projects. It permits cooperation with federal agencies, and the assumption by the district of the position of principal or guarantor of indebtedness incurred for its benefit by the United States government. The powers of these districts are substantially the same as other drainage districts. The size of the board ranges from three to nine members, depending on the acreage within the district. (Ibid., 75-21-1 through 75-21-60)

Conservancy districts. Important as they are, because of their limited objectives, irrigation and drainage districts cannot by themselves serve the purposes of the state in all situations. Many areas suffer from a combination of conditions which includes not only continuing loss of arable land through waterlogging but also flood hazards which threaten river valley communities. The only answer is the multi-purpose conservancy district.

Conservancy districts are "organized for the purpose of providing and maintaining flood protection, river control, drainage, water storage for supplementing irrigation needs, constructing and maintaining distribution systems for irrigation; and other improvements for public health, safety, convenience and welfare either in cooperation with the United States government or any department thereof under federal laws, or to districts organized for the purpose of making such improvement under the powers of this act contained." (Ibid., 75-28-2) Such districts cannot be formed in the Rio Grande Valley south of Elephant Butte dam nor north of the southern border of Santa Fe County; they can, however, impound and control the waters of the Rio Grande or other streams, and acquire rights and property incident thereto within or without the district.

Conservation districts have the power to "straighten, widen, deepen, divert or change the course or terminus of any natural or artificial water-course; drainage, irrigation, or community ditches or acequias; to build reservoirs, canals, drainage, irrigation, or community ditches or acequias, levees, walls, embankments, bridges, or dams; to drain, reclaim, or fill low lands and lands subject to overflow; to make improvements, to remove, and to regulate and prescribe the location of improvements upon land; to maintain, operate and repair any of the construction herein named; to sink wells, to purchase, develop and reclaim waters for the purpose of using, distributing, selling, or leasing the same; to construct, operate, lease and control plants for the generation, distribution, sale, lease and use of electric energy; to construct, maintain and operate irrigation and drainage works or systems within the district or to purchase, extend, improve, operate and maintain constructed works; to cooperate and contract with the federal or any state government or agent of department thereof; to promote the agricultural resources and marketing facilities of the district; to levy assessments, issue bonds, and make appropriations of money, and to do all things necessary to effectuate and fulfill the purposes of this act." (Ibid., 75-28-4) If the conservancy district extends beyond the geographic limits of the judicial district in which it is organized, the jurisdiction of that court nevertheless includes all the lands in the conservancy district irrespective of its legally defined boundaries, and is legally designated as the "conservancy court."

A conservancy district can be initiated on petition by the owners of more than one-third of the land (either in acreage or value) or by any city in the proposed district. The petition is filed in the court of that judicial district in which the greater part of the real property evaluation lies. If the prayer for formation is approved by the court and an election held for that purpose, administrative control is lodged in a board of from five to seven members, depending on the number of counties included in the district. The board members are elected for six-year staggered terms, and have the authority to adopt the overall plan, carry out the necessary improvements, and employ a chief engineer as general superintendent. They have the power "to make such proper and necessary distribution and allocation of the waters available for irrigation" as the board "shall determine to be reasonable and proper." (Ibid., 75-28-29)

To render greater flexibility, lands may be included within the boundaries of more than one conservancy district once it has been determined that such lands can be served best by the overlapping. Districts may unite when it appears desirable; and form subdistricts when proposed improvements affect only a part of the district or when proposed improvements lay partly within and partly without its boundaries.

The conservancy court appoints a board of three appraisers to determine the benefits and damages accruing to lands within and outside the district as the result of district activities, and to report on lands which should be included or excluded from the district.

The Conservancy District Reclamation Contract Act of 1939 was designed to facilitate cooperation between conservancy districts and the Bureau of Reclamation. It exempts districts having reclamation contracts from the formulation and approval of an official plan, substituting the Bureau of Reclamation plan for such work as will be constructed by the United States government. It authorizes districts to enter into indebtedness to the United States, and provides that lands be classified as irrigable and non-irrigable for the purposes of assessment. The board is allowed to enter into annual water-service contracts with individuals, subject to federal and state law, and to collect the resulting tolls and charges for use of the irrigation and drainage systems. (Ibid., 75-28-1 through 75-32-43)

Artesian Conservancy Districts. After the adoption of the groundwater code in 1931, the legislature provided for the creation of artesian conservancy districts. Although similar to general conservancy districts in name, the purpose is different. They are "to conserve, where necessary, the waters of artesian basins in New Mexico, the boundaries of which have been scientifically determined by investigations, and where such waters have been beneficially appropriated." (Ibid., 75-13-1) The boundaries include all lands overlying the basin and those outside drawing on its waters. The district can also request jurisdiction over other ground water within its limits which are so closely associated that effective conservation can be achieved only by their inclusion. The district may be enlarged in the event that the State Engineer declares an extension of the limits of the basin.

The petitions, hearings, and decrees creating artesian districts are similar to those governing other conservancy districts. Their administration is in a board of elected directors, one from each of the five subdivisions into which conservancy districts are divided. The boards prepare annual programs of water conservation and administration, with authority to cooperate with the State Engineer and the United States Geological Survey, and estimate the costs for the year. They determine the tax levy necessary to operate the district, and may borrow money in anticipation of such revenue. (Ibid., 75-13-1 through 75-13-24)

Soil and Water Conservation Districts and Watershed Districts. Although soil conservation districts have been operating in New Mexico since the passage of enabling legislation in 1937, their present organization and functions date from 1965. The Soil and Water Conservation District Act of 1965 repealed the act of 1937 but provided that existing districts would be perpetuated under the new laws, and that incumbent supervisors would continue in office until their successors had been elected and had qualified. These local districts are the machinery through which the State Soil and Water Conservation Committee functions.

In carrying out its responsibilities, a district has the authority to conduct investigations and surveys in the general areas of soil erosion, floodwater and sediment damage, and the conservation and utilization of

water resources, but only in cooperation with such governmental units as are engaged in the same or similar studies. It is charged with disseminating its findings, with suggested preventive and control measures which will result in the conservation and development of natural resources. In addition, it can cooperate with landowners in conducting demonstrations in the application of such measures, whether in the nature of engineering, tillage methods, alternative land use, or other practices. It has the power to encourage cooperation in the program by contracting with, and rendering financial and other aid to landowners within the district for furthering the purposes of the district. This may include making available, under such terms as the supervisors deem necessary, tools, machinery, equipment, fertilizers, seeds, etc., to cooperating landowners.

The district may acquire and administer the projects of other governmental conservation agencies operating within its boundaries; act as the agent for such agencies in acquiring, constructing, operating, and administering conservation or developmental programs; and construct, improve, operate, and maintain physical structures necessary for the purposes of the district. It may accept grants from the federal government, contract with the United States, borrow money, and levy annual assessments with the approval of two-thirds of the landowners voting in the referendum on such assessments.

New districts may be initiated on petition of at least twenty-five landowners within the proposed district, and must be approved by the State Conservation Committee and the majority of the qualified voters in the district. It is governed by a board of five elected supervisors serving three-year staggered terms, the one limitation being that there must be equitable representation of both range and farm lands. The State Committee, if it chooses, may appoint two additional members from a list of five names submitted by the district's board. (Ibid., 1965 Replacement Vol., 45-5-42 through 45-5-64)

In 1957 the legislature provided for the creation of local watershed districts to cooperate with the federal government under the terms of the Watershed Protection and Flood Prevention Act of 1954, popularly known as Public Law 566. Its purpose is to promote upstream flood prevention and overall improvements in watersheds of less than 250,000 acres, and in which water impoundments do not exceed 5,000 acre-feet. The federal government provides technical and financial assistance to legally-organized local districts which agree to follow comprehensive land-and-water-use programs, and build those structures necessary to retard excessive sedimentation and excessive runoff resulting in flooding. The districts are responsible for securing acceptance and compliance by local landowners, providing the necessary rights-of-way and water rights, and sharing in the initial project costs and all future maintenance. (U. S. Code, Title 33, Chap. XV, par. 701b)

Watershed districts may be subdistricts of soil and water conservation districts; since, however, such subdistricts must embrace as well-defined

watershed or sub-watershed, the boundaries of the two probably will not be coterminous. The mechanics of forming a watershed district are quite similar to those for a soil conservation district except that the petition is filed with the SCWC district's board of supervisors. If the watershed district extends into other SCWC districts, any one of them can accept the initial petition, but the supervisors of all of those involved serve as a joint board in the formation and supervision of the watershed district, whose governing body is a five-member board of directors elected to four-year staggered terms; if, however, it includes land in more than one SCWC district, each such with a minority acreage is entitled to three additional members.

Subject to the approval of the supervisors of the soil conservation districts involved, the watershed district board has the power to provide for the construction, operation, and maintenance of structures inside and outside the district for carrying out its purposes. It can acquire lands and rights-of-way, subject to the limitation that no land or water rights can be condemned for recreational purposes. The board may levy assessment against the real property within its borders, borrow money, and receive and grant assistance to other state and federal agencies. There are, however, limits to its fiscal powers. Bond issues must be approved by the board, or boards, of supervisors, and by two-thirds of the landowners. Levies can be made only against agricultural lands unless it can be shown at special hearings that specific non-agricultural lands will benefit. (N. Mex. Stat., 1953, Ann., 1965 Replacement Vol., 45-5-19 through 45-5-41).

Municipalities. The scattered laws governing municipalities were codified by the state legislature in 1965. Of all of this body of law, none is of greater importance than those sections dealing with a municipality's administration of its water supply.

The first obvious responsibility is that of securing enough water to satisfy its various needs. This can be done either by granting a franchise to a private individual or corporation, or by the operation of its own facilities. It has extensive power to acquire, through condemnation if necessary, water sources and water rights, as well as all necessary rights-of-way. The jurisdiction of the municipality extends to all lands within and without the corporate limits which are a part of the system, and for five miles above the point from which water is taken. Its governing body has the authority to issue general obligation bonds, subject to their being approved by the qualified voters, for securing, enlarging, improving, or extending its water system. It also can issue revenue bonds and pledge the income from the proceeds from the operation of the waterworks, but it is mandatory that the rates charged for services must be sufficient to pay reasonable operating costs and interest, and to retire the obligations within a stated time. (Ibid., 1967 Supp., 14-26-1 through 14-26-8; 14-29-5; 14-30-1.1; 14-30-6 and 14-30-7; 14-43-1).

In 1951, the legislature provided for the right of two or more incorporated places to organize associations for the purpose of jointly acquiring water-supply systems, and to enter into agreements with consumers. These are called "inter-community water supply associations" and are administered by a commission appointed by the governing bodies of the municipalities involved. They have the right to distribute the water, and to issue revenue bonds, subject to the same mandatory rates prevailing for individual municipalities. (Ibid., 14-27-2 through 14-27-18)

A municipality has extensive regulatory power over all the waters within its jurisdiction. It may regulate and restrict their use to prevent waste and conserve the supply. It can deepen, widen, dock-cover, wall, or change the course of streams; and cleanse and purify waters, water courses, and canals. It regulates the use of cisterns, hydrants, pumps, and wells, and has the authority to drain or fill ponds on private property which threaten to become public nuisances. It may regulate the flow and use of ditches within its limits, including public acequias for irrigation purposes.

Flood control is frequently a major concern. Municipalities may construct dikes, dams, embankments, ditches, storm sewers, or other structures, or provide for such excavations as may be necessary to protect from floods. Natural channels of streams within or without the corporate limits may be changed, extended, widened, deepened, or raised in order to divert flood waters. General revenue bonds can be issued to finance these activities.

In case it appears necessary for properly carrying out its responsibilities, the governing body of the municipality has the right to create improvement districts, including those for the construction and maintenance of storm sewers, sanitary sewers, or waterworks, with the power to assess the residents of that district. By special legislation, Albuquerque and Las Cruces are empowered to create arroyo flood control districts, a right which has been exercised by Albuquerque but rejected by Las Cruces. (Those sections of the Municipal Code dealing with the municipality's control over water are in Ibid., 14-17-17; 14-26-1 through 14-26-8; 14-27-1 through 14-27-18; 14-29-5 through 14-29-8; 14-30-1.1 through 14-30-11; 14-32-1 through 14-32-6; 14-42-1 through 14-42-5; 14-43-1; 14-54-1 through 14-54-5; the Las Cruces and Albuquerque arroyo flow control authority is 75-36-1 through 75-36-103 and 75-38-1 through 75-38-103.)

Counties. Initially, counties had little control over problems relating to water. Their earliest authority was the right to levy taxes, within prescribed limits, for the purchase of sites for federal irrigation experiment stations.

In 1921, the legislature provided for the appointment of a county flood commissioner in each county having streams which were subject to flooding. The governor makes the appointment, subject to approval by the

board of county commissioners. The Flood Commissioner is charged with arranging for a preliminary examination into potential flood conditions, after which he is authorized to contract for the construction and maintenance of necessary flood control structures. All of this is subject to the right of review by the State Engineer. Projects are financed through an annual tax, not to exceed 1.5 mills per dollar of assessed valuation, on all taxable property located within five miles of the rivers or streams subject to flooding, which constitutes the "County Flood Fund."

Boards of county commissioners are authorized to create emergency flood districts, with a superintendent for each. All males between the ages of sixteen and sixty, residing within five miles of any stream subject to flooding, can be summoned to work for as many as five days per year, as well as to furnish teams, but no person or team can be called upon for more than one day until all persons and teams in the district have worked or have paid in lieu thereof \$2.00 per day for labor or \$3.00 per day for a team's services. Money paid in lieu of work, and fines collected from those who refuse either to work or to pay, go into the "Emergency District Flood Fund," which must be expended in the district in which it is collected. In times of emergency, the superintendent of the emergency flood district can order headgates closed, ditches dug, flood waters drained, and enforce other regulations necessary to handle the crisis.

Since 1959 boards of county commissioners have been empowered to acquire water rights for developing county water supply systems, the purpose of which is to supply the inhabitants of unincorporated areas with water for domestic and sanitary purposes. They are permitted to issue bonds to pay the costs, but these must be retired solely from revenue derived from the operation of the system, and cannot become a general obligation on the county. (Ibid., 1953, 15-37-25; 15-50-1 through 15-50-17; 1967 Supp., 15-50-1 and 15-50-6; 1968 Replacement Vol., 75-4-1.1 through 75-4-1.11)

Miscellaneous water and sanitation districts. The simplest of all local water groups is one which has common ownership of a spring, water tank, canal, or irrigation system governed by local custom and regulation. The state has recognized the legality of such informal local control so long as it is not detrimental to the public welfare, does not impair the authority of the State Engineer or watermasters, and has no detrimental effect on federal reclamation acts. In those cases in which a community owns springs or tanks of water, the group has been given the right to elect three commissioners to protect their water source and to provide for suitable dams, breakwaters, etc. Their authority is comparable to that of acequia commissioners. If the need for impounding the water should become necessary, a petition to the county commissioners, signed by no less than one hundred persons, is sufficient for the county commissioners to constitute them into a corporation for the purpose of building needed reservoirs and ponds. The county may furnish the tools, rock, and mortar, while the petitioners must furnish the labor for the project. (Ibid., 1968 Replacement Vol., 75-8-1 through 75-9-10)

Legislation adopted in 1943 and rewritten in 1963 as the Water and Sanitation District Act makes possible the organization of local water and sanitation districts for the purpose of establishing and operating sanitary sewers, sewage and garbage disposal systems, waterworks, or any one or combination of these services. Water can be used for domestic, commercial, and industrial purposes, and the district is authorized to extend its lines outside its boundaries in order to secure an ample water supply or to furnish water to any federal, state, or Indian reservation lands for use by any person, firm, or corporation. Organization of such a district is initiated by petition to the district court by at least twenty-five percent of the taxpaying electors on the proposed district, followed by hearings and the submission of the proposal to the voters concerned. Such a district is governed by an elected three-member board serving six-year staggered terms. The board has general power to enter into contracts and agreements, including those with the federal government; acquire property; borrow money; make contracts for construction; and fix rates and charges for the use of the facilities. It can levy and provide for the collection of taxes on the real property within the district, and issue bonds. (Ibid., 75-18-1 through 75-18-49) These districts can become the vehicle for contracting with the Farmers Home Administration.

A type of local association, presently operating under the Sanitary Projects Act of 1965, had its origins in legislation of 1951 permitting the formation of domestic water consumers' associations in unincorporated rural areas. The purpose is to assist in providing for adequate, sanitary domestic water supplies, thereby discouraging the use of ditch water, open shallow wells, creeks, and other sources subject to contamination. Water is available for domestic purposes only, the law specifically forbidding its use for irrigating commercial crops or supplying livestock grown for commercial purposes. The act of 1965 broadens an association's power to include construction of sewage systems.

An association can be proposed by local sponsors who must furnish all pertinent information necessary for determining its practicability. They have to accept the limitations on its use, guarantee its maintenance, and agree to contribute cash, labor, materials, and services in its initial construction. The State Department of Public Health can then give financial aid on a maximum schedule of \$7,000 for fewer than twenty-eight dwellings and \$250 per dwelling in excess of this number, but with an absolute maximum of \$12,000 for any one association. In no case will the state assume more than two-thirds of the total cost. The state will not recognize an association formed to serve fewer than ten dwellings, and excludes communities which are subdivisions contiguous to incorporated places and those which have been in existence less than twenty-five years. Money for the associations comes from the "Sanitary Projects Fund."

A local five-member board of directors, chosen annually, is the controlling body for each association, but it is required to hire a licensed professional engineer to supervise construction and to act as coordinator

during the building period. Following its completion, the system is under the administration of a board-appointed foreman who cares for and regulates the use of the water. Since 1965 the board has the power to issue revenue bonds for the expansion of the facilities, pledging future income from the association's services, if such issues are approved by the State Department of Public Health and the Department of Finance and Administration. The board must, under any conditions, guarantee proper sewage disposal, and these associations have been declared eligible for construction grants under the terms of the Federal Water Pollution Control Act. (Ibid., 1953, Ann., 14-40-59 through 14-40-74; 1967 Supp., 14-28-1 through 14-28-19).

Private waterworks corporations. The State of New Mexico has a specific method to be followed by any group desiring to incorporate for "supplying water for the purposes of irrigation, mining, manufacturing, domestic and other public purposes, including cities and towns, and for the purpose of colonization and improvement of lands in connection therewith, for either or both objects." (Ibid., 1953 Ann., 68-2-1) In addition to the usual requirements for corporate organization, the law prescribes a detailed description of the proposed reservoirs, canals, ditches, pipelines, etc., with the proviso that water cannot be diverted if it will interfere with the reasonable requirements of those using it. These companies do, however, possess the power of eminent domain, and the right to take timber and stone from state lands.

Private companies serving municipalites of over 3,000 population enjoy all the privileges which the state has conferred on railroad companies. They also have the right to lay pipes upon public streets and alleys, subject to the regulations of the municipal authorities. Companies created for the purpose of supplying water for irrigation cannot divert the flow of water in any stream declared to be a public acequia between February 15 and October 15 of each year, except with the unanimous consent of all persons cultivating lands with water from that stream. (Ibid., 68-2-1 through 68-2-23).

FEDERAL AGENCIES

There are many federal agencies performing services directly tied to the nation's water resources. Some have advisory, coordinative, research and educational functions; others are action agencies, dealing directly and immediately with the problems. Although some operate at the national level, the large majority are cooperative national-state or national-state-local in nature, with the federal government normally supplying technical assistance and administering grants-in-aid. The departments of Interior, Agriculture, Defense, and Commerce, in particular, are closely identified with the nation's water resources.

THE DEPARTMENT OF THE INTERIOR

The Department of the Interior is the custodian of the nation's natural resources: public lands, fish and wildlife, national parks, reclamation, and many functions relating to hydroelectric power. Its basic purpose is to conserve natural resources while developing maximum use consistent with this basic objective. A small professional group called the Program Support Staff advises the Secretary on the many departmental problems and represent him on the various inter-agency river-basin committees and on the federal-state river-basin commissions authorized by the Water Resources Planning Act of 1965. The various bureaus and services within the department are grouped into logical subdivisions. (United States Government Organization Manual, 1967-1968, 240-244, 630).

The United States Geological Survey. Established in 1879 to classify the public lands, including those suitable for irrigation, the duties of the USGS have been broadened to include topographic mapping, stream gaging, and determining the water supply of the United States, with provision for the publication of maps, water supply and other technical papers, monographs, and bulletins. In respect to water resources, it classifies federal land as to its water storage and water potential; conducts studies to determine the source, quantity, quality, distribution, movement and availability of surface and ground water; and investigates floods and droughts, and their relation to other physiographic factors. The USGS appraises and evaluates the water requirements for industrial, domestic, and agricultural purposes in river-basin and groundwater provinces, and determines the chemical and physical qualities of regional water resources, including suspended sediment load. It conducts studies on the interrelationship of climate, topography, vegetation, soils, and the water supply, and recently became the coordinator of the national network and special water-data acquisition activities of all federal agencies. (Ibid., 256-258).

Bureau of Reclamation. The present Bureau of Reclamation is an outgrowth of the Newlands Act of 1902, which authorized the Secretary of the Interior to provide for the storage, diversion, and development of water for the reclamation of arid and semi-arid lands, working through local water-users' districts which were required to assume responsibility for repaying to the government that proportion of costs allocable to irrigation.

The activities of the Bureau of Reclamation have been extended to include many other things. Non-irrigation responsibilities on Bureau Projects include providing water for domestic, municipal, and industrial uses on a repayment basis; the production of hydroelectric power; and the encouragement of recreational uses, as well as the enhancement of natural beauty. As is true with many agencies, it is concerned with the reduction of damage from uncontrolled runoff, the conservation of fish and wildlife, the abatement of pollution, and problems of sedimentation and salinization.

The most recent addition to its duties is the administration of an atmospheric water resource research program for determining the economic feasibility of applying weather modification techniques to increase the water supply at reclamation projects.

Besides the obvious responsibilities of keeping informed in regard to its operating projects, designing and constructing those for which funds have been allocated, and planning potential future developments, the Bureau also engages in the settlement of federally-controlled lands located on its projects. It is responsible for the negotiation, execution, and administration of a wide variety of contracts, and also for transmission, sale, and exchange of electric power generated at certain reservoirs under the control of other national or international agencies. Through the Agency for International Development it renders technical assistance to foreign countries on water resource development and utilization. (Ibid., 264-266).

Outdoor recreation agencies. The National Park Service, the Bureau of Outdoor Recreation, and the Bureau of Sports Fisheries and Wildlife have separate but related functions. They are all concerned with encouraging the use of the nation's land and water resources for recreational purposes and, at the same time, guarding them from depletion.

The National Park Service provides public needs in promoting the enjoyment of national parks, monuments, and other reservations, while protecting their scenery and wildlife. It also cooperates actively with the appropriate state agencies in developing state parks and recreational facilities. (Ibid., 254)

The Bureau of Outdoor Recreation promotes coordination of federal plans and programs relating to outdoor recreation and preservation of natural beauty. It prepares and maintains a continuing inventory and evaluation of the nation's outdoor recreation needs and resources, and undertakes studies to determine the suitability of areas proposed as national recreational areas, providing financial assistance to certain federal agencies for land acquisition. It engages in comprehensive studies of recreational potential of river basins and of the various lands controlled by the federal government.

At the state level, the Bureau assists in the development of comprehensive state outdoor recreation plans, providing financial assistance to states and, through them, to their political subdivisions through its Land and Water Conservation Fund. Although a relatively youthful agency, it is already deeply involved in giving technical assistance and financial aid in promoting outdoor recreation activities in all areas. (Ibid., 261-262).

The Bureau of Sport Fisheries and Wildlife carries on research on the habits, distribution and diseases of migratory game birds and game

fish, and recommends the best methods for managing wildlife in its native habitat. BSFW research teams study the nutritional and disease factors in hatchery-raised fish and their planting in various waters. An increasingly significant activity is its investigations of the effects of river-basin projects on fish and wildlife. The Bureau maintains hatcheries to propagate sport fishes for stocking public waters and farm fish ponds, and wildlife refuges which are open to hunting, fishing, and other uses consistent with the primary purpose of the refuge. All of the Bureau's activities are carried on in close cooperation with other federal agencies, the states, and private agencies. It administers grants-in-aid to the states which can cover up to seventy-five percent of the cost of some state programs. (Ibid., 250, 252-253).

The Office of Saline Water. This agency has an intensive accelerated program for discovering economical and feasible means for making saline water potable in order to render it suitable for agricultural, industrial, municipal, and other economic uses. It negotiates contracts with individuals, institutions and firms for experimentation in attempting to improve known processes and to search for new techniques. In addition, it operates five saline water demonstration plants, each of which is concerned with a single conversion technique. It exchanges information among and coordinates the activities of all agencies, public and private, which are working with saline water conversion, and arranges public meetings and symposia for the dissemination of information. (Ibid., 247-248)

Federal Water Pollution Control Administration. This is the most recent of the Department's water resource agencies. It is charged with improving the quality of the nation's water resources through the prevention, control, and abatement of water pollution. Operating largely through federal-state cooperation by means of grants-in-aid, it is developing a comprehensive national program. It also gives financial assistance to encourage the construction of municipal waste-treatment plants, to promote the search for new methods of controlling waste discharges from such contaminating sources as storm sewers and sanitary systems, and to support fellowships, research, and technical training. It has the continuing functions of encouraging interstate cooperation, improving existing state water-pollution laws, and making the public aware of the seriousness of the nation's water pollution problems. The FWPCA has the power to prescribe policies for the prevention, control, and abatement of water pollution at all federal governmental installations and those supported by federal loans, grants, or contracts. (Ibid., 263-264). Liaison with New Mexico is primarily through the state's Water Quality Control Commission.

The Bureau of Land Management. The BLM administers the nation's public domain, much of which is dedicated to multiple use: domestic livestock grazing, fish and wildlife management, outdoor recreation, and watershed and wilderness protection, among others. Besides leasing lands for grazing and for the exploitation of timber and mineral resources, the

Bureau carries out a watershed management program for the conservation, development, and utilization of water consistent with the preservation and protection of soil and water resources, and within the framework of existing local and regional water laws and compacts. The program combines land-use practices with physical structures to control soil erosion by regulating surface runoff. This includes extensive range improvement projects. The BLM also has varied responsibilities for recreational uses of the public lands, and in this cooperates closely with national, state, and local recreational and wildlife agencies. (Ibid., 259-261)

The Bureau of Indian Affairs. The BIA is the trustee for Indian lands and monies. In assisting the Indians in making the most effective use of their lands, it becomes deeply involved in their water resources. It promotes irrigation projects and performs many services in the interest of the Indians, including both advisory services and technical assistance. It also encourages the Indians to popularize their land and water resources in order to attract industrial and other economic users. (Ibid., 258-259)

UNITED STATES DEPARTMENT OF AGRICULTURE

Initially created to acquire and diffuse useful information on agricultural subjects, the responsibilities of the USDA have broadened beyond research and education to include many advisory, planning, regulatory, and grant-in-aid activities. (Ibid., 270-272, 631) Practically all USDA agencies are at least indirectly interested in water resources, and many are directly so.

Agricultural Research. Pure research in the USDA is split between Agricultural Economics-Economic Research Service and the Agricultural Research Service. The Economic Research Service brings together many activities formerly scattered through several departmental agencies. Its natural resources research is intimately tied to water problems, involving as it does the economic utilization of land and water, as well as the related areas of comprehensive river-basin and watershed planning, and the conservation of natural resources. (Ibid., 289-291) The Agricultural Research Service engages in physical, biological, chemical and engineering research, and also exercises some regulatory authority. It coordinates activities and assists in the selection of the critical problems. Of its five main areas of research, the one concerned with methods of soil and water management is directly identified with water research. (Ibid., 291-293) The Cooperative State Research Service administers the grant-in-aid program of the State Agricultural Experiment Stations, reviewing their projects, assisting in planning, and working towards interstate cooperation and coordination. (Ibid., 293)

Federal Extension Service. The task of disseminating research findings to the general farm population is assigned to the Federal Extension Service. This is a federal-state-local cooperative grant-in-aid program. A staff of technical specialists in various fields, based at the state land-grant institutions, keep abreast of current developments in their particular areas of competence. These, in turn, pass this information on through county agents to individual farmers and to local groups. (Ibid., 293-294)

The Soil Conservation Service. The SCS is charged with developing and carrying out a permanent nationwide soil and water conservation program in cooperation with other federal, state, and local agencies, and with individual farmers and ranchers. It supplies technical services wherever they are needed, including watershed protection and flood prevention. The agency operates through the state SCS committees and the locally organized and locally directed SWCS districts.

An increasingly important aspect of SCS activity culminated in the passage of Public Law 566 which charged the SCS with administrative leadership in promoting local watershed districts.

Many other SCS programs interlock with the overall objectives of conservation. SCS is playing a major role in the national soil survey, in which it is cooperating with the state agricultural experiment stations and other agencies in accumulating information needed for effective conservation programs, and for the classification and development of non-agricultural lands. It is also engaged in making and coordinating snow surveys for water forecasting. Another program increasing in importance is that of assisting landowners in developing income-producing recreational areas on their privately owned lands when such conversion is economically profitable for the individual and serves a public need. Due to its obviously intimate knowledge of local conditions, the SCS also gives technical advice to the Farmers Home Administration in the making of soil and water conservation loans. (Ibid., 283-284).

Agricultural Stabilization and Conservation Service. The ASCS administers many basic programs of acreage allotment, price support, acreage diversion, etc., of which a number are aimed directly at erosion control, cropland conversion, and other conservation programs as provided by various acts of Congress. One major program is directed towards the diversion of lands from croplands to forest, wildlife, and recreation areas. Others are designed to promote erosion control, improve farm woodlands, protect vegetative covering, and encourage the more effective use of agricultural water. The federal government shares the cost of conversion with the individual landowner, with the responsibility for the administration of local programs, lodged in countywide elected committees. The program for each state is carried on through the State Executive Director of the ASCS, and through local ASCS offices which normally are located at the county seat. (Ibid., 273-276)

The Farmers Home Administration. The FHA is a credit agency which makes loans to individual farmers, rural residents, or to rural groups. It also furnishes them with management assistance. Loans are available to eligible individuals or groups only when the applicants cannot obtain credit elsewhere at reasonable rates, but there are limitations on the amount, the time for repayment, etc. The loans may come from appropriated funds or from private lending agencies which are insured by the FHA. A county or area committee of three farmers passes on the applicant's eligibility and the maximum allowable loan, which is made through the local FHA office. There is an FHA local office located in almost every farming county in the United States.

Loans to individuals may be for any of a number of purposes: the purchase of family farms, homebuilding, or conversion to fish farming or income-producing recreational areas. They can be made either to individuals or groups for water development, soil conservation, or shifts in land use to grazing or forestry. Loans are available to rural groups (either open country or small town) for the development of such recreational facilities as swimming, boating, fishing, or camping, for developing community water supply and waste disposal systems, or for watershed protection and flood prevention. Such loans are available to a variety of local districts: soil and water conservation, irrigation, flood prevention, or water users' associations. (Ibid., 278-280)

The State FHA director serves as chairman of the State Technical Action Panel, the purpose of which is to assist rural people and rural communities in social, economic, and cultural development, with suggestions of where they can secure needed services. At the state level, these panels are composed of the administrative heads of many USDA and other state and federal agencies. County panels, similarly constituted from local administrators, carry the program to the local level. The Rural Community Development Service is closely associated with FHA, cooperating with both USDA and non-USDA agencies in determining which projects are most useful, providing for publicity and local meetings, and acting generally as coordinator for the various agencies associated with FHA programs. (Ibid., 277)

Forest Service. The Forest Service is responsible for the management of the public-owned National Forest System lands, which includes the national forests, national grasslands, experimental forests, and range experiment stations. It is responsible for protecting and conserving the natural resources of the lands within its jurisdiction, and also for making them available for such uses as best meet the public needs. Some of these are livestock grazing, public outdoor recreation, the harvesting of timber, and the production of fish and wildlife.

The Forest Service engages in both action and research programs which are closely identified with the water resources of the nation. Its varied activities include, among others, protecting watersheds during timber

harvests, promoting approved grazing practices, revegetating depleted ranges, and installing erosion control structures. It carries on both basic and applied research in many areas, including studies of the effect of watershed management on hydrologic behavior. This is particularly significant in those states in which much of the surface runoff and groundwater recharge originates on lands which are a part of the National Forest System.

Although its functions are those immediately of administering its own lands, the Forest Service cooperates with other federal and state agencies in river-basin studies, hydrologic inventories, and the identification of water-resource problems. It also furnishes technical assistance to other agencies and to private owners of timberland. (Ibid., 280-282)

DEPARTMENT OF DEFENSE

Corps of Engineers. The Secretary of the Army's responsibility for protecting and regulating the use of navigable streams falls within the province of the Chief of Engineers. The Corps of Engineers is responsible for the construction, operation, and maintenance of improvements on rivers, including flood control, protection of navigability, water supply, river flow regulations, shore protection, and regulatory functions over recreational facilities and hydroelectric power productions at certain civil installations. The Corps approves plans for bridges and other structures on navigable waters. As is the case with other federal agencies, it cooperates with other federal agencies and with the states and their agencies. The Corps is authorized to compile and disseminate flood-control information on the request of a state or its responsible local subdivisions, and can receive contributions from states to be expended with federal funds when, if it appears advantageous to the public interest, reservoirs are enlarged to provide additional storage capacity for some conservation use. (Ibid., 148, 155-156).

DEPARTMENT OF COMMERCE

The water resource functions of the Department of Commerce are handled administratively by the Assistant Secretary for Science and Technology, who has supervision over all departmental research and development, and the Assistant Secretary for Economic Development, who heads the Economic Development Administration and is the principal advisor to the Secretary on matters pertaining to state, regional, or area development. (Ibid., 301-302).

Bureau of the Census. The Bureau serves water resource studies with such specialized census data as its agricultural census (published every five years) and the decennial drainage and irrigation census. It provides data on taxation, expenditures, and financial assets of all public districts, including drainage, irrigation, and other types of water districts. (Ibid., 306).

Environmental Service Administration. Probably the most significant service rendered by the Department of Commerce to water resource studies is the ESA which, since 1965, continues the functions of the Coast and Geodetic Survey and the Weather Bureau. The Administration conducts extensive programs in the areas of meteorology, climatology, hydrology, and cartography. It cooperates with the Corps of Engineers and the appropriate Department of Agriculture agencies in making technical studies of the relation of weather to agriculture, and in charting climatic elements. It assists in watershed protection by its studies of storm characteristics and frequencies, and in forecasting flood conditions in various river basins. The data from its network of precipitation-measuring stations and snowfall stations is the basis for forecasting immediate water supplies. It engages in both basic and applied meteorologic and hydrologic research through its own laboratories and under contract with universities and other research institutions. The results are published in a variety of technical papers including serial publications on weather and climate. (Ibid., 309-310).

INCIDENTAL DEPARTMENTAL WATER RESOURCE ACTIVITIES

Although neither is usually associated with water resource problems per se, both the State and Justice departments have a connection with them. The Under Secretary of State-Special Assistant for Fisheries and Wildlife is the senior advisor to the Secretary of State on both policy and action programs respecting international fisheries and wildlife. (Ibid., 82) In the Department of Justice, the Assistant Attorney General in charge of the Land and Natural Resources Division supervises all civil litigation relating to questions involving the establishment of water rights and the protection of water resources, and cases involving abatement of water pollution. (Ibid., 222-223).

INDEPENDENT ADVISORY, COORDINATING, RESEARCH AND REGULATORY AGENCIES

The Water Resources Council is charged with carrying on a continuing study of the water needs and resources of the nation, reviewing both the law governing federal water policy and the agencies administering the law. It coordinates the several federal water and related land-resources programs, and establishes the general principles to be followed by various cooperating agencies engaged in comprehensive regional and river-basin studies. The Council transmits the plans of river-basin commissions, together with its own recommendations, to the President for his review and subsequent transmission to Congress. It also administers a program of federal grants-in-aid to states undertaking comprehensive water studies. (Ibid., 586).

The Federal Council for Science and Technology promotes closer cooperation through a membership representing eight departments and agencies. It operates through committees, one of which is Water Resources Research. (Ibid., 575) Although the National Academy of Science, with its subsidiary National Research Council, is not a government agency, it has had a long-time close association with the federal government. Its purpose is to stimulate research through coordinating investigations cutting across many fields and many agencies, both public and private. Of its eight sections, those dealing with Biology and Agriculture and with the Earth Sciences, are directly concerned with water resources. (Ibid., 588-590)

Both the relatively youthful President's Council on Recreation and Natural Beauty, with the assisting Citizens' Advisory Committee, and the older Advisory Board on National Parks, Historic Sites, Buildings, and Monuments are advisory in nature, making policy recommendations in their respective fields (Ibid., 570, 752, 583-584). The water related Migratory Bird Conservation Commission is more than advisory in nature, and, in cooperation with the Fish and Wildlife Service, passes upon and acquires sites for migratory bird refuges. (Ibid., 579)

One of the functions of the National Science Foundation is to support a program of research and evaluation in the field of weather modification. (Ibid., 498). The Smithsonian Institution has several subdivisions with greater or less connection with water research and the publicizing of existing conditions, and is one of the cooperating agencies with the Office of Saline Water. (Ibid., 248, 522-526)

The five-member Federal Power Commission has jurisdiction over electric power and natural gas. In addition to such regulatory functions as prescribing uniform accounting systems for interstate electric power companies; investigating rates, charges and services; and passing on the issuance of securities; it engages in water-power resource studies. It frequently cooperates with other federal agencies, particularly those involved with multi-purpose river-basin development, and reviews such plans in respect to the potential production of hydroelectric power. After investigation, it may license hydroelectric power companies to operate projects on navigable waters or government land, or to use the surplus waters from government dams. The Federal Power Commission participates in the allocation of costs of the various multi-purpose projects, and also in determining and assessing headwater benefits charged against the owners of non-federal water power projects benefiting directly from upstream improvements constructed by the United States or its licensees. It serves in an advisory capacity to the other branches of government in matters relating to hydroelectric power development. (Ibid., 450-452)

The United States and Mexican section of the International Boundary and Water Commission, United States and Mexico, work together to implement existing treaties dealing with the common water problems of the two countries. The Commission engages in agreements for the construction, operation and maintenance of diversion and storage dams, and flood control projects. The two countries jointly participate in stream-gaging programs to determine an equitable distribution of the waters of the Rio Grande and Colorado River, and in surveying for possible changes in the beds of those rivers.
(Ibid., 614)

