

FUNCTIONS AND ACTIVITIES
of the
STATE ENGINEER OFFICE

by
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and
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History

The office of the Territorial Engineer (later State Engineer), and the Water Right Code which defined his powers and duties, were created by an act of the Territorial Legislature which became effective on March 19, 1907. Statehood came on January 6, 1912. For many years the work coming under his direction was not excessive and the offices of both the State Highway Engineer and State Engineer were held by one appointee. As the State developed, however, the work of the office increased and in 1921 the two departments were separated.

A tabulation of Territorial and State Engineers is as follows:

TERRITORIAL ENGINEERS

- | | |
|-----------------------|---------------------------|
| 1. David M. White | April 1905-March 1907 |
| 2. Vernon L. Sullivan | March 1907-January 1911 |
| 3. Charles D. Miller | January 1911-January 1912 |

STATE ENGINEERS

- | | |
|-------------------------|-----------------------------|
| 4. Charles D. Miller | January 1912-July 1912 |
| 5. James A. French | July 1912-November 1918 |
| 6. Leslie A. Gillett | December 1918-November 1920 |
| 7. Charles A. May | December 1920-November 1922 |
| 8. James A. French | December 1922-November 1924 |
| 9. George M. Neel | December 1924-June 1926 |
| 10. Herbert W. Yeo | July 1926-June 1930 |
| 11. George M. Neel | July 1930-June 1932 |
| 12. Thomas M. McClure | July 1932-November 1946 |
| 13. John H. Bliss | November 1946-November 1953 |
| 14. John R. Erickson | November 1953-February 1955 |
| 15. John H. Bliss | February 1955-August 1955 |
| 16. Stephen E. Reynolds | August 1955 |

Location

Since its inception the main office of the State Engineer has been located in the Capitol in Santa Fe. In 1927 a field office was established in Roswell. Offices were opened in Deming in 1951 and in Albuquerque in 1956.

Purpose

The major purpose of the agency is to develop, supervise, and administer the water resources of the State. Other purposes are as follows:

1. To review plans and specifications for all dams impounding more than 10 acre-feet, or exceeding 10 feet in height (stock dams whose maximum storage capacity does not exceed 10 acre-feet or works designed solely for silt retention which do not impound water for beneficial use are excepted).
2. To make final inspection of such structures in order to insure as to their adequacy and safety.
3. To make occasional inspections of dams in order to afford protection to citizens from failures due to deterioration and inadequate maintenance.
4. To formulate an orderly plan of development for the water resources of the State.
5. To conduct hydrographic surveys.
6. To coordinate the work of various Federal agencies as regards water resource programs.

Legal Provisions

Article 17 of the State Constitution recognized the appropriation of the surface waters of the State for beneficial use and declared that such waters belonged to the public. It recognized and confirmed all rights to use surface water for beneficial purposes existing at the time of its ratification.

Ground waters of the State in reservoirs or basins having reasonably ascertainable boundaries were declared public waters and made subject to administration by the State Engineer in 1931. The 1953 Session Laws declared, for practical purposes, all underground waters of the State to be public and subject to appropriation.

Statutory provisions governing the operation of the office will be found in Chapter 75 of the New Mexico Statutes Annotated, 1953 Compilation, and supplements thereto.

Organization

For many years the office operated with a State Engineer and an Assistant State Engineer as the principal administrative officers; however, upon the appointment of John R. Erickson as State Engineer in November 1953, the office was reorganized and three operating divisions were established, i.e., Administrative, Technical, and Water Rights. Each division is headed by a chief who is directly responsible to the State Engineer. Figure 1 shows the current organization chart.

Staff Duties

Administrative Division

The functions of this division are as follow: handling of payrolls and budget matters; purchasing; dispatching, receiving, and delivery of mail; reception of visitors; telephone service; maintenance of property records; and personnel procurement and certification. The extent of activities of this division depends to a large degree on the magnitude of the programs being carried on by the Technical and Water Rights Divisions. The current staff of the Administrative Division totals 8 persons, one of whom is assigned to the Roswell office.

Technical Division

The Technical Division, having a personnel complement of 21 professional and 22 sub-professional employees, is divided into four sections, i.e., reports, water resources, design and construction, and drafting.

The Reports Section, consisting of 10 employees stationed in Santa Fe, is responsible for the compilation of hydrographic, meteorologic, and engineering data including the filing of reports from various private, state, and federal agencies. This group also handles the preparation of a sizeable number of reports each year. In addition to the compilation of regular biennial reports, a technical report series has been established. Thus far seven reports of this series have been published, two have been set up for printing, and one is under preparation. Of these, six cover ground-water investigations in the State, one summarizes the water right laws, two are compilations of meteorological data, and one is a compilation of hydrologic data. The office printing and reproduction shop is a part of the Reports Section and handles a wide variety of work for all divisions and for the Interstate Stream Commission. The printing of business forms, envelopes, letterheads, maps, charts, legal briefs, and complete engineering reports constitutes a major portion of the work load.

The work of the Water Resources Section is divided into two principal activities: (1) the conductance of hydrographic surveys and preparation of maps and reports therefor, and (2) ground-water investigations. Personnel are presently assigned to various parts of the State as follows: Santa Fe 4,

Roswell 8, Taos 2, and Portales 1. The following hydrographic surveys are in progress or have recently been completed:

<u>No.</u>	<u>Name</u>	<u>Area Covered</u> (sq.mi.)	<u>Method</u>	<u>Percent Complete</u>
1.	Rio Puerco de Chama	9	plane table	100
2.	Rio Grande de Ranchos	16	photogrammetry	80
3.	Rio Chama	274	"	1
4.	Roswell	966	"	70
5.	Roosevelt-Curry Counties	610	"	60
6.	Bluewater	236	"	90

A Kelsh plotter for stereocompilation of planimetry and topography has recently been acquired and is housed in the Roswell office. The staff includes four geologists who are engaged in studies involving the quantity and quality of ground water in storage, ground-water movement, delineation of boundaries of proposed basins, and related problems. This group frequently assists the legal counsel and Water Rights Division staff in hearings and court cases.

The Design and Construction Section, comprising 10 employees, handles the review of plans and specifications for all dams and surface-water filing maps. Other duties include: (1) investigations involving irrigation, flood control, municipal water supply, and recreation, and the preparation of loan application reports for submission to the Bureau of Reclamation under Public Law 984; (2) other water-supply investigations as directed by the Interstate Stream Commission (including core drilling, foundation studies, soils laboratory work, and the design of dams); (3) channelization, drainage, salt cedar eradication, and other water-salvage work along the main stem of the Rio Grande; (4) investigations and the preparation of plans and specifications on projects for various State departments, irrigation districts, and municipalities; (5) inspection of dams and other hydraulic works; and (6) handling of applications and field examinations for projects proposed under Public Law 566. Personnel of this section are currently assigned as follows: Santa Fe 7, Logan 2, and T or C 1. Work in progress or recently completed is as follows:

<u>No.</u>	<u>Type of Project</u>	<u>Sponsoring Agency</u>	<u>Fund</u>	<u>Percent Complete</u>
1.	Tularosa	Irrigation	Interstate Stream Comm.	1/ 90
2.	Santa Cruz	"	"	" 0
3.	Canadian River	Indust. Water	"	" 25
4.	Springer	Mun. Water	"	" 25
5.	Santa Rosa	"	"	" 100
6.	Dixon	Irrigation	"	" 90
7.	Palomas	"	"	" 20
8.	El Rito	"	"	" 80
9.	Black River	"	"	" 0
10.	Portales	"	"	" 10
11.	La Plata	"	"	" 0
12.	Middle Rio Grande	Water Salvage	"	2/ 60
13.	Caballo	"	"	" 15
14.	Running Water Draw	Recreation	Game & Fish Dept.	3/ 100
15.	San Gregorio	"	"	" 100

1/- New Mexico Irrigation Works Construction Fund

2/- Improvement of the Rio Grande Income Fund

3/- Game Protection Fund

The Drafting Section is a service unit whose work depends largely on the magnitude of activities in progress in other sections and divisions of the office. The duties of this section, not unlike those of similar groups found in most engineering offices, are largely routine involving the preparation of hydrographic survey maps; plans for dams, irrigation works, and flood channels; illustrations for engineering reports; and exhibits for hearings and court cases. In addition this group is responsible for the indexing and filing of all drawings submitted to the office in conjunction with water rights. Personnel of this section (all stationed in Santa Fe) currently number 6.

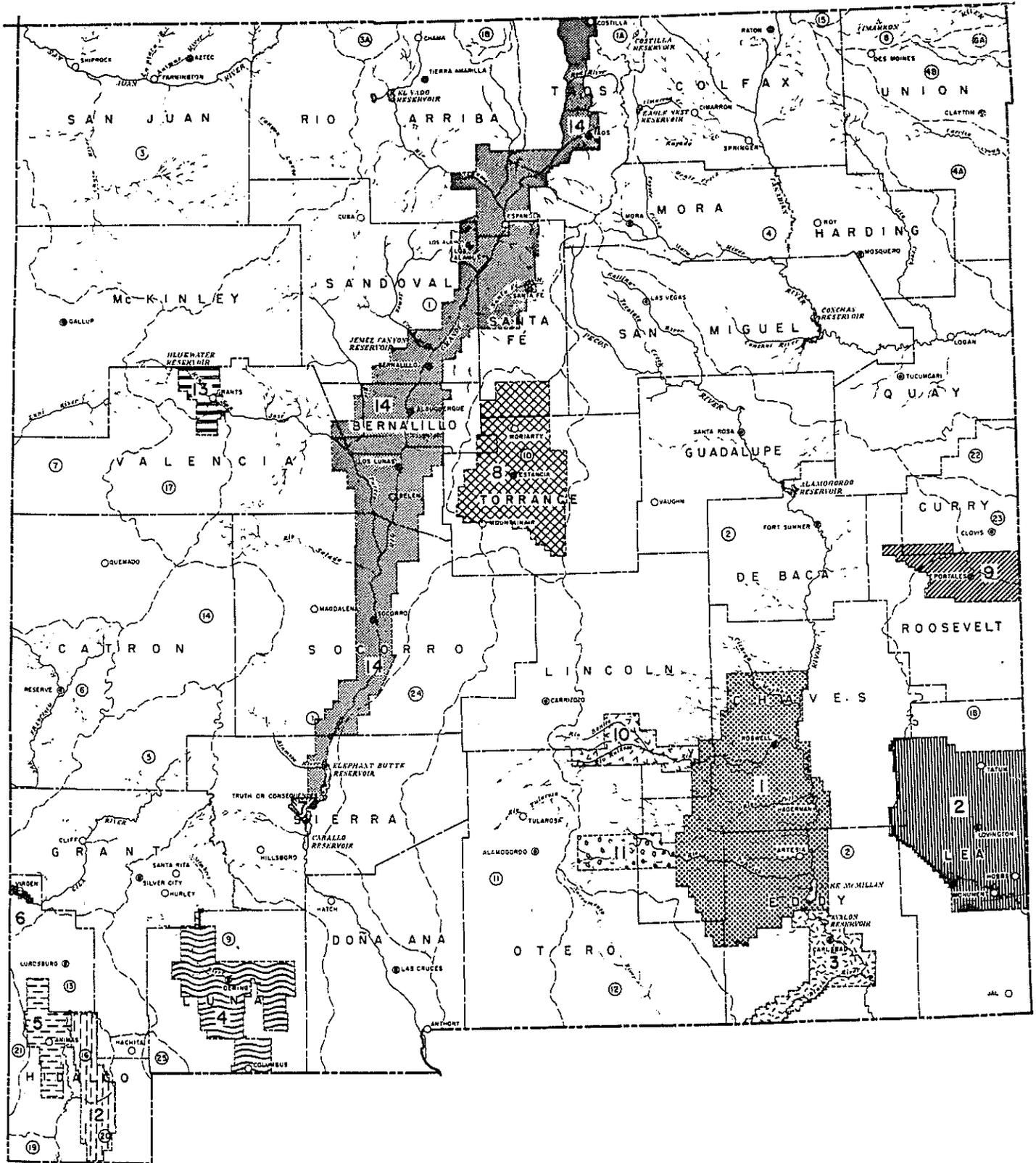
Water Rights Division

The staff of the Water Rights Division is composed of 15 professional and 32 sub-professional employees. Distribution of the personnel complement is as follows: Santa Fe 11, Albuquerque 5, Roswell 26, and Deming 5.

The work of the division entails the administration of surface-water rights in the 25 drainage basins of the State and of ground-water rights in the 14 declared basins which are shown on Figure 2.

Enumerated below are the ground-water basins, their dates of declaration, and status.

<u>No.</u>	<u>Name</u>	<u>Date of Declaration</u>	<u>Status</u>
1.	Mimbres	July 29, 1931	Closed to appropriation for all new uses except domestic and stock watering purposes.
2.	Roswell Artesian	August 21, 1931	No new appropriations, except for stock and domestic uses, have been approved in this basin since August 1931 for artesian water, and since August 1937 for shallow water.
3.	Lea County	August 21, 1931	Ground water may be appropriated for irrigation and industrial use in certain townships of the basin and for domestic and stock watering purposes in the entire basin.
4.	Hot Springs	April 15, 1935	Closed to the appropriation of cold artesian water and open to the appropriation of thermal artesian water. Certain non-artesian cold water appropriations to supplement existing surface-water rights may be made.
5.	Virden Valley	December 5, 1938	Appropriations of ground water may be made.



- DRAINAGE BASIN INDEX**
- | | | |
|-------------------------|----------------------------|---|
| ① RIO GRANDE | ⑩ TULAROSA BASIN | C |
| ② COSTILLA CREEK | ⑪ SACRAMENTO RIVER | C |
| ③ RIO SAN ANTONIO | ⑫ ANIMAS VALLEY | C |
| ④ PECOS RIVER | ⑬ SAN AGUSTIN BASIN | C |
| ⑤ SAN JUAN RIVER | ⑭ PUNGATORE RIVER | C |
| ⑥ NAHUJO RIVER | ⑮ PLAYAS VALLEY | C |
| ⑦ CANADIAN RIVER | ⑯ CANA-BED VALLEY | C |
| ⑧ CARRIZO CREEK | ⑰ LEA PLATEAU | C |
| ⑨ NORTH CANADIAN RIVER | ⑱ IGILOMADO RIVER OF TEXAS | C |
| ⑩ GILA RIVER | ⑲ SAN LUIS BASIN | C |
| ⑪ SAN FRANCISCO RIVER | ⑳ HACHTA | C |
| ⑫ LITTLE COLORADO RIVER | ㉑ SAN SIMON | C |
| ⑬ CIMARRON RIVER | ㉒ RIO RIVER | C |
| ⑭ CARRIZO CREEK | ㉓ BRAZOS | C |
| ⑮ MIMBRES RIVER | ㉔ JOHNNADA DEL MUERTO | C |
| ⑯ ESTANCIA VALLEY | ㉕ WAMEL BASIN | C |

LEGEND

⊙	STATE CAPITAL
●	COUNTY SEAT
○	PRINCIPAL TOWN
---	DRAINAGE BASIN BOUNDARY
---	STATE LINE
---	COUNTY LINE
---	DECLARED UNDERGROUND WATER BASIN BOUNDARY

10 5 0 5 10
SCALE IN MILES

DRAWN BY H. H. BOJCE
JUNE 1957

- DECLARED UNDERGROUND WATER BASINS**
- 1 ROSWELL ARTESIAN BASIN
 - 2 LEA COUNTY BASIN
 - 3 CARLSBAD BASIN
 - 4 MIMBRES VALLEY BASIN
 - 5 ANIMAS VALLEY BASIN
 - 6 VIRDEN VALLEY BASIN
 - 7 HOT SPRINGS BASIN
 - 8 ESTANCIA BASIN
 - 9 PORTALES BASIN
 - 10 HONDO BASIN
 - 11 PENASCO BASIN
 - 12 PLAYAS VALLEY BASIN
 - 13 BLUEWATER BASIN
 - 14 RIO GRANDE BASIN

FIGURE 2
MAP SHOWING DRAINAGE BASINS AND UNDERGROUND WATER BASINS

C FLOODED DRAINAGE BASINS

<u>No.</u>	<u>Name</u>	<u>Date of Declaration</u>	<u>Status</u>
6.	Carlsbad	October 16, 1947	Closed to appropriation for all new uses except for domestic and stock watering purposes. Ground-water diversion from valley fill permitted to supplement surface-water rights. No diversion, except for domestic and municipal use, permitted from Carlsbad limestone.
7.	Animas	May 5, 1948	Closed to appropriation for all new uses except domestic and stock watering purposes.
8.	Estancia	January 31, 1950	Limited ground-water appropriations may be made in parts of the basin.
9.	Portales	May 1, 1950	In parts of the basin limited ground-water appropriations may be made..
10.	Hondo	September 1, 1953	Permits are granted to appropriate ground water to supplement surface-water rights.
11.	Penasco	September 1, 1953	Permits are granted to appropriate ground water to supplement surface-water rights.
12.	Playas	February 23, 1956	Limited ground-water appropriation may be made in the northern part of the basin.
13.	Bluewater	May 21, 1956	Closed to appropriation for all new uses except for domestic and stock watering purposes.
14.	Rio Grande	November 29, 1956	Permits are granted to appropriate ground water to supplement surface-water rights and to change diversion from surface water to ground water.

Basin Nos. 1, 4, 5, 7, and 12 are administered from the Deming office; Nos. 2, 3, 6, 9, 10, and 11 from the Roswell office; and Nos. 8, 13, and 14 from the Albuquerque office.

All surface-water work is handled in the Santa Fe office; however, water-masters are stationed in various parts of the State as follows:

<u>No.</u>	<u>Name</u>	<u>Headquarters</u>
1.	Costilla Stream System	Questa
2.	Cimarron & Rayado Stream System	Cimarron
3.	Lower Gila River	Virden
4.	La Plata River	La Plata
5.	Pecos River	Roswell

During the 22nd biennium 15,019 ground-water instruments and 812 pertaining to surface water were handled.

The administration of the ground and surface waters of the State requires the Water Rights Division staff to perform many diversified duties, some of which are as follows: (1) processing of water rights instruments and filing maps (involving 21 forms for ground water and 11 for surface water), (2) collection of filing fees, (3) furnishing certified copies of filings for legal use, (4) presiding at hearings on protested applications, (5) furnishing assistance to Special Assistant Attorneys General in court cases, (6) distribution of streamflows in accordance with court decrees and permits, (7) conducting of pumping tests and leakage tests, (8) scheduling of wells, (9) inspection of well construction, and (10) licensing and bonding of well drillers.

Two publications have been issued by the division for the guidance of appropriators and their technical and legal advisors. These are: (1) "Manual of Rules and Regulations Governing the Appropriation and Use of the Surface Waters of the State of New Mexico" and (2) "Manual of Rules and Regulations Governing the Drilling of Wells and the Appropriation and Use of Underground Waters in Declared Basins of the State of New Mexico." Both manuals are available upon request without charge. Another publication "Water Laws of New Mexico," Chapter 75, New Mexico Statutes Annotated, 1953, including the 1955 and 1957 supplements is available at a postpaid price of \$10.00.

Special Assistant Attorneys General

Closely related to the activities of the Water Rights Division is litigation in the district courts and in the N. M. Supreme Court. The legal work is handled by two Special Assistant Attorneys General, assisted by two stenographers, all of whom are officed in Roswell. During the past biennium the following cases have been handled:

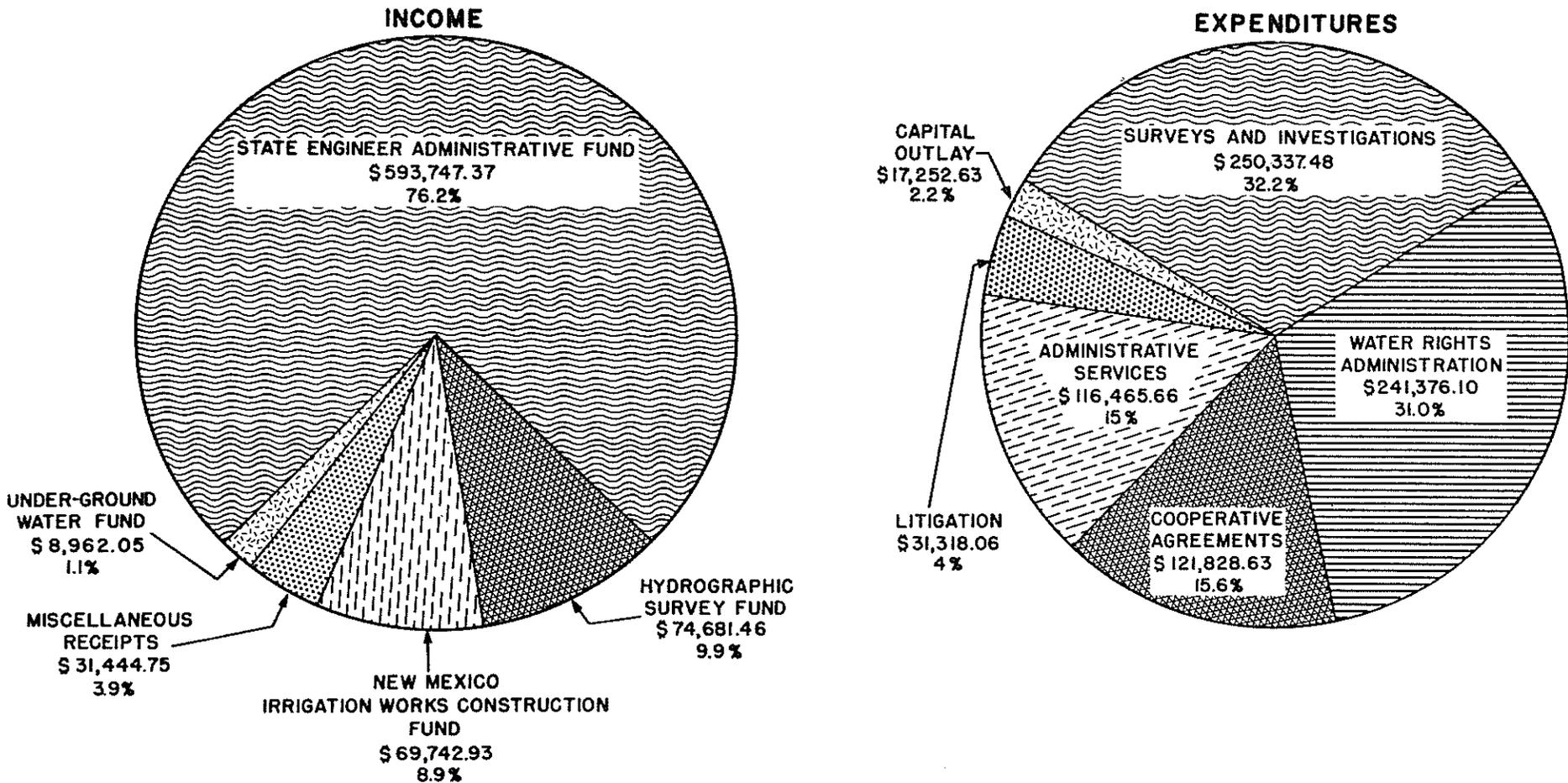
<u>Type of Case</u>	<u>N. M. Supreme Court</u>	<u>District Court</u>	<u>Letters of Opinion</u>
Surface Water	1	30	4
Ground Water	7	67	23

STATE ENGINEER OFFICE FINANCIAL CHART

FIGURE 3

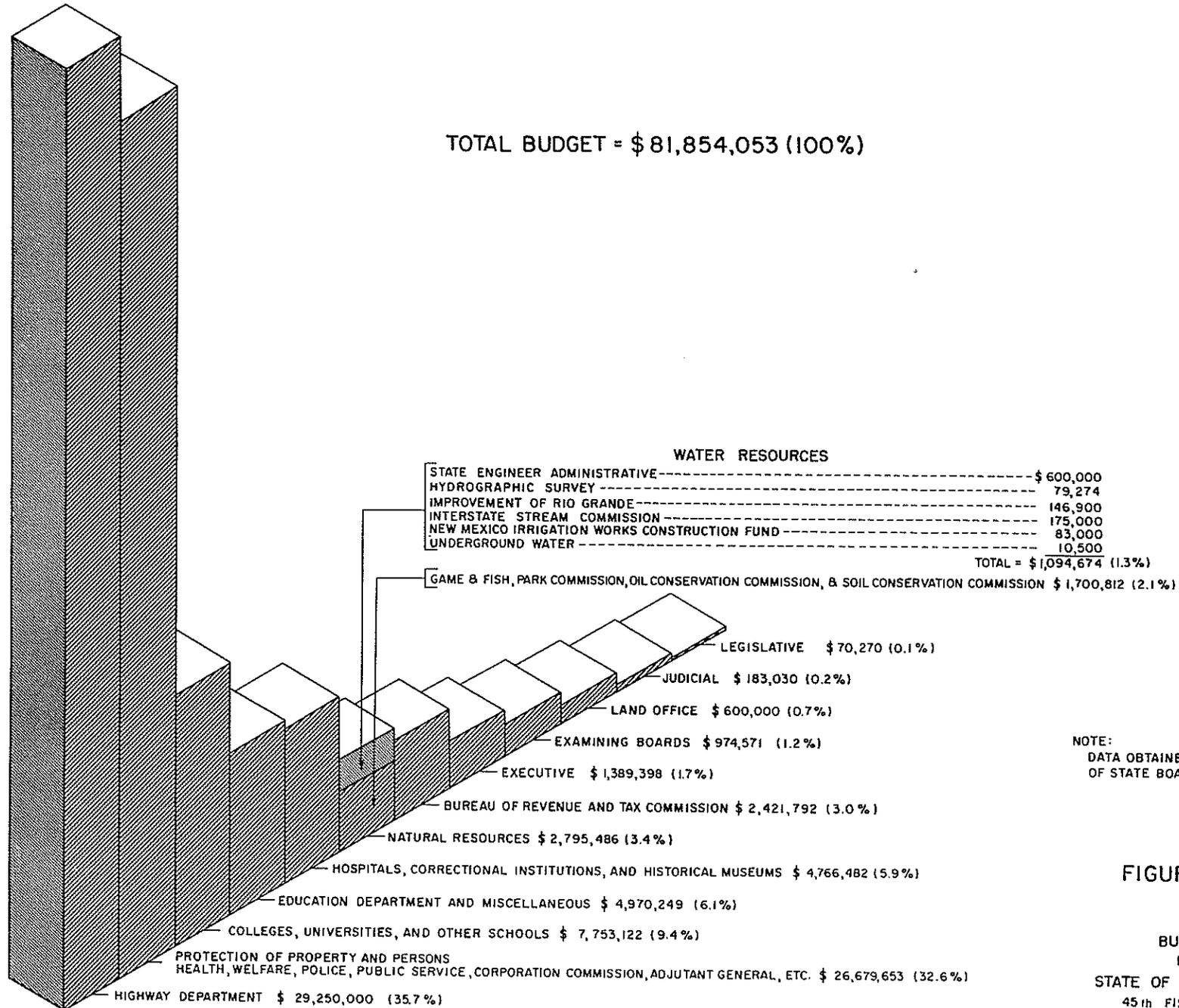
45th. FISCAL YEAR

JULY 1, 1956 - JUNE 30, 1957



TOTAL \$778,578.56 = 100%

TOTAL BUDGET = \$ 81,854,053 (100%)



NOTE:
DATA OBTAINED FROM RECORDS
OF STATE BOARD OF FINANCE

FIGURE 4

BUDGET
FOR
STATE OF NEW MEXICO
45th FISCAL YEAR
JULY 1, 1956 - JUNE 30, 1957
COMPILED BY: C.B. THOMPSON
DRAWN BY: M.H. BOYCE
OCT. 30, 1957

In addition to regular duties the legal staff is frequently called upon to address public meetings.

Cooperative Agreements

The State Engineer Office has for many years cooperated financially with various Federal agencies in water resource programs. During the 45th Fiscal Year (1956-57) the following cooperative agreements were in effect:

<u>Agency</u>	<u>Type of Program</u>	<u>State Funds Contributed</u>
U. S. Geological Survey, SW	Collection of streamflow records	\$ 45,610.56
U. S. Geological Survey, GW	Ground-water investigations	75,096.27
Soil Conservation Service	Snow surveys	600.00
U. S. Bureau of Reclamation	Rio Grande water salvage	57,987.00
		<u>\$179,293.83</u>

Finances

The work of the office like that of most State departments is financed largely by legislative appropriation -- the money for the most part being credited to the State Engineer Administrative Fund. However, certain monies are derived from continuing funds such as the Hydrographic Survey Fund which also receives revenue from counties to repay the costs of conducting such surveys. A small amount is obtained from the Underground Water Fund which derives its revenue from water right filing fees. Some income is received from other public agencies for whom engineering work has been accomplished. In addition, for the purpose of financing certain types of investigations and construction work, money is allocated to the office from the Improvement of the Rio Grande Income Fund and the New Mexico Irrigation Works Construction Fund, both of which are budgeted by and administered by the Interstate Stream Commission. The latter fund derives its revenue from the Permanent Reservoirs for Irrigation Purposes Income Fund which, together with the Improvement of the Rio Grande Income Fund, is supported by rents and royalties from lands which were granted New Mexico by the so-called Ferguson Act of 1898. Figure 3 (a double pie chart) shows the distribution of income and expenditures of the office during the 45th Fiscal Year ending June 30, 1957.

Even though the State Engineer Office budget is sizeable, the amount of money allocated for water research and administration is meager indeed in comparison with that being spent on other State governmental functions. Figure 4 shows graphically the budget for the State of New Mexico for the 45th Fiscal Year. It is to be noted that out of a total of \$81,854,053, only \$1,094,674 (1.3%) was allocated to water resource work (this includes both State Engineer and Interstate Stream Commission funds).

Associated Activities

The State Engineer's Office participates in numerous activities associated either directly or indirectly with water resource development such as the International Arid Lands Symposium and Conference, New Mexico Water Conference, and the Southwest Irrigation Exposition. A partial list of agencies with which the office has cooperated during recent years is as follows:

1. New Mexico Mapping Advisory Committee
2. Association of Western State Engineers
3. National Reclamation Association
4. Pacific Southwest Inter-Agency Committee
5. Arkansas-White-Red-Basins Inter-Agency Committee
6. American Geophysical Union
7. International Commission on Irrigation and Drainage
8. International Commission on Large Dams
9. New-Mexico Geological Society

In addition to his other duties the State Engineer also serves as Secretary of the Interstate Stream Commission, a companion agency whose activities include the negotiation of interstate water compacts; institution of legal proceedings in the name of the State for the conservation, protection, and development of public waters; investigation and development of the water supplies of the stream systems of the State, interstate or otherwise; and the matching of appropriations made by the Congress for water resource investigation and development.