

WATER RESOURCES RESEARCH ACT OF 1964 -  
ITS FUNCTIONS AND IMPORTANCE TO NEW MEXICO

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The Water Resources Research Act of 1964 - Public Law 88-379, signed into law by the President July 17, 1964, provided for the establishment of a Water Resources Research Institute at the Land Grant College in each of the 50 states and Puerto Rico. This is a milestone in water research in New Mexico and in the nation and gives recognition to the great importance of our water problems. It also emphasizes and implements the urgency of getting the solution to many of these problems through research.

The New Mexico Water Resources Research Institute was among the first 14 approved under the Act in the country. The remaining 37 are expected to be established in the near future. (Note - By the end of May, 1965 appropriations were made for the establishment of the remaining 37.)

The Water Research Act was generally patterned after the Hatch Act of 1887 which established the Agricultural Experiment Stations at the Land Grant Colleges in each state. Senator Clinton P. Anderson of New Mexico introduced the water research bill in the Senate and Congressman Thomas G. Morris introduced the companion bill in the House. The National Association of State Universities and Land Grant Colleges Committee on Water Resources was active in reviewing the Act and making recommendations to strengthen the research program. President R. B. Corbett of New Mexico State University was an active and influential member of that committee. In the hearings on the Water Research Bill, Senator Anderson pointed out the great influence the Agricultural Experiment Stations has had on agriculture and related industries and the total national economy. It was also pointed out that while the Research Institutes program would not be a solution to all water research problems, it would make a great contribution to the advancement of our scientific knowledge and to the assurance of adequate water supplies.

Public Law 88-379, the Water Resources Act of 1964, provides in Title I a basic allotment of \$75,000 to each of the several states in the first fiscal year, 1965; \$87,500 in each of the second and third years, and \$100,000 each year thereafter, to assist each participating state in carrying on the work of a competent and qualified Water Resources Research Institute.

The Act also provided not to exceed \$1,000,000 in fiscal year 1965, \$2,000,000 in 1966, \$3,000,000 in 1967, \$4,000,000 in 1968

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and \$5,000,000 in 1969 and each year thereafter for matching on a dollar-for-dollar basis, money made available by the states or other non-federal sources to conduct research on specific water resources research projects.

Provisions were also made under Title II of the Act for \$1,000,000 in fiscal year 1965 and increasing to \$10,000,000 at the end of 10 years, for grants, contracts, or matching with educational institutions, private foundations, private firms or individuals and with local, state and federal agencies for support of specific research projects. No funds have been requested under Title II pending proposed amendments under consideration by Congress.

The New Mexico Water Resources Research Institute was established by action of New Mexico State University Board of Regents in February 1963.

The purpose of the Institute is to stimulate and sponsor investigations and experiments in the field of water and related resources.

The basic or applied research to be conducted or encouraged by the Water Resources Research Institute will include, but not be limited to, aspects of the hydrologic cycle; supply of and demand for water; conservation and best use of available supplies; methods of increasing supplies; economic, legal, social, engineering, recreation, biological, geographic, ecological, and other aspects of water problems, giving due regard to water research projects being conducted by agencies of the federal government, the agricultural and engineering experiment stations, and other agencies.

The Institute will provide education and training for undergraduate and graduate students through research employment and assistantships. It will assist in developing a professional and technical staff in water resources research and teaching.

The Institute will publish or encourage the publication of research results for public information, education, and forums on water and will assist in developing information which would permit the development of a sound water program to meet the needs of New Mexico.

This Institute will permit interdisciplinary research to be conducted with contributions being made by two or more departments as the problem demands.

The New Mexico Water Resources Research Institute according to the rules and regulations in connection with the federal appropriation, "may also plan for research, investigations and experiments to be conducted as a part of the Institute program at colleges and universities other than the college or university with which the Institute is identified." However, the Institute quote "shall be

responsible for the performance of the activities of the other participating colleges and universities," to see that the work "must meet all requirements (such as scope of work, qualifications, coordination with other research) as is applicable to the other work of the Institute.

The major funding for the New Mexico Institute became available on February 1, 1965 from federal sources and will become available from state funds on July 1, 1965.

With these funds being available, ten projects are now in operation at New Mexico State University under the basic allotment and two applications have been filed for funding under the matching fund provisions.

#### WATER RESEARCH IMPORTANT TO NEW MEXICO

Water research is especially important to New Mexico for three reasons:

First - The Senate Select Committee on Water divided the Nation, not including Alaska and Hawaii, into 20 major drainage areas and ranked them from water-poor to water-rich areas. The Upper Rio Grande and Pecos basin was ranked No. 1 basin on the basis of estimated water scarcity by 1980. This does not mean that much water development is not still possible, but that great care in the allocation, use and conservation of our water must be exercised. Research can make a major contribution in this area.

Second - The population of New Mexico is growing at more than double the national average. The population of New Mexico in 1960, according to the United States Census, was 951,000. The population projection by the Bureau of Business Research, University of New Mexico, for 1970 is 1,200,000; 1980, 1,630,000 and 1990, less than 25 years away, 2,111,000. This means that changes in water allocations must be made to accommodate this greatly increased population.

Third - Over 25 percent of the water for municipal and industrial use and over 55 percent of the total water depletions for urban, industrial, municipal, power and agricultural uses are from ground water sources. In all of the ground water basins, except the Rio Grande and San Juan, withdrawals exceed recharge by from about one-third to almost 100 percent. This raises questions of quality and quantity, and of adjustments in type of use, adjustments in amounts used and in some cases now, and more later, actual economic adjustments because of falling water tables and depletion of almost the total supply available for certain uses, especially for irrigation. However, there are large supplies of saline water which may be converted to fresh water for use in those industries which can pay relatively higher prices than are presently being paid.

These three problem areas can not be attacked by a one, five, or ten year research effort. Neither can they be solved by our present investment in water research.

Nine major areas have been identified as urgently needing research emphasis. These are:

1. The Nature of Water
2. The Water Cycle
3. Water and Land Management
4. Development and Control
5. Qualitative Aspects
6. Reuse and Separation
7. Institutional and Economic Aspects
8. Engineering Work
9. Manpower and Research Facilities

These nine major headings emphasize the wide range of water research needs. It should be noted that water research generally can not be separated into research for municipal use, industrial use, or agricultural use without very directly involving one or more other areas. Water does not follow any state boundaries, use boundaries or research area boundaries. It flows from state to state, it moves from the land to ground and surface water supplies, on through evaporation, transpiration, stream flow, and through the entire hydrologic cycle. Each use is likely to change the water location and the quantity and quality for each next use. The list above also emphasizes the inter-relationship of uses and problems and the need for research in these areas, and the need for an interdisciplinary approach to almost any single water research problem which may be named. This means that Engineers, Hydrologists, Biologists, Plant Scientists, Soil Scientists, Economists, Lawyers, Political Scientists and men from numerous other research disciplines will be involved in one project or another in working toward the solution of our many complex water problems.

The New Mexico Water Research Institute established at New Mexico State University in February 1963, and assisted by approval to receive federal research funds as of February 1, 1965, offers an avenue for encouraging more research in water and to coordinate the water research conducted at various research institutions. However, if very much is done toward seeking answers to the nine areas of research just listed, then it is necessary that more public and private funds be invested in water research and investigations as well as in plant and process improvements in all areas of water use.