

# LOWER COLORADO REGION Comprehensive Framework Study

## APPENDIX III LEGAL AND INSTITUTIONAL ENVIRONMENT JUNE 1971



**PREPARED BY:**

**LOWER COLORADO REGION STATE - FEDERAL  
INTERAGENCY GROUP FOR THE  
PACIFIC SOUTHWEST INTERAGENCY COMMITTEE**

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LOWER COLORADO REGION

COMPREHENSIVE FRAMEWORK STUDY

APPENDIX III

LEGAL AND INSTITUTIONAL ENVIRONMENTS

This report of the Lower Colorado Region framework study State-Federal Interagency Group was prepared at field level and presents a framework program for the development and management of the water and related land resources of the Lower Colorado Region.

This report is subject to review by the interested State agencies at the departmental level, by the governors of the affected States, and by the Water Resources Council prior to its transmittal to the President of the United States for his review and ultimate transmittal to the Congress for its consideration.

JUNE 1971



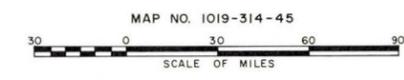
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COMPREHENSIVE FRAMEWORK STUDY  
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This report was prepared by the  
Lower Colorado Region State-Federal Interagency Group  
for the  
Pacific Southwest Interagency Committee  
and  
The Water Resources Council

Legal and Institutional Environmental Work Group

R. N. Hull	Bureau of Indian Affairs, Department of the Interior
Dean F. Johanson	Bureau of Reclamation, Department of the Interior
Robert H. Hagen	Federal Water Quality Adm., Department of the Interior
Charles J. Palmer	Economic Research Service, Department of Agriculture
Gerald B. Welsh	Soil Conservation Service, Department of Agriculture
H. H. Helm	Corps of Engineers, Department of the Army
James K. Channell	Public Health Service, Department of Health, Education and Welfare
Robert H. Griffin	Federal Power Commission
Fred O. Leftwich	Forest Service, Department of Agriculture
Ralph Hunsaker	State of Arizona
Vernon E. Valantine	State of California
Donald L. Paff	State of Nevada
David P. Hale	State of New Mexico
Robert Curtis	Arizona Game and Fish Dept.
Willard Pedrick	Arizona State University
Leroy Michael	Salt River Project
Ray J. Davis	University of Arizona

Robert E. Farrer, Chairman  
Arizona Interstate Stream Comm.  
Ralph Hunsaker, Vice Chairman

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# INTRODUCTION

## INTRODUCTION

### Purpose

The basic objective of the Type I framework studies is to provide a broad guide to the best use, or combination of uses, of water and related land resources of the basin to meet foreseeable short- and long-term needs. Among other issues in formulating a framework plan, there is need to consider the legal, institutional or other constraints which exist and are of extreme import as a part of the framework plan of resource development. Thus, the purpose of this appendix is to summarize the general legal and policy framework under which planning and development for the control, use and management of water and related land resources have progressed and can proceed in the States of the Lower Colorado Region. The primary objective is to convey a general understanding of water laws, policies and administration in the States, the laws and policies in the Federal Government, and finally to highlight their interrelations.

### Scope

Conservation of water resources long has been recognized as a responsibility of both the States and the Federal Government. Any framework plan in this respect must cover the salient features of State and Federal constitutional and statutory law, and certain judicial decisions. From these have come important elements of State and Federal policy, and, particularly at the State level, the means for their administration.

This appendix briefly summarizes first for the Lower Colorado Region its major provisions of water law and current organizational structure of both the Federal and State framework in the field of water resource planning, development and administration. In many respects this impinges on matters of related land resource planning and development, and such relationships are covered. Similarly, the appendix then summarizes the institutional and environment as it relates to State, Federal, and local organizations with responsibilities in water resources planning, development and use.

Only general treatment is attempted and the coverage is not sufficient to provide more than a general orientation and understanding in this field. Specific water right problems and in-depth water policy issues must be explored by legal counsel or by contact with State officials thoroughly conversant with water laws and their many ramifications.

Aside from a brief historical background, the treatment is for the present situation. In this there is recognition for the current and projected trend to multi-purpose structures and often to their unified operation in meeting several functional needs. This makes the legal, organizational and management problems more complex. Further, it requires the interworking of many elements of Federal and State laws and policies at all stages of resource development.

While holding largely to the current situation, where existing legal constraints are pointed up this begins to indicate opportunities or needs for consideration of adjustments in the future. Such adjustments are pointed up more specifically as "alternate planning" potentials in the appendix on "General Programs and Alternatives."

The material for this appendix amounts to a collection of statements on the laws that authorize the particular organization's function in the water and related land resources development field. It is assumed that each reporting agency has lent its "color tone" to the statement it has submitted, just as it does in actual day-to-day functioning. With this in mind, it should be recognized by all that none of these statements on the laws should be considered binding upon any other organization that has contributed to the material of this Work Group. There has not been any attempt to require or even permit objection to the presentation by any one contributor. Objections and criticisms would unduly burden the report. This caveat should suffice to serve as protection, if indeed protection is needed, for those who may disagree with the particular presentation, yet who have not expressed an objection.

FEDERAL LAWS , POLICIES ,  
AND ADMINISTRATION

## FEDERAL LAWS, POLICIES, AND ADMINISTRATION

All legal and administrative authority of the Federal Government is founded on the Constitution of the United States. For the most part Federal laws relating to water resources are based on four clauses in the Constitution -- Commerce, Property, General Welfare, and Treaty. Over the years these clauses have been interpreted to cover such functions as navigation, power, public lands, flood control, irrigation, drainage, water supply, fish and wildlife preservation, recreation, shore protection, sediment and salinity control, pollution control, basic data collection, and others.

### Commerce Clause

The Commerce Clause vests in the Federal Congress the pre-eminent right to control navigable waters in the interest of commerce. The clause provides that the Congress "shall have power to regulate commerce with foreign nations and among the several States and with the Indian Tribes." 1/ Control of waters for commerce includes not only control for navigation, but also for flood protection, watershed development and the recovery of the cost of improvements through the production and sale of water-generated electric power. 2/

The first cases arising over application of the navigation servitude started with efforts by the Government to compel removal of structures or other obstructions which were interfering with navigation. In the early days, these obstructions were usually bridges, wharves, or similar structures. It is now well established that navigable waters may not be obstructed, bridged, controlled, or polluted except by Federal authority. 3/

### Property Clause

The Property Clause provides that "the Congress shall have power to dispose of and make all needful rules and regulations respecting the territory or other property belonging to the United States." 4/ This grant of power permits the United States to reserve water, for present and future use, in non-navigable 5/ and navigable 6/ waterways which cross or abut land areas reserved for Federal purposes. The quantities of water which can be so reserved are those required to carry out the purpose for which the Federal lands were reserved. 7/

The Property Clause has also been used to affirm Federal authority to build irrigation projects serving Federal lands. 8/

#### General Welfare Clause

The General Welfare Clause authorizes the Congress to use the Federal revenues to provide for the general welfare of the United States. 9/ This grant of power permits the Congress "to promote the general welfare through large-scale projects for reclamation, irrigation or other internal improvements." 10/

#### Treaty Clause

The Treaty Clause authorizes the President to make treaties with the advice and consent of the Senate. 11/ The treaty power is unlimited except for those restraints found in the Constitution itself and those arising from the nature of the State and Federal Governments. A treaty could not authorize what the Constitution forbids nor a change in the character of Federal or State Government, nor a cession of State territory without consent of the State. 12/

#### Footnotes

- 1/ U. S. Constitution, Art. I, Sec. 8, Clause 3.
- 2/ U. S. v. Appalachian Electric Power Co. 311 U. S. 377, 426, (1940).
- 3/ Obstructed: Act of March 3, 1899 (30 Stat. 1151; 33 U.S.C. 403).

Bridged: General Bridges Act of August 2, 1946 (60 Stat. 847; 33 U.S.C. 525 et seq.). Until 1946, no compensation was allowed a bridge owner who was obliged to alter his bridge because of navigation improvements. See Union Bridge Co. v. U. S. 204 U.S. 364 (1907); and Louisville Bridge Co. v. U. S. 242 U.S. 409 (1917). However, the Truman Hobbs Act of July 24, 1946 (60 Stat. 642); 33 U.S.C. 701 p, now authorizes the Chief Engineer to include at Federal expense the cost of altering legally constructed railroad bridges and approaches where required in connection with a flood control project.

Controlled: Federal Power Act (41 Stat. 1063; 16 U.S.C. 797).  
See Tatum v. Blackstock, 319 F. 2d 397 (5th Cir. 1963).

Polluted: United States v. Republic Steel Corp., 362 U.S. 482 (1960) held that the dumping of refuse into a navigable stream so as to reduce its depth constituted an obstruction forbidden by the Act of March 3, 1899, supra.

- 4/ U. S. Constitution, Art. IV, Sec. 3.
- 5/ Federal Power Commission v. Oregon, 349 U.S. 435 (1955).
- 6/ Arizona v. California, 373 U.S. 546, 601 (1963).
- 7/ Arizona v. California, (Supra.). See also p. 265 of the Special Masters Report.
- 8/ U. S. v. Arizona, 295 U.S. 174, 184-185 (1935).
- 9/ U. S. Constitution, Art. I, Sec. 8.
- 10/ U. S. v. Gerlach Livestock Co., 339 U.S. 725,738 (1950).
- 11/ U. S. Constitution, Art. II, Sec. 2.
- 12/ DeGeofroy v. Riggs, 133 U.S. 258 (1890).

## DEPARTMENT OF AGRICULTURE

### Economic Research Service

Authority for the Economic Research Service to carry out water-related analyses and research is contained in the Organic Act establishing the Department of Agriculture of May 15, 1862 (Ch. 12 Stat. 387; 5 USC, 511, 514, 516) and in Memoranda of Assignments from the several Secretaries of Agriculture.

The Economic Research Service has a responsibility to provide the economic analysis of the effects of alternative resource use on various aspects of the national agricultural life including: food supplies and costs, farm income, the cost of Government programs, etc.

The principal effort concerning the economic analysis of water and related land use is carried on by the Natural Resource Economics Division of the Economic Research Service. That Division carries out economic analyses and projections in river basin planning and conducts research on related subjects as required including: water rights and related laws, water quality, watershed program analyses, outdoor recreation, land tenure and income distribution, rural zoning and other land use controls, employment and production effects, etc.

## DEPARTMENT OF AGRICULTURE

### Forest Service

The Forest Service was organized under the Department of Agriculture by the Transfer Act of February 1, 1905. The broad activities and principal laws relating to the Forest Service responsibilities for protection and enhancement of the soil and water resources are directed or authorized by a number of acts of Congress. They are the basis for advancing and promoting conservation treatment and utilization of forest lands for the maintenance of stable economic conditions in dependent communities. These charges are provided for through the three major Forest Service activities: (1) management of the National Forests and the National Grasslands, (2) forest and range research, and (3) cooperation with State and private landowners.

The program best known to the public is the administration of federally owned lands that make up the National Forest and National Grasslands system. They are managed in accordance with the Multiple Use Sustained Yield Act of June 12, 1960 (Public Law 86-517). Each forest and range

resource, water, timber, forage, wildlife, and recreation under the multiple use concept is managed harmoniously with other resources to provide the greatest benefit to the people and meet present and future public needs both local and national.

The mission of Forest Service Research is to generate the knowledge and methods required for tomorrow's technology. This technology is basic for formulating policy, for planning and managing resources, and for improving the environment on forest and related lands within the Pacific Southwest.

Research is focused on social needs--maintaining and improving the quality of outdoor environments; providing more wood, water, wildlife, and recreation opportunities to meet the demands of a growing population; providing data for low cost housing, and opportunities for improving the development of rural America. The knowledge acquired covers the full spectrum of biological, sociological, and economical and physical information about complex forest and range ecosystems and their interfaces with urban areas. Research responsibilities pertain to all forests and related lands in private as well as public ownership. The continuing forest survey provides comprehensive information on the extent and condition of forest lands, the volume and quality of timber resources, trends in timber growth and harvest and outlook for future supplies and demands.

Cooperation with State and private landowners involves programs to (1) better protect the State and private owned forest and critical watershed lands against fire, insects and disease, (2) encourage better forest practices for conservation and profit on private forest lands, (3) to aid in the distribution of planting stock for forests, shelterbelts and woodlots and (4) stimulate proper development and proper management of State, county and community forests. These programs provide the means whereby the entire private forest sector can develop the opportunities existing in the use of forest lands and resources, to improve overall watershed conditions, and participate in fostering a healthy, local economy.

#### ABSTRACT OF LAWS

The Creative Act of March 3, 1891 (26 Stat. 1103), as Amended (16 U.S.C. 471), authorizes the President to set apart and reserve public land bearing forests, wholly or in part covered with timber or undergrowth, as national forests by public proclamation and declare the establishment of such forests and the limits thereof. Later acts require that National Forests in certain Western States be created by Acts of Congress.

Land and Water Conservation Fund Act of September 3, 1964, as Amended (78 Stat. 897) (16 U.S.C. 460 1-4). The purpose of this Act includes the assisting in preserving, developing, and ensuring accessibility, present and future, to outdoor recreation resources of such quality and quantity as may be available and are necessary and desirable. The Act authorizes the provision of funds for the Federal acquisition of land, waters, or interests in land or waters.

In-holding within wilderness areas and other areas primarily of value for outdoor recreation in the National Forest System may be acquired with monies appropriated from the Land and Water Conservation Fund, subject to certain limitations in section 6 (a) of the Act.

Provisions made in the Act for establishment of entrance and user fees specify that no fee shall be charged by a Federal agency under this Act for use of any waters.

Wild and Scenic Rivers Act of October 2, 1968, (82 Stat. 906) (16 U.S.C. 1271-1278) established the "Wild and Scenic River System" and directed the Secretary of Agriculture to study those rivers on the National Forests which should be considered for inclusion under this Act. The Forest Service will represent the Secretary of Agriculture as coordinator for the Department of Agriculture.

National Environmental Policy Act of 1969 (Public Law No. 91-190, approved January 1, 1970), the Clear Air Act, as amended (42 U.S.C. 1857) and Executive Order 11514, March 5, 1970. Directs the heads of Federal agencies to monitor, evaluate, and control on a continuing basis their agencies activities so as to protect and enhance the quality of the environment.

The Environmental Improvement Act of 1970 (79 Stat. 903) (16 U.S.C. 460 12-21, 662) directs Federal departments or agencies having jurisdiction over any building, installation, or other property to cooperate with the Department of Health, Education, and Welfare and with any State or interstate agency or municipality having jurisdiction over waters into which any matter is discharged from such property, in preventing or controlling the pollution of such waters.

Annual Appropriations Acts. Several annual appropriation acts have provided funds for the Forest Service to protect, administer, and improve the National Forests or lands under Forest Service administration of forest resources and uses, including prevention of erosion, enhancement of water yield and prevention of floods.

Organic Administration Act of June 4, 1897 (30 Stat. 34), as Amended (16 U.S.C. 475, 481) (373 U.S. 546, 1962), provides that the National Forests are established for securing favorable conditions for water flows, and to furnish a continuous supply of timber. Stipulates that all waters within the National Forests may be used for domestic, mining, milling, or irrigation purposes, under State laws, or under the laws of the United States.

Transfer Act of February 1, 1905 (33 Stat. 628) (16 U.S.C. 472) transferred jurisdiction over all forest reserves and resources to the Secretary of Agriculture.

The Weeks Act of March 1, 1911, as Amended (36 Stat. 961) (16 U.S.C. 480, 500, 513-19, 521, 552, 563) directs the Secretary of Agriculture to recommend for purchase such forested, cutover, or denuded lands within the watersheds of navigable streams or for the production of timber. Among other things, it provided for Forest Service cooperation with States for fire protection on State and private forestlands.

Term Permits, Act of March 4, 1915 (38 Stat. 1101), as Amended (16 U.S.C. 497) authorizes the Secretary of Agriculture to make regulations and upon such terms and conditions as he may deem proper permit the use and occupancy of suitable areas of land within the National Forests of specified acreage for stated purposes by private citizens and State and political subdivisions for periods not exceeding thirty years.

Federal Power Act of June 10, 1920, as Amended (41 Stat. 1063) (16 U.S.C. 796-799, 802, 817, 818), under this Act, the Federal Power Commission is empowered to issue licenses for constructing, operating, and maintaining various project works for the development, transmission, and use of power. The license for project works within the National Forest System shall be subject and contain such conditions as the Secretary of Agriculture deems necessary for adequate protection and use of the National Forest System lands.

Land Exchange Act of March 20, 1922 (42 Stat. 465), as Amended (16 U.S.C. 485, 486). When the public interests will be benefited thereby, the Secretary of the Interior is authorized in his discretion to accept on behalf of the United States title to any lands within the exterior boundaries of the National Forests which, in the opinion of the Secretary of Agriculture are chiefly valuable for National-Forest purposes, and in exchange therefor may patent not to exceed an equal value of such National-Forest land, in the same State, surveyed and non-mineral in character, or the Secretary of Agriculture may authorize the grantor to cut and remove an equal value of timber within the National Forests of the same State subject to other provisions of the Act.

Flood Control Act of June 28, 1938, as Amended, by the Act of May 17, 1950 (52 Stat. 1215) (33 U.S.C. 7016) Section 7 of this Act authorizes the Secretary of Agriculture to undertake emergency measures for runoff retardation and soil-erosion prevention as needed to safeguard lives and property from floods and the products of erosion on any watershed wherever fire or any other natural element or force has caused a sudden impairment of this watershed.

Withdrawals for Protection of Municipal Water Supply, Act of May 28, 1940, (54 Stat. 224) (16 U.S.C. 552-a-d), provides for reservation from all forms of location, entry or appropriation, National Forest land covered by a cooperative agreement with the Secretary of Agriculture, for the protection of a watershed providing a water supply for a municipality.

The Department of Agriculture Organic Act of September 21, 1944, (58 Stat. 743) (16 U.S.C. 526), authorizes to be appropriated for expenditure by the Forest Service such sums as may be necessary for the investigation and establishment of water rights, including the purchase thereof.

Forest Pest Control Act of June 25, 1947 (61 Stat. 177)(16 U.S.C. 594-1 to 594-5 incl.). This Act provides for the Government of the United States independently and through cooperation with the governments of States, territories, and possessions, and private timber owners to prevent, retard, control, suppress, or eradicate incipient, potential, or emergency outbreaks of destructive insects and diseases on, or threatening, all forest lands irrespective of ownership.

Granger-Thye Act of April 24, 1950, as Amended, (64 Stat. 82-88) (16 U.S.C. 572) provides authority for the Forest Service to cooperate in work on non-Federal lands within or near a National Forest and on National Forest lands subject to occupancy or special use. Assistance may be given to cooperators in the protection, restoration and management of watersheds.

Cooperative Forest Management Act of August 25, 1950, as Amended (64 Stat. 473) (16 U.S.C. 568c-d) provided for cooperation with State Foresters to provide technical services to private landowners with respect to management, harvesting and marketing of forest products.

Civil Defense (Federal Assistance in Major Disasters) Act of September 30, 1950, as Amended (64 Stat. 1109) (42 U.S.C. 1855-1855a-1855g). Among other things, under this Act, in any major disaster, Federal agencies are authorized, when directed by the President, to provide assistance by various measures, including performing on public lands

protective and other work essential for the preservation of life and property and clearing debris and wreckage. Major disaster means any flood, drought, fire, hurricane, earthquake, storm, or other catastrophe which, in the determination of the President, is or threatens to be of sufficient severity and magnitude to warrant disaster assistance by the Federal Government in alleviating the damage, hardship, or suffering caused thereby.

Watershed Protection and Flood Prevention Act of August 4, 1954, as Amended, (68 Stat. 566) (16 U.S.C. 1001-1007). This Act authorizes the Secretary of Agriculture to cooperate with the States and their political subdivisions and local public agencies, in preventing watershed damages from erosion, floodwater, and sediment, and in furthering the conservation, development, utilization, and disposal of water. Needed works of improvement may be designed and installed for the purpose. The Act also authorizes the Secretary to cooperate with other Federal and with State and local agencies in making investigations and surveys of the watersheds of rivers and other waterways, as a basis for planning and developing coordinated programs.

Agricultural Act of May 29, 1956, (70 Stat. 191, 207) (16 U.S.C. 568c). Among other things, this Act authorizes the Secretary of Agriculture to enter into cost-sharing contracts with farm crop producers to establish and maintain protective vegetative cover, water storage facilities; or other soil, water, and other conserving uses.

Multiple Use-Sustained Yield Act of June 12, 1960, (74 Stat. 215) (16 U.S.C. 528-531). This Act makes it the policy of the Congress that the National Forests are established and shall be administered for outdoor recreation, range, timber, watersheds, and wildlife and fish purposes. The purposes of this Act are declared to be supplemental to, but not in derogation of, the purposes for which the National Forests were established as set forth in the Act of June 4, 1897.

Under the 1960 Act, the Secretary of Agriculture is directed to develop and administer the renewable surface resources of the National Forest for multiple Use and sustained yield of the several products and services obtained therefrom, with due consideration to the relative values of the various resources in particular areas, and without impairment of the productivity of the land. Multiple use and sustained yield are defined in the Act.

Section 3 of this Act, authorizes the Secretary of Agriculture to cooperate with interested State and local government agencies and others in the development and management of the National Forests.

Addition of land acquired under Taylor Grazing Act to National Forests, Act of July 9, 1962 (76 Stat. 140) (43 U.S.C. 315), provides that lands acquired under section 8 of the Act of June 28, 1934 (48 Stat. 1272), as Amended (43 U.S.C. 315g), which are within exterior boundaries of a National Forest may be set apart and reserved by the Secretary of the Interior by public land order as a part of such National Forest.

Land so set apart and reserved becomes subject to the laws, rules, and regulations applicable to lands set apart and reserved from the public domain within such National Forest. Sec. 315b of the Act provides that it shall not be construed or administered in any way to diminish or impair any right to the possession and use of water for the mining, agriculture, manufacturing, or other purposes which has heretofore vested or accrued under existing law validly affecting the public lands or which may be hereafter initiated or acquired and maintained in accordance with such law.

Assist States in Program of Forestry Research, Act of October 10, 1962, (76 Stat. 806) (U.S.C. 582). This Act provides for cooperation with the States for the purpose of encouraging or assisting them in carrying out programs for forest research related to the reforestation and management of land or the production of crops and timber and other related products, and management of forests and related watershed lands to improve the conditions of waterflow and to protect resources against flood and erosion, management of forest and related rangelands for production of forage for domesticated livestock and game animals, management of forest lands for outdoor recreation, protection of forest lands against fire, insects, disease, and other destructive agencies, and the utilization of forest products and the development of sound policies for management of forest land.

Bureau of the Budget No. A-67, August 28, 1964. Coordinates Federal activities in the acquisition of certain water data and provides for Federal agencies to acquire specialized water data that cannot be provided efficiently, and in a timely manner, through the National network.

Wilderness Act of September 3, 1964 (78 Stat. 895) (16 U.S.C. 1131-36). This Act provides for the establishment of National Wilderness Preservation System by Congress composed of federally owned areas designated by Congress as wilderness areas administered for use of and enjoyment of the American people for preservation of the wilderness character and for the gathering and dissemination of information regarding use and enjoyment of wilderness. The Act specifies the conditions under which reservoirs, water conservation works and other facilities needed in the public interest may be authorized. Such use or activity may be authorized by the President to better serve the interest of the United States and people thereof.

Clarke-McNary Act of June 7, 1924, as Amended (43 Stat. 653) 16 U.S.C. 564-570 and 515). This Act provides for Forest Service cooperation with States for fire protection of watershed and forest lands and for the reforestation of denuded areas. It provides for the procurement, production and distribution of forest-tree seeds and plants for the purpose of establishing forests, windbreaks, shelterbelts and farm wood lots on nonforested lands.

McSweeney-McNary Forest Research Act of May 22, 1928, (45 Stat. 699) (16 U.S.C. 581) as Amended. This act authorizes the Secretary of Agriculture to conduct such investigations, experiments and tests as he may deem necessary to determine, demonstrate and promote the best methods of reforestation utilizing timber, forage, and other forest products, for maintaining favorable conditions of waterflow and the prevention of erosion, for protecting timber and other forest growth from fire, insects, disease, or other harmful agencies and, therefore, obtaining the fullest and most effective use of forest lands. The act also authorizes the Secretary to maintain certain (ten) forest experiment stations in the United States, Alaska and the West Indies.

Knutson Vandenberg Act of June 9, 1930, (46 Stat. 527; 16 U.S.C. 576, 576a-b) provides for the establishment of forest tree nurseries and permits timber stand improvements practices "---to improve the future stand of timber---."

Fish and Wildlife Coordination Act of March 10, 1934 (48 Stat. 401), as Amended (16 U.S.C. 661), provides that wildlife conservation shall receive equal consideration and be coordinated with other features of water resource development programs through the effectual and harmonious planning, development, maintenance, and coordination of wildlife conservation and rehabilitation.

Fish and Game Sanctuaries Act of March 10, 1934 (48 Stat. 400), as Amended (16 U.S.C. 694), provides for the establishment of fish and wildlife refuges upon lands and waters within the National Forest for the propagation and management of game birds, game animals, and fish.

Bankhead-Jones Farm Tenant Act of July 22, 1937, as Amended, (50 Stat. 525) (7 U.S.C. 1010-1012). Under this Act, the Secretary of Agriculture is directed, among other things, to develop a program of land conservation and land utilization to correct maladjustments in land use, and thus assist in controlling soil erosion, mitigating floods, preventing impairment of dams and reservoirs, conserving surface and subsurface moisture, protecting the watersheds of navigable streams, and protecting the public lands, health, safety, and welfare.

Special Receipts Acts Authorizing Land Purchases. A number of acts authorize use of a portion of annual National Forest receipts for land acquisition in specific National Forests or parts thereof. Major purposes of the acquisition authority covered by most of these acts are flood prevention and watershed protection.

#### Executive Orders

In addition to the various legislative acts there are a few Executive Orders which apply specifically to resource management on National Forest System lands.

Executive Order 10355 of May 26, 1952. This order authorizes the Secretary of the Interior to withdraw Federal lands for public purposes. The authority extends to the withdrawal of National Forest System lands for protection of municipal water supplies. Public land orders of the Secretary have been and are issued to cover specific withdrawals under this authority.

President's Letter of May 26, 1954. Although not issued as an Executive Order, this letter to the Secretary of the Interior created the Interagency Committee on Water Resources and established interagency participation in river basin planning. Following this action by the President, the Federal agencies concerned executed an agreement to coordinate water and related land resource activities.

Executive Order 10584 of December 18, 1954, As Amended by Executive Order 10913 of January 18, 1961. This order, as amended, prescribes the rules and regulations for administration of the Watershed Protection and Flood Prevention Act (P.L. 566) of August 4, 1954, as amended (FSM 1021).

Senate Document No. 97 of May 29, 1962. Although not issued as an Executive Order, this document contains a letter from the President to the Secretaries of the Interior; Agriculture; Health, Education, and Welfare; and the Army; approving, for application by each of these Departments and the Bureau of the Budget, the statement of policies, standards, and procedures in the formulation, evaluation, and review of plans for use and development of water and related land resources, as published in the document.

This statement replaces the former Bureau of the Budget criteria sent out in Circular A-47, revised November 24, 1954. The 1962 statement applies to river basin and water development project plans proposed by any of the four Departments.

Executive Order 11507, February 4, 1970 (Supercedes E.O. No. 11282 of May 26, 1966, and E.O. No. 11288 of July 2, 1966). Establishes responsibilities, standards and procedures for abatement of air and water pollution at existing Federal facilities.

Executive Order 11514, The Environmental Control Act, January 1, 1970, March 5, 1970, and the Environmental Council Interim Instructions. These instruments establish Federal agencies responsibilities to monitor, evaluate, control and develop programs directed to controlling pollution, and protecting and enhancing the environment, to meet specific objectives of agency activities, and to develop procedures to assure public understanding of the plans and programs.

#### U.S.D.A. Administrative Regulations

Water and related land management of National Forest System lands is also affected by Department of Agriculture Administrative Regulations. These regulations fall in two categories (1) Department administrative regulations, which pertain to responsibilities of the Forest Service for departmental programs; and (2) Secretary's regulations, which pertain to the relationships of resource management and protection of National Forest lands.

Paragraph 165, chapter 2, title 1, of the Department of Agriculture Regulations assigns to the Forest Service the following functions which directly or indirectly relate to water and related land management on National Forest System lands.

1. Overall leadership in forest and forest range conservation, development, and utilization. The term "forest" includes woodlands and brush-covered wild lands in mountainous areas.
2. The protection, management, and administration of the National Forests and lands acquired for or being administered in connection with National Forest purposes.
3. The programs of cooperation in the protection, development, conservation, management, and utilization of forest resources, except as otherwise assigned.
4. The use and administration under title III of the Bankhead-Jones Farm Tenant Act, of lands under the administration of this Department including the custodianship of lands under lease to States and local agencies except as otherwise assigned.

5. The responsibility, under such general principles, criteria, and procedures as may be established by the Soil Conservation Service, for making preliminary examinations and surveys under the flood prevention program; for conducting surveys and investigations under the small watershed protection program; for making surveys, investigations, and studies under the program for flood prevention and agricultural phases of the conservation, development, utilization, and disposal of water; and for the collection of data necessary to the preparation of comprehensive river basin reports in the watershed or basin. This responsibility extends to all National Forest and other lands administered by the Forest Service, rangelands within National Forest boundaries and rangelands adjacent to National Forests which are administered in conjunction with such Forests under formal agreement with the owner or lessee; and other forest lands.

6. The responsibility for installing flood prevention and watershed protection works of improvement on all National Forests and other lands administered by the Forest Service; rangelands within National Forest boundaries and rangelands adjacent to National Forests which are administered in conjunction with such Forests under formal agreement with the owner or lessee.

7. Assistance to Agricultural Conservation Program of the Agricultural Stabilization and Conservation Service in connection with the Conservation Reserve Program under Title I of the Agricultural Act of 1956.

## DEPARTMENT OF AGRICULTURE

### Soil Conservation Service

The Soil Conservation Service has the responsibility of acting as the technical service agency of the U. S. Department of Agriculture (USDA) in the field of soil and water conservation, watershed protection and flood prevention, and resource development, except on lands administered by the Forest Service. The Soil Conservation Service (SCS) administers USDA activities involving technical and financial assistance for planning and executing programs to protect and improve water and related land resources in small watersheds. It gives technical information and services to other agencies in related programs as requested. The SCS cooperates closely with Federal and State agencies that deal with loans, cost sharing, fish and wildlife, recreation, and other matters related to land and water use.

#### Origin and Background

The Soil Erosion Service (predecessor to the Soil Conservation Service) was established as a temporary organization of the U.S. Department of Interior in July 1933, and was transferred to the USDA in March 1935. The establishing and enabling act of the Soil Conservation Service was passed April 27, 1935. This act directed the Secretary of Agriculture to establish an agency known as the Soil Conservation Service to exercise the powers conferred on him by the act. This action followed a long history of land misuse and was culminated by the increasing public awareness of the magnitude and seriousness of soil erosion problems.

The Lower Colorado Region has many remaining land use and management problems. Gully and streambank erosion, streambed aggradation and seeping of bottomlands, problem soils, sediment production and deposition, and excessive runoff are widespread. Phreatophyte invasion of irrigated areas is common, which accentuates problems associated with inadequate late-season irrigation water supplies. Accordingly, soil conservation and wise land management are recognized as integral components of comprehensive planning for water and related land resource use and development.

## Authorization

The Soil Conservation Service provides technical assistance in the field of water resources under the following authorities:

PL-46, 74th Congress, 49 Stat. 163, 164 (16 U.S.C. 590a-590f), as amended and supplemented, known as the Soil Conservation Service Establishing Act of April 27, 1935, authorized the Secretary of Agriculture to provide for the protection of land resources against erosion and establish the Soil Conservation Service to administer this program and sections 202 and 203 of the National Industrial Recovery Act. Under this Act, the Secretary was authorized:

- (1) To conduct surveys, investigations, and research relating to the character of soil erosion and the preventive measures needed, to publish the results of any such surveys, investigations, or research, to disseminate information concerning such methods, and to conduct demonstration projects in areas subject to erosion by wind or water;
- (2) To carry out preventive measures, including, but not limited to, engineering operations, methods of cultivation, the growing of vegetation, and changes in use of land;
- (3) To cooperate or enter into agreements with, or to furnish financial or other aid to, any agency, governmental or otherwise, or any person, subject to such conditions as he may deem necessary, for the purposes of this Act; and
- (4) To acquire lands, or rights or interests therein, by purchase, gift, condemnation, or otherwise, whenever necessary for the purposes of this Act.

PL-461, 74th Congress, (16 U.S.C. 590g-q), approved February 29, 1936, known as the "Soil Conservation and Domestic Allotment Act," amended the "Soil Conservation Service Establishing Act of April 27, 1935." The purpose of this Act was to promote the conservation and profitable use of agricultural land resources by temporary Federal aid to farmers and by providing for a permanent policy of Federal aid to States for such purposes.

PL-738, 74th Congress, as amended, known as the "Flood Control Act of 1936," authorized the Secretary of War to construct certain public works on rivers and harbors for flood control, and for other purposes. The Act authorized and directed the Secretary of Agriculture to make preliminary examination and surveys for run-off and waterflow retardation and soil erosion prevention on certain public works. This Act was further amended and authority limited under PL-566, 83rd Congress, 2nd Session, Section 7.

PL-534, 78th Congress, 2nd Session, known as the "Flood Control Act of 1944," authorized the Secretary of Agriculture to prosecute works of improvement for run-off and waterflow retardation, and soil-erosion prevention on eleven watersheds.

PL-156, 83rd Congress, known as the "Department of Agriculture Appropriation Act, 1954," in an appropriation item, gave the Secretary of Agriculture authority for expenses necessary to conduct surveys, investigations, and research, and to carry out preventative measures, including, but not limited to, engineering operations, methods of cultivation, the growing of vegetation, and changes in use of land, in accordance with Public Law 46, Seventy-fourth Congress, on "Pilot" Demonstration Watershed Projects.

PL-566, 83rd Congress, 2nd Session, as amended, known as the "Watershed Protection and Flood Prevention Act," authorized the Secretary of Agriculture to cooperate with States and local agencies in the planning and carrying out of works of improvement including structural and land treatment measures, for soil conservation, and for other purposes. The Act authorized the Secretary:

- (1) To conduct such investigations and surveys as may be necessary to prepare plans for works of improvement;
- (2) To prepare plans and estimates required for adequate engineering evaluation;
- (3) To make allocations of costs to the various purposes to show the basis of such allocations and to determine whether benefits exceed costs;
- (4) To cooperate and enter into agreements with and to furnish financial and other assistance to local organizations;
- (5) To obtain the cooperation and assistance of other Federal agencies in carrying out these purposes.

PL-639, 87th Congress (Smith Act), approved September 5, 1962, an act to authorize the Secretary of the Army and the Secretary of Agriculture to make joint investigations and surveys of watershed areas for flood prevention or the conservation, development, utilization, disposal of water, for flood control and allied purposes, and to prepare joint reports on such investigations and surveys for submission to the Congress, and for other purposes.

Activities under these acts are carried on in cooperation with other Federal agencies and with State and local bodies.

PL-703, 87th Congress, known as the "Food and Agriculture Act of 1962," amended the "Bankhead-Jones Farm Tenant Act" to authorize the Secretary of Agriculture to develop a program of land conservation and land utilization in order to correct maladjustments in land use. Under this authority the USDA through Resource Conservation and Development Projects gives technical and financial help to local groups in the conservation and development of natural resources in their area. Also, it helps project sponsors seek funds and services from other Federal agencies and from State and local sources. The Soil Conservation Service has leadership for USDA in this program.

### Policy

The objective of all national soil and water conservation policies is to achieve land use adjustments and treatment that will provide for the best use of land and water resources to meet long and short term objectives, reduce the hazards of flood and sedimentation, assure the most efficient long-term use of soil and water, establish a more permanent and stable agriculture, and otherwise help to insure the orderly development and prosperity of rural and urban areas. These policies are activated by the provision of planning and engineering services and financial assistance for application by responsible local soil conservation districts.

### Administration

The work of SCS is directed by the Administrator and his staff from the central office in Washington D.C. Within the Lower Colorado Region the State Conservationists are responsible for field operations and relations with State agencies and organizations. Work with land owners and operators is carried out by the local district conservationist and staff assistants. Technical specialists also provide technical guidance and training to field personnel on special problems through the West Regional Technical Service Center in Portland, Oregon.

The primary job of SCS is helping landowners and operators, individually or in groups, do conservation work on the land. SCS provides this assistance mainly through locally organized soil conservation districts that are organized under various State laws. These districts are autonomous units of local government with locally elected supervisors who serve without pay. Each district is responsible for the soil and water conservation work within its boundaries in accordance with State enabling legislation. Approximately 90 percent of the Lower Colorado Region is covered by 48 Soil Conservation Districts.

As an integral part of its national program, SCS carries out the Federal part of the National Cooperative Soil Survey. In addition to meeting the immediate needs of the soil and water conservation program, these soil surveys meet the needs for detailed information about soils and land classification. USDA publishes soil surveys in cooperation with State experiment stations, and all soils investigations are cooperative with State colleges.

The SCS conducts snow surveys and prepares forecasts of seasonal water supplies for all of the major streams in the Region. In carrying on the snow surveys, SCS has developed working arrangements with a wide variety of Federal, State, and local agencies and private concerns according to the circumstances in each State.

SCS has USDA leadership for the National Inventory of Soil and Water Conservation Needs. This Inventory collects and summarizes information on soil resources, land uses, probable land use adjustments, and soil and water conservation treatment needs. National and State interagency committees guide this Inventory and all agencies and organizations concerned with soil and water conservation are invited to serve on these committees.

The SCS also administers the Watershed Protection and Flood Prevention Act (Public Law 566) for the Department of Agriculture. Under this authority, the SCS provides planning, engineering services and cost-sharing assistance to groups of private landowners who organize to provide a variety of upstream flood prevention works and resource developments that cannot be installed by individual initiative and responsibility.

Certain legal and policy limitations have been placed on projects installed under PL 566. The Watershed project work plan cannot cover a watershed or subwatershed area of more than 250,000 acres, except that where the sponsoring local organization(s) so desires, a number of subwatershed areas, when they are component parts of a larger watershed, may be planned together. However, no single plan can be submitted for

a watershed or subwatershed area exceeding 250,000 acres. Soil and water conservation measures applied on the land must precede or be concurrent with installation of structural measures. No structure providing more than 12,500 acre-feet of floodwater detention capacity or more than 25,000 acre-feet of total capacity may be included in a plan. The act also requires that all work conform with applicable State laws and water rights. Recreational developments are limited to one such development for the first 75,000 acres of watershed area, two for watersheds of 75,000 - 150,000 acres in size, and three for those over 150,000 acres in size.

Within the Lower Colorado Region 27 applications for watershed assistance under PL-566 have been received as of January 1, 1965. Of these, 17 have been authorized for planning and 12 projects have been approved for construction while five have been completed.

As of September 1969, 39 applications have been received, 21 have been authorized for planning, 15 have been approved for construction and eight projects have the construction completed.

The SCS is designated as the USDA Agency responsible for administration of activities related to Resource Conservation and Development (RC&D) Projects. SCS also is assigned the responsibility for contacts with Federal agencies outside the Department and with State and local agencies and organizations in a position to further such projects. RC&D Projects are locally organized and involve the local people of an area engaging in total development and use of all resource - natural and human - through self-government, conservation, and development at the local level.

The SCS cooperates in other programs with various departmental and other Federal agencies and furnishes technical assistance through numerous National and State committees. These activities include technical assistance to the Agricultural Conservation Program, technical assistance to the Farmers Home Administration, liaison with the Agricultural Research Service and radiological monitoring for agricultural land, livestock and farm commodities.

The SCS cooperates with the Federal Insurance Administration, U.S. Department of Housing and Urban Development (HUD), in carrying out the provisions of the National Flood Insurance Program, authorized by the Housing and Urban Development Act of 1968 (Public Law 90-448), August 1, 1969.

The National Flood Insurance Program grew out of recommendation 11 contained in the report, "A Unified National Program for Managing Flood Losses," published as House Document No. 465 of the 89th Congress.

This program was established to make flood insurance available, eventually, throughout the Nation, through a cooperative effort of the Federal Government and private insurance industry. Section 1317 of the act provides that the Secretary, HUD, is to consult with other departments and agencies of the Federal Government and with interstate, State, and local agencies responsible for flood control, flood forecasting, or flood damage prevention to make sure that these programs and the flood insurance program are compatible. Section 1361 of the act recognizes that establishing a system of land use controls in areas subject to flooding is important in reducing flood damages in the future. To this end, the act requires that communities: (1) constrict development of land exposed to flood damage; (2) guide the development of proposed construction away from flood-prone areas; (3) assist in reducing damage caused by floods; and (4) improve the long-range land management and use of flood-prone areas.

DEPARTMENT OF THE ARMY

Corps of Engineers

1. General.

The Corps of Engineers is responsible for the administration of the water resources (civil works) programs (mission) of the Department of Defense. The work includes constructing and improving harbors, dredging navigable streams and maintaining navigable channels, planning and constructing flood control and multiple-purpose projects, controlling hydraulic-mining debris, administering laws pertaining to protection and preservation of navigable waters, providing works for shore protection and prevention of beach erosion, fighting floods and making emergency repairs, and making investigations and engineering reports on stream basins, harbors, and shorelines. Specific authorities of the Corps to participate in these activities are given in the following paragraphs. (Only those authorities that are applicable to the Lower Colorado Region are cited.)

2. Authorities for specifically authorized projects.

Except as described under a subsequent heading, "Special Authorities," each Federal navigation and flood control project must be specifically authorized by Congress. The following subparagraphs contain authorities and pertinent information on these projects.

a. Authority for navigation projects. Beginning with an act approved 24 May 1824 (4 Stat. 32), investigations and improvements for navigation and related purposes have been authorized by a series of river and harbor acts. The 1920 River and Harbor Act (41 Stat. 1010; 33 U.S.C. 547) expanded the Federal policy regarding navigation improvements and established general requirements for local cooperation where the benefits from such improvements are mainly local in nature.

b. Authority for flood control projects. Since 1936, the Corps has been responsible for the general flood control program throughout the United States. The 1936 Flood Control Act (49 Stat. 1570; 33 U.S.C. 701a), as amended by subsequent acts, established Federal policy with regard to flood control.

3. Special authorities.

In addition to the foregoing, the Corps undertakes small projects and emergency work under various general Congressional authorizations. These special authorities are discussed in following subparagraphs.

a. Small projects. Under the provisions of certain acts the Corps may construct certain small projects without specific authorization by Congress. These projects are subject to the same requirements of feasibility and economic justification as projects requiring Congressional authorization, must be coordinated with the local interests concerned, and must be complete in themselves and not commit the Federal Government to additional improvement to insure effective operation. These small projects and attendant authorities are as follow:

(1) Small navigation projects are constructed under the provisions of section 107 of the 1960 River and Harbor Act (74 Stat. 480, 486; 33 U.S.C. 577), as amended. The number of these projects is limited by restrictions of \$500,000 per project and a national cumulative yearly ceiling of \$10,000,000.

(2) Small flood control projects are constructed under the provisions of section 205 of the 1948 Flood Control Act (62 Stat. 1172, 1182; 33 U.S.C. 701s), as amended. Here again, the number of these projects is limited by restrictions of \$1,000,000 per project with a total yearly ceiling of \$25,000,000.

b. Emergency work. The Corps is frequently called upon to perform emergency flood control and navigation work under general Congressional authorizations and within the limits of available funds appropriated annually. The authorities and types of work are as follow:

(1) Emergency flood control work.

(a) Emergency bank protection. Under section 14 of the 1946 Flood Control Act (60 Stat. 641, 653; 33 U.S.C. 701r), the Corps is authorized to spend not more than \$50,000 for any one locality during any one fiscal year for the construction of emergency bank protection works to prevent flood damage to public works.

(b) Snagging and clearing. Under section 208 of the 1954 Flood Control Act (68 Stat. 1248, 1266; 33 U.S.C. 701g), the Corps is authorized to spend not more than \$100,000 for any single tributary during any one fiscal year for the removal of accumulated snags and other debris and for the clearing and straightening of the channels in navigable streams and tributaries thereof when, in the opinion of the Chief of Engineers, such work is advisable in the interest of flood control.

(c) Flood fighting and repair and rescue work. Under the Act of 28 June 1955, Public Law 99 (69 Stat. 186; 33 U.S.C. 701n), and antecedent legislation, the Corps is authorized to engage in flood fighting and rescue operations and to repair or restore any flood control

works threatened or destroyed by flood, including the strengthening, raising, extending, or other minor modification thereof as may be necessary in the discretion of the Chief of Engineers for the adequate functioning of the works for flood control.

(d) Emergency flood control (rehabilitation) - The Disaster Act of 1970, (Public Law 91-606) (84 Stat. 1744), Executive Order 10427, and the Disaster Relief Act of 1966, Public Law 769 (80 Stat. 1316; 42 U.S.C. 1855). In addition to the above described emergency work, the Corps performs rehabilitation of flood damaged facilities at the request of the Office of Emergency Planning.

(2) Emergency navigation work.

(a) Removal of wrecks and obstructions. Under the 1899 River and Harbor Act (30 Stat. 1121, 1154; 33 U.S.C. 415), the Corps is authorized to investigate wrecked vessels and other obstructions to navigation and to insure removal at the expense of the owner or, under certain specific conditions, at the expense of the Federal Government.

(b) Snagging and clearing. Under section 3 of the 1945 River and Harbor Act (59 Stat. 10, 23; 33 U.S.C. 603a), the Corps is authorized to remove accumulated snags and other debris and to protect, clear, and straighten channels in navigable harbors and navigable streams and tributaries thereof when, in the opinion of the Chief of Engineers, such work is advisable in the interest of navigation or flood control.

4. Related activities.

Several related Corps activities of special importance to local interests and several related areas of Federal aid are also covered in Congressional authorizations. Pertinent information on some of those authorizations is given in the following subparagraphs.

a. Flood plain management services. Section 206 of the 1960 Flood Control Act (74 Stat. 480, 500; 33 U.S.C. 709a), as amended by the 1966 Flood Control Act (80 Stat. 1405, 1422; 33 U.S.C. 709a), authorizes the Secretary of the Army, through the Chief of Engineers, to compile and disseminate information on floods and flood damage potentials and general criteria for guidance of Federal and non-Federal interests and agencies in the use of flood plain areas. Under Executive Order 11296, all Federal Agencies are required to evaluate the flood hazard in locating federally owned or financed buildings, roads, and other facilities, and in disposing of Federal lands and properties. As a result of this order and the other authorizations listed above, the Corps of Engineers makes flood plain information and technical assistance available to Federal,

State, and local governmental agencies to help them in wise and beneficial use of the Nations' flood plain areas and to reduce the risk of flood damage.

b. National Flood Insurance Program. The Corps of Engineers cooperates with HUD in the National Flood Insurance Program by furnishing information on frequency of flooding and extent of flood damages. In general this program, which makes flood insurance available at relatively low rates due to Federal cost sharing, requires that appropriate flood plain regulations be adopted if a community or other political entity is to participate in the program. The Corps of Engineers provides technical assistance to the community in meeting the requirements of the program.

c. Domestic, municipal, and industrial water supplies. The Water Supply Act of 1958 (72 Stat. 297, 319; 33 U.S.C. 701b - 8a) permits the Corps to participate and cooperate with States and local interests in developing domestic, municipal, and industrial water supplies in connection with the construction, maintenance, and operation of Federal navigation, flood control, irrigation, and multiple-purpose projects.

d. Uniform recreation policies. Section 4 of the 1944 Flood Control Act (58 Stat. 887, 889; 16 U.S.C. 460d), as amended, and the 1965 Federal Water Project Recreation Act (79 Stat. 213; 16 U.S.C. 4601 - 12) provide uniform policies governing Federal participation in recreational developments at Federal water projects. These policies pertain to including recreation as a project purpose, encouraging non-Federal operation and maintenance of public recreational facilities, and sharing costs for recreational developments at Federal projects.

e. Aid in meeting conditions of required local cooperation. Section 217 of the 1965 Flood Control Act (79 Stat. 1073, 1088; 42 U.S.C. 3142a) aids local interests in meeting required conditions of local cooperation in the civil works program.

f. Objectionable water vegetation. Section 302 of the 1965 River and Harbor Act (79 Stat. 1073, 1092; 33 U.S.C. 610) authorizes a comprehensive program under the Corps for the control and eradication of objectionable water vegetation.

g. Cooperation in projects of other agencies. Under section 7 of the 1944 Flood Control Act (58 Stat. 887, 890; 33 U.S.C. 709), the Corps through the Secretary of the Army, has the responsibility for prescribing regulations for the use of storage space reserved for flood control or navigation in all reservoirs constructed wholly or in part with Federal funds.

h. National environmental policies. Under section 102 of the National Environmental Policy Act of 1969, Public Law 190 (83 Stat. 852), the Corps fully considers the impact on the environment from the very initiation of preauthorization planning in formulating water resource development or management plans to the construction and operation of a project. Early and continuing search in cooperation with appropriate local, State, and Federal agencies is undertaken to develop alternatives and measures that will enhance, protect, and restore the quality of the environment or, at least, minimize and mitigate unavoidable deleterious effects.

i. Refuse Act of 1899. Section 13 of the River and Harbor Act of 1899, known as the "Refuse Act," extends Federal authority to certain discharges of waste into navigable water and provides a valuable additional enforcement tool. FWQA and the U.S. Army Corps of Engineers coordinate the enforcement of the Refuse Act with the enforcement of the Federal Water Pollution Control Act. Executive Order 11574 dated December 23, 1970, provides for the implementation of a Refuse Act permit program to regulate waste discharges into navigable waters.

5. Comprehensive framework studies.

The Corps conducts or participates in comprehensive framework studies of an area or region for the purpose of (a) developing economic projections of development, including the translation of such projections into demands for water and related land-resource uses, hydrologic projections of water availability - both as to quantity and quality, and projections of related land-resource availability; and (b) outlining the characteristics of projected water and related land-resource problems and the general approaches that appear appropriate for their solution. Full consideration is given in all planning studies to the principles and guides outlined in Senate Document 97, 87th Congress, 2d session. Corps participation in these studies stems from specific Congressional authorization and the Water Resources Planning Act of 1965 (79 Stat. 244; 42 U.S.C. 1962).

6. International cooperation - International Boundary and Water Commission, United States and Mexico.

The United States Section of this Commission was created in its present form to cooperate with Mexico in a study of the equitable use of the waters of the Rio Grands and the Colorado and Tijuana Rivers. It is an international agency charged with the application of the Treaty of February 1944, relating to the equitable distribution between the two countries and the utilization of the waters of the three rivers. The Corps of Engineers South Pacific Division Engineer and the Southwest Division Engineer are consultants to the Commission. More will be stated in regard to the activities and authority of this Commission in the appropriate Federal Agency section.

## DEPARTMENT OF COMMERCE

The Department of Commerce has only one agency having primary responsibilities in the field of water resources. This is the National Oceanic and Atmospheric Administration. In addition, Commerce has agencies such as the Office of Business Economics, which provides basic economic measures of the national economy; the Bureau of Census, which is responsible for conducting periodic censuses; and the Bureau of Domestic Commerce which provides assistance to industry, including the water and sewerage industries. In addition, the Bureau of Standards does research in hydraulics.

### National Oceanic and Atmospheric Administration

NOAA, the National Oceanic and Atmospheric Administration, was created within the U.S. Department of Commerce on October 3, 1970, by Presidential Reorganization Plan Number 4 of 1970.

Its formation brought together the functions of the Commerce Department's Environmental Science Services Administration (including its major elements: the Weather Bureau, Coast and Geodetic Survey, Environmental Data Service, National Environmental Satellite Center, and Research Laboratories); the Interior Department's Bureau of Commercial Fisheries, Marine Game Fish Research Program, and Marine Minerals Technology Center; the Navy-administered National Oceanographic Data Center and National Oceanographic Instrumentation Center; the Coast Guard's National Data Buoy Development Project; the National Science Foundation's National Sea Grant Program; and elements of the Army Corps of Engineers' U.S. Lake Survey.

### Environmental Data Service

This service operates data centers, such as the National Weather Records Center at Asheville, N.C., for the storage, retrieval, compilation, publication, and dissemination of environmental data for use by commerce, industry, the scientific and engineering community, and the general public. It conducts research to improve the quality and availability of environmental data, to insure its widest and best use; and it coordinates climatological and geophysical data matters with world scientific organizations.

## National Weather Service

The National Weather Service reports the weather of the United States and its possessions, provides weather forecasts to the general public, issues warnings against tornadoes, hurricanes, floods, and other weather hazards, and records the climate of the United States. The Weather Service also develops and furnishes specialized weather services which support the needs of agriculture, aviation, maritime, space, and military operations. These services are supported by a national network of observing and forecasting stations, communications links, aircraft, satellite systems, and computers.

## National Ocean Survey

The National Ocean Survey prepares and distributes nautical and aeronautical charts, conducts precise geodetic, oceanographic, and marine geophysical surveys, monitors the earth's geophysical fields and seismic activity, predicts tides and currents, and issues tsunami warnings to the Pacific Ocean area. It maps and charts American coastal waters, the Great Lakes, and navigable waters of the New York State Barge Canal System, Lake Champlain, and the Minnesota-Ontario Border Lakes. The National Ocean Survey fleet conducts mapping and charting operations and provides ship support to NOAA's Environmental Research Laboratories.

The Survey employs approximately 2,500 persons. Its major facilities include the Atlantic and Pacific Marine Centers at Norfolk, Virginia and Seattle, Washington; the Albuquerque Seismological Center in New Mexico; the National Tsunami Warning Center in Hawaii; the Great Lakes Research Center in Detroit; and a network of geophysical observatories.

## Institutes for Environmental Research

The Institutes conduct an integrated research program relating to the oceans and inland waters, the lower and upper atmosphere, the space environment, and the earth to increase understanding of man's environment in order to provide more useful services, and conduct propagation research and services in support of the Nation's telecommunication activities.

## National Environmental Satellite Service

The National Environmental Satellite Service plans and operates environmental satellite systems, gathers and analyzes satellite data, and develops new methods of using satellites to obtain environmental data. As environmental satellite technology matures, sensors will be added to measure additional atmospheric characteristics, and to provide data on solar, ionospheric, oceanographic, and other geophysical phenomena.

## National Marine Fisheries Service

The National Marine Fisheries Service seeks to discover, describe, develop, and conserve the living resources of the global sea, especially as these affect the American economy and diet. The Fisheries Service conducts biological research on economically important species, analyzes economic aspects of fisheries operations and rates, develops methods for improving catches, and, in cooperation with the U.S. Department of State, is active in international fisheries affairs. With the U.S. Coast Guard, the National Marine Fisheries Service conducts enforcement and surveillance operations on the high seas and in territorial waters. It also studies game fish behavior and resources, seeks to describe the ecological relationships between game fish and other marine and estuarine organisms, and investigates the effects on game fish of thermal and chemical pollution.

The National Marine Fisheries Service conducts a voluntary grading and inspection program under which fishery products that meet established quality standards and product specifications can bear a special shield that is the shopper's guarantee that the product was of high quality when it left the processor. A staff of marketing specialists and home economists provide services to Federal and State governments, industry, and consumer organizations in the use of fish and fishery products. The Service also maintains a national program of fishery statistics and market news.

The Service maintains nearly 30 major laboratories and centers and more than 50 lesser installations such as statistics and market news offices across the Nation. It has a fleet of 29 research vessels equipped for various kinds of oceanographic research and fishery exploration.

### Marine Minerals Technology Center

The Marine Minerals Technology Center at Tiburon, California, is concerned with the development of marine mining and related technology, with emphasis on the assessment of environmental impact of mining systems. A related activity is to develop the necessary tools and techniques for accurate delineation and economic evaluation of marine minerals deposits.

### National Oceanographic Instrumentation Center

The National Oceanographic Instrumentation Center provides the Nation with a focal point for knowledge of technology related to instrument measurement, evaluation, and the reliability of sensing systems for ocean use. The Center performs laboratory and field testing and calibration, sponsors standards development, and enhances the quality of ocean systems by the dissemination of operational results and technical information.

## Environmental Research Laboratories

The Environmental Research Laboratories, headquartered in Boulder, Colorado, conduct the fundamental investigations needed to improve man's understanding of the physical environment.

The Atmospheric Physics and Chemistry Laboratory (Boulder, Colorado) is NOAA's major focus for developing methods of practical, beneficial weather modifications.

The Air Resources Laboratories (Washington, D.C.) house NOAA's principal efforts to identify, detect, predict, and control atmospheric pollution.

The Geophysical Fluid Dynamics Laboratory (Princeton, New Jersey) studies the dynamics and physics of geophysical fluid systems to develop predictive mathematical models of ocean and atmosphere.

The National Severe Storms Laboratory (Norman, Oklahoma) studies tornadoes, squall lines, and other severe local storms with an eye to improved detection and prediction methods.

The Atlantic Oceanographic and Meteorological Laboratories (Miami, Florida) conduct research toward a fuller understanding of the global ocean and its interactions, study hurricanes and other tropical weather phenomena, and conduct experiments in hurricane modification.

The Pacific Oceanographic Laboratories (Seattle, Washington) conduct research toward a more complete description of the global ocean and its interactions, including seismic sea waves.

The Earth Science Laboratories (Boulder, Colorado) conduct research in geomagnetism, seismology, geodesy, and related technologies.

The Aeronomy Laboratory (Boulder, Colorado) studies the physical and chemical processes of the ionosphere and exosphere of the earth and other planets.

The Space Disturbances Laboratory (Boulder, Colorado) monitors characteristics of the space environment related to early detection and reporting of important disturbances, and conducts related basic research.

The Research Flight Facility (Miami, Florida) meets NOAA's requirements for environmental measurements from specially instrumented aircraft. The Facility currently maintains a fleet of four aircraft.

Office of Sea Grant. The Office of Sea Grant administers and directs the National Sea Grant Program. This program provides support for institutions engaged in comprehensive marine research, education, and advisory service programs, supports individual projects in marine

research and development, and sponsors education of ocean scientists and engineers, marine technicians, and other specialists at selected colleges and universities.

Data Buoy Project Office. The Data Buoy Project Office manages the National Data Buoy Development Project. It is developing a national system of automatic ocean buoys for obtaining essentially continuous marine environmental data. This work is closely associated with satellite and sensor developments elsewhere in NOAA.

### Economic Development Administration

The Economic Development Administration (EDA) was established September 1, 1965. The primary function is the long-range economic development and programing for areas and regions of substantial and persistent unemployment and underemployment, and low family income, through the creation of new employment opportunities by developing new and expanding existing facilities and resources in such areas and regions. There are seven area offices and 52 field offices.

### Office of Business Economics

The function of the Office of Business Economics is to provide a systematic, quantitative description of the U.S. economy within the framework of the national economic accounts; and to prepare analyses based mainly on the information contained in the national accounts, of the short- and long-term outlook of the economy, of emerging economic problems, and of alternative policies that might be adopted to deal with them. As an example of its participation in Comprehensive Basin Studies, OBE is working directly with the Water Resources Council in the economic aspects of water resources development.

### Bureau of the Census

The Constitution provides that an enumeration of the people shall be taken every 10 years in the manner in which the Congress shall direct. The act of March 6, 1902 (32 Stat. 51) established the Census Office as a permanent bureau. The act of February 14, 1903, transferred the Census Office to the Department of Commerce and Labor. Laws pertaining to the Bureau of the Census were codified as Title 13, United States Code.

## Bureau of Domestic Commerce

The Bureau of Domestic Commerce (BDC), formerly the Business and Defense Services Administration, was established by Department Order 40-1a effective September 15, 1970. It is an operating unit of the Department of Commerce with authority and duties related to the domestic industry and trade of the Nation. BDC collects, analyzes, and disseminates information and data on industrial activities and requirements, technological developments, economic trends, and potential impact on business and the economy of contemplated or affected Government actions. BDC prepares analyses of policy issues and recommends policies and program objectives to stimulate balanced growth of U.S. industry. BDC is organized into an Office of Domestic Business Policy composed of six program divisions, an Office of Business Research and Analysis composed of 10 industry divisions and three data staffs, an Office of Industrial Mobilization composed of four divisions and an Office of Business Services composed of 42 field offices and five special purpose staffs. The professional staff is comprised primarily of economists, industry specialists, program analysts and statisticians.

In regard to water and related land resources development planning, BDC collects, analyzes and reports information on industrial water use in regular publications, holds frequent discussions and seminars with industrial representatives, and provides liaison between Government and industry on water resources matters. BDC prepares industrial water assessments and forecasts on a national and regional basis.

## FEDERAL POWER COMMISSION

### Functions

The Federal Power Commission was created by the Federal Water Power Act of 1920, which is now Part I of the 1935 Federal Power Act. The Commission performs major regulatory functions pertaining to the electric power and natural gas industries. Its principal activities in the water resources field include:

(1) Issues and administers permits and licenses for the planning, construction and operation of non-Federal water power projects on lands and waters subject to Federal jurisdiction.

(2) Studies plans for proposed water resource projects to be constructed by the Department of the Army, the Department of the Interior, or other Federal agencies, and makes recommendations concerning the installation of penstocks and similar facilities for the development of hydroelectric power.

(3) Allocates the costs of certain Federal multiple-purpose water projects and participates in the allocation of costs of others.

(4) Reviews and, if satisfactory, confirms and approves proposed rates for the sale of electric power from certain Federal and international projects.

(5) Determines and assesses headwater benefits charges against the owner of any non-Federal water power project directly benefited by upstream improvements constructed by the United States, its licensees or permittees.

(6) Participates, through its Chairman, as a permanent member of the Water Resources Council, in the administration of the Water Resources Planning Act, including the review of comprehensive river basin plans for water and related land resources development.

### Organization

The Commission is an independent agency headed by five full-time Commissioners appointed by the President with the advice and consent of the Senate. The Chairman, who is designated by the President, is

responsible for the administrative functions of the Commission. The Commission's staff is composed of the Executive Director and 12 bureaus and offices which advise and assist the Commission in the discharge of its substantive responsibilities and carry out its administrative activities.

The Bureau of Power, the major Commission unit in the water resources field, provides professional staff assistance in the administration of the Federal Power Act and other acts and presidential orders. The Bureau consists of four divisions in Washington and five regional offices, including one in San Francisco covering most of the area west of the Continental Divide. The four divisions of the Bureau are Licensed Projects, River Basins, Electric Resources and Requirements, and Rates and Corporate Regulation.

Regional offices are concerned primarily with engineering activities which can be carried on most effectively and efficiently in the field. Generally, these are activities requiring continuing familiarity with local conditions and operating organizations, and close cooperation with field staffs of other governmental agencies concerned with water resources and power development.

#### Authority

The responsibilities and authority of the Federal Power Commission relating to electric power derive principally from:

The Federal Power Act, June 10, 1920, as amended (16 U.S.C. 792-825r).

The Flood Control Act of 1938 (33 U.S.C. 701j) and Flood Control Acts and River and Harbor Acts of subsequent years, particularly the Flood Control Act of 1944 (16 U.S.C. 825s).

The Water Resources Planning Act of July 22, 1965 (42 U.S.C. 1962-1962c-6).

Executive Order 10485 of September 3, 1953.

The Commission does not have authority to issue licenses for hydro-electric projects affecting National Parks or National Monuments, or on Wild Rivers as designated in PL 90-542. There are no designated wild rivers in the Upper Colorado Basin, the Lower Colorado Basin, or the Great Basin. In California the Middle Fork of the Feather River is the only designated wild river.

The Commission's licensing authority for hydroelectric powerplants is limited by Sec. 605 of PL 90-537, which states that Part I of the Federal Power Act shall not be applicable to the main stream of the Colorado River between Hoover Dam and Glen Canyon Dam until and unless otherwise provided by Congress.

#### Court Cases

Some of the major court cases which have affected the jurisdiction and operation of the Commission in the water resources field are:

New River Case (311 U. S. 377 (1941))  
First Iowa Case (328 U. S. 152 (1946))  
Pelton Case (349 U. S. 435 (1955))  
Cowlitz Case (357 U. S. 320 (1958))  
Hells Canyon Case (237 F 2d 777 (CADC, 1956))  
Taum Sauk Case (381 U. S. 90 (1965))

These cases have, in general, affirmed the Commission's jurisdiction over projects on navigable waters or waters which could be made navigable, affirmed the authority of the Commission to grant licenses even though state laws are overruled, and affirmed the Commission's licensing authority for hydroelectric projects affecting interstate commerce.

DEPARTMENT OF HEALTH, EDUCATION AND WELFARE

Functions and Authority in Water Resources

Legal Basis

A. Public Health Service Act (42 U.S.C. 201 et seq.)

Historically, the Public Health Service activities concerning public health aspects in the area of water resources have been based on the Public Health Service Act. These activities may be placed in the following categories:

1. Research and Investigation

Section 301 states in part:

"The Surgeon General shall conduct in the Service, and encourage, cooperate with, and render assistance to other appropriate public authorities, scientific institutions, and scientists in the conduct of, and promote the coordination of, research, investigations, experiments, demonstrations, and studies relating to the causes, diagnosis, treatment, control, and prevention of physical and mental diseases and impairment of man, including water purification, sewage treatment, and pollution of lakes and streams."

A broad spectrum of research and investigation is conducted directly under or in connection with this section; it can be divided into three categories:

(a) Chemical - both organic and inorganic contaminants, which can result in acute toxic or long-term effects on humans; these include:

(1) Heart disease, as affected by chemical content of water particularly sodium. (Also specifically authorized by Section 412 of the PHS Act.)

(2) Toxic effects from pesticides, metals, and other chemicals in water.

(3) Cancer, as possibly being affected by low levels of carcinogenic chemicals in water. (Also specifically authorized by Section 402 of the PHS Act.)

(4) Other health effects, such as goiter, synergistic effects on patients who are on drug therapy, and so forth.

(b) Biological - microbiological contaminants and insect vectors associated with spread of communicable disease; these include:

(1) Infectious hepatitis which has resulted from infected shellfish and from inadequately protected water supply.

(2) Typhoid fever, bacillary dysentery, amoebic dysentery, gastroenteritis, and diarrhea, resulting from contaminated drinking water.

(3) Schistosomiasis, "swimmers' itch," and leptospirosis, resulting from swimming in rivers, ponds, and lakes.

(4) Encephalitis and other diseases arising from mosquito hosts which can multiply as a result of improperly constructed and/or managed water resource developments.

(c) Radiological - radioactive contaminants which in very low level concentrations may produce radiation damage in humans.

## 2. Community Water Supplies

Section 361 (a) of the Public Health Service Act authorizes the Surgeon General to make and enforce such regulations as in his judgment are necessary to prevent the introduction, transmission, or spread of communicable disease from foreign countries into the States or from State to State.

Accordingly, such regulations have been prescribed (42 CFR Part 72), and provide, among other things, that water provided by operators of interstate conveyances for drinking and culinary purposes shall either be obtained from watering points approved by the Surgeon General or shall have been subjected to treatment approved by the Surgeon General (72.101). The regulations further provide (72.102) for the Surgeon General's approval of water points if (1) the water supply thereat meets the standards for drinking prescribed in Subpart J of 42 CFR Part 72 and (2) the methods of and facilities for delivery of such water to the conveyance and the sanitary conditions surrounding such delivery prevent the introduction, transmission, or spread of communicable diseases.

Section 72.202 provides the following criteria upon which approval of water supplies shall in part be dependent:

(a) Finished water quality for drinking and culinary purposes.

- (b) Adequacy of supply so as to meet maximum demands.
- (c) The condition of purity or contamination of the raw water supply.
- (d) Provision of and satisfactory operation of water treatment works, as needed.

B. Water Quality Act of 1965 (P.L. 89-234): Reorganization Plan No. 2 of 1966; and Interdepartmental Agreement "Health Aspects of Water Pollution Control" Between the Department of Interior and Health, Education and Welfare, (approved by President Johnson on September 1, 1966).

The Water Quality Act of 1965 (P.L. 89-234) amended the Federal Water Pollution Control Act (33 U.S.C. 466 *et seq.*) to create within the Department of Health, Education and Welfare, the Federal Water Pollution Control Administration to administer the latter Act. Section 2 (k) of the Water Quality Act of 1965 provides:

"The Surgeon General shall be consulted by the head of the Administration on the public health aspects relating to water pollution over which the head of such administration has administrative responsibility."

Reorganization Plan No. 2 of 1966 transferred the Federal Water Pollution Control Administration to the Department of the Interior and transferred all functions of the Secretary of HEW and of this Department under that Act, except as otherwise provided in Section 1 of the Plan, to the Secretary of the Interior.

Section 1 (e) of the Plan excepted from the transfers effected by it, the authority of the Secretary of HEW to advise on public health questions involved in determinations of Federal agencies of the need for and value of storage (for regulation of streamflow) for the purpose of water quality control in Federal reservoirs. In addition Section 1 (f) of the Plan provides:

"The functions of the Surgeon General under Section 2 (k) of the Water Quality Act of 1965 (79 Stat. 905) are transferred to the Secretary of Health, Education and Welfare. Within 90 days after this reorganization plan becomes effective, the Secretary of the Interior and the Secretary of Health, Education and Welfare shall present to the President for his approval an interdepartmental agreement providing in detail for the implementation of the consultations provided for by said Section 2 (k). Such interdepartmental agreement may be modified from time to time by the two Secretaries with the approval of the President."

In addition to other pertinent matters, the HEW - Interior Interdepartmental Agreement outlines public health aspects of water pollution, technical areas upon which HEW will provide advice to Interior, and describes the kinds of studies on the health aspects of water pollution which the Public Health Service will conduct.

C. Executive Order 11001 "Assigning Emergency Preparedness Functions to the Secretary of Health, Education and Welfare" (27 F.R. 1534).

Executive Order 11001 directs the Secretary of HEW to prepare national emergency plans and develop preparedness programs covering, among other things, "Health Services." "Emergency Health Services" is defined in Section 2 (a) as including public water supplies. With respect to emergency water supply section 3 directs that the Secretary:

"Prepare plans to assure the provision of usable public water supplies for essential community uses in an emergency. This shall include inventorying existing supplies, developing new sources, performing research, setting standards, and planning distribution. In carrying on these activities, the Department shall have primary responsibility but will make maximum use of the resources and competence of the State and local authorities and of other Federal agencies."

D. Clean Air Act, as amended (42 U.S.C. 1857 et seq.) and Executive Order 11282 "Control of Air Pollution Originating from Federal Installations" (31 F.R. 7663).

Section 107 of the Clean Air Act, as amended, declares it to be the intent of Congress that any Federal agency having jurisdiction over any building, installation, or other property shall cooperate with the Department of Health, Education and Welfare to control air pollution from such Federal facilities. Executive Order 11282 supplements Section 107 of the Act and states in Section (1) (1):

"Emissions to the atmosphere from Federal facilities and buildings shall not be permitted if such emissions endanger health or welfare, and emissions which are likely to be injurious or hazardous to people, animals, vegetation, or property shall be minimized. . ."

Section 5 of the Order authorizes the Secretary of Health, Education and Welfare to prescribe standards implementing the objectives set forth in the Order, and pursuant to such authority, the Secretary has adopted regulations relating to the prevention, control, and abatement of air

pollution from Federal Government activities (42 CFR Part 76). All Federal facilities including those constructed or operated in the water resources area, must comply with the requirements of Section 107 of the Clean Air Act, as amended, Executive Order 11202, and 42 CFR Part 76.

E. Solid Waste Disposal Act (42 U.S.C. 3251 et seq.)

This Act states that Congress finds, among other things that inefficient and improper methods of disposal of solid wastes create serious hazards to the public health, including contamination of water. It provides for the conduct and stimulation of research, investigations, experiments, training, demonstrations, surveys and studies relating to solid waste disposal programs; the development and application of new and improved methods of solid waste disposal, and the reduction of the amount of such waste and unsalvageable waste materials. It also provides grants for State and interstate agencies for developing solid-waste disposal plans.

F. Comprehensive Health Planning and Public Health Services Amendments of 1966 (P.L. 89-749).

This Act provides for formula grants to States for comprehensive State health planning, project grants to public or private non-profit applicants for areawide health planning, and project grants for training, studies and demonstration in effective comprehensive health planning. It also provides formula grants for comprehensive public health services and project grants for health services development. Support for environmental health planning, projects, and services, including water supply planning and activities, are eligible for support under this Act.

## DEPARTMENT OF THE INTERIOR

### Bureau of Indian Affairs

Origin and Background. The Bureau of Indian Affairs was created in the War Department in 1824 and transferred to the Department of the Interior at the time of its establishment in 1849. Legislation governing the conduct of Bureau activities includes the Snyder Act of 1921 and the Indian Reorganization Act of 1934.

The primary objectives of the Bureau's program are: maximum Indian economic self-sufficiency; full participation of Indians in American life, and equal citizenship privileges and responsibilities for Indians.

Purpose and General Responsibility. Functions of the Bureau of Indian Affairs include:

1. To act as trustee for Indian lands and monies and to assist the owners in making the most effective use of their lands and other resources.
2. To collaborate with the Indian people (both tribally and individually) in the development of programs leading toward full-fledged Indian responsibility for the management of their own property and affairs and gradual transfer of public service responsibilities from the Bureau of Indian Affairs to the agencies which normally provide these services.
3. To assist Indian tribes and groups, in cooperation with local and State agencies, in developing programs to attract industries to reservation areas.
4. Assisting each tribe in development of an organization of Indian tribes for self-government and the management of its own resources. Enabling legislation authorized such organizations. It also includes provisions permitting a tribe to organize as a municipal corporation and to assume self-governing rights similar to those of the average American community.
5. Development and operation of all feasible irrigation projects on Indian lands. The authority to develop irrigation projects has taken different forms. Originally, various Appropriation Acts authorized construction of irrigation projects to deliver water to agricultural allotments made to Indians under the General allotment Act of February 8, 1887, 24 Stat. 388, and also to Tribal lands. After 1910, no new irrigation

projects on Indian reservations or allotments costing more than \$35,000 could be undertaken without specific authority of Congress, 25 U.S.C. 383. The Secretary of the Interior is also authorized to include Indian allotted lands in irrigation projects carried out under the Reclamation Act of June 17, 1902, 25 U.S.C. 382. The Congress has also provided for delivery of water to Indian lands from Reclamation projects authorized by specific Acts. Cf. Colorado River Basin Project Act, 82 Stat. 885.

The United States Supreme Court has held that the right to use water for irrigation from streams and rivers on, or adjacent to, Indian reservations was impliedly reserved by the United States at the time the reservations were created. Winters v. United States, 207 U.S. 564 (1908). The doctrine of implied reservation in Winters was applied to the right to use non-navigable waters on a reservation created before statehood pursuant to a treaty. Since this decision, the Supreme Court has also applied the doctrine to the right to use navigable waters on reservations created by Executive Order both before and after statehood. Arizona v. California et al., 373 U.S. 546 (1963). The quantity of water intended to be reserved for Indian use has been held to be an amount sufficient to satisfy future as well as present needs of the reservations. Arizona v. California et al., supra. The waters so reserved are exempt from appropriation by non-Indians under State law. Winters v. United States, supra. The legal precepts in these cases form the basis of the right to use water on those irrigation projects not covered by specific court decrees.

Policy. The policies under which the Bureau operates with respect to Indian land and water resources include the retention of ownership by Indians and resource management for sustained-yield benefits. Resource use and conservation use programs involve agricultural development, forestry, grazing, irrigation, soil conservation, industrial, and tourism development on Indian lands. These lands are scattered across the region and present activities include all phases of conservation and management.

## DEPARTMENT OF THE INTERIOR

### Bureau of Land Management

#### General Authority and History

The Bureau of Land Management is entrusted with the stewardship of the Public Lands. It is committed to the principle that these lands shall be devoted to the best combination of uses in the service of the Nation and the people, now and in the future. As directed by Congress, and in cooperation with the people and local governments, it administers these lands for recreation, wildlife, minerals, wood, water, and forage; for open space and community growth; for educational and industrial expansion; and for the security of the Nation.

Since the creation of the General Land Office in 1812, the Bureau of Land Management and its predecessors have been the Nation's primary Federal land agency. For nearly 100 years its primary function was to transfer Federal lands, the public domain, to citizens for settlement and development of the Nation. To date, the Bureau has transferred title to about 1.1 billion acres of land. Federal land policy began to change about 1880. Some of the public domain land began to be set aside in reserves such as national parks, national forests, national wildlife refuges, military and Indian reservations.

In 1934 with the passage of the Taylor Grazing Act, management of surface resources on the public domain was initiated under the Grazing Service. The Bureau of Land Management was created in 1946 when a reorganization act consolidated the Grazing Service and the General Land Office, both in the Department of the Interior.

#### Resource Protection, Management, and Development

The resource protection, management and development activities are conducted primarily on the 453 million acres over which BLM has exclusive jurisdiction. These activities are conducted under a multiple use philosophy which attempts to maximize the total public and private benefits obtainable from the available financial and land resources.

The Bureau carries out a coordinated program for the conservation and development of watersheds in order to preserve and protect the soil

and water resources. The program is a combination of land treatment and structural practices having a planned pattern in support of multiple use management. It is designed to regulate surface water runoff to control accelerated erosion, and to stabilize the soil resources. Fire protection and trespass control programs are another part of this overall resource protection program.

Through the granting of grazing licenses, permits, and leases, the Bureau administers grazing activity to protect the productivity of the lands and to permit the highest use of forage, and carries out programs for the rehabilitation of deteriorated rangelands. The Bureau also carries out sustained yield forest management on timberlands under its jurisdiction to obtain continuous production at the highest possible level.

The Bureau administers a program of development, conservation, and use of mineral resources through mineral leasing on federally owned public lands and on lands in other ownership on which the mineral rights are federally owned. This program applies to those minerals which are not open to patent under the mining laws.

The Bureau has varied program responsibilities for management and development of outdoor recreation and wildlife values of the public domain lands which inherently involve water protection and development. These include the construction, operation, and maintenance of recreational facilities, participation with Federal, State, and local agencies in cooperative programs involving the management of recreation and wildlife resources, and development of habitat for fish and wildlife.

Some statutes illustrating the relationship of water to this resource management function are:

The Act of February 25, 1920 (41 Stat. 437), as amended by the Act of June 16, 1934 (48 Stat. 177; 30 U.S.C. 229a), provides for the reservation as a waterhole of lands upon which water is struck during oil or gas drilling operations.

Section 18 of the Act of March 3, 1891 (26 Stat. 1095, as amended, 43 U.S.C. 321) authorizes the grant of rights-of-way for irrigation and drainage purposes over public lands and reservations to the extent of the ground occupied by the water of any reservoirs and any canals and laterals and 50 feet on either side of the marginal limits, and such additional rights-of-way as may be deemed necessary for the proper operation and maintenance of said reservoirs, canals, and laterals.

From time to time withdrawals of public lands containing springs and waterholes (Public Water Reserves 1-106) had been made under the authority of the Act of June 25, 1910 (36 Stat. 847; 43 U.S.C. 141-143, as amended). The Executive Order of April 17, 1926, under the authority of this 1910 Act created Public Water Reserve No. 107 by withdrawing "every smallest legal subdivision of the public land surveys which is vacant unappropriated and unreserved public land and contains a spring or waterhole, and all land within one quarter of a mile of every spring or waterhole located on unsurveyed public land..." and by reserving such lands "for public use in accordance with the provisions of section 10 of the Act of December 29, 1916 (39 Stat. 865; 43 U.S.C. 300." The purpose of the Executive Order of April 17, 1926, is explained by Department of the Interior regulation as follows:

The Executive Order of April 17, 1926; was designed to preserve for general public use and benefit unreserved public lands containing waterholes or other bodies of water needed or used by the public for watering purposes. It is not, therefore, to be construed as applying to or reserving from homestead or other entry lands having small springs or waterholes affording only enough water for the use of one family and its domestic animals. It withdraws those springs and waterholes capable of providing enough water for general use for watering purposes. (State of New Mexico, 55 I.D. 466, 468 (1936), 43 CFR 2321.1-1(b).)

Generally speaking, springs and waterholes of the nature covered by public water reserves may be natural springs or waterholes; water wells developed by an oil or gas driller under the Mineral Leasing Act, or wells drilled or dug and springs and waterholes developed by the government, or a private party and abandoned or surrendered. <sup>1/</sup>

Executive Order No. 5389 of July 7, 1930, orders the withdrawal from settlement, location, sale, or entry, and reserves for lease under the provision of the Act of March 3, 1925 (43 Stat. 1133; 43 U.S.C. 971) subject to valid existing rights "every smallest legal subdivision of the public land surveys which is vacant unappropriated

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<sup>1/</sup> V BLM Manual op. cit. supra note 4, sec. 4.18.2A. It is observed that the decisions respecting whether public water reserves are applicable to waterholes and springs developed or brought into being by human agencies as well as those created solely by the sources of nature, appear to be somewhat contradictory, Cf. Santa Fe Railroad Co., 53 I.D. 210, 211 (1930); State of New Mexico, 55 I.D. 466, 467-468 (1936); Lee J. Esplin, 56 I.D. 325 (1938); A. T. West and Sons, 56 I.D. 387 (1938), and Solicitor's Opinion, M-36625 (August 28, 1961).

unreserved public land and which contains a hot spring, or a spring the waters of which possess curative properties, and all land within one-quarter of a mile of every such spring located on surveyed public land..." It has been held that the development of hot spring systems contained in the public lands by drilling wells for the production of geothermal steam is within the scope of Executive Order No. 5389. (Solicitor's Opinion, M-36625, August 28, 1961.)

The Taylor Grazing Act indicates concern for water respecting the range management activities of the Bureau. As expressed in its preamble, this is "an act to stop injury to the public grazing lands by preventing overgrazing and soil deterioration; to provide for their orderly use, improvement, and development; to stabilize the livestock industry dependent upon the public range; and for other purposes." Section 4 of that act provides in part "Fences, wells, reservoirs, and other improvements necessary to the care and management of the permitted livestock may be constructed on the public lands within such grazing districts under permit issued by the authority of the Secretary (of the Interior), or under such cooperative arrangements as the Secretary may approve."

The Federal Range Code for Grazing Districts (43 CFR, Part 4110) implementing the Taylor Grazing Act sets forth its objectives in its Sec. 4110. 0-2 as follows:

Grazing Districts will be administered to conserve and regulate the public grazing lands, to stabilize the livestock industry dependent upon them, and in aid thereof to promote the proper use of the privately controlled lands and waters dependent upon those public grazing lands. In furtherance of these objectives, grazing privileges will be granted with a view to the protection of those livestock operations that are recognized as established and continuing and which normally involve the substantial use of the public range in a regular, continuing manner each year. To promote the highest use of the public lands within grazing districts which have been or hereafter are established, possession or control of sufficient land or water to insure a year-round operation for a certain number of livestock in connection with the use of the Federal range will be required of all users.

Section 2 of the act orders the Secretary of the Interior to protect, administer, regulate, and improve grazing districts created under the authority of the act, among other things, "...to continue the study of erosion and flood control and to perform such work as may be necessary amply to protect and rehabilitate the areas subject to the provisions of this act..."

Section 3 of the Act provides in part, "Preference shall be given in the issuance of grazing permits to those within or near a (grazing) district who are landowners engaged in a livestock business, bona fide occupants or settlers or owners of water or water rights, as may be necessary to permit the proper use of lands, water, or water rights owned, occupied, or leased by them...". Section 3 also provides "That nothing in this Act shall be construed or administered in any way to diminish or impair any right to the possession and use of water for mining, agriculture, manufacturing, or other purposes which have heretofore vested or accrued under existing law validly affecting the public lands or which may be hereafter initiated or acquired and maintained in accordance with such law."

"Base property," i.e., that property privately owned or controlled and used in range livestock operations and on the basis of which the extent of a license or permit is computed, may be either land or water. The Federal Range Code supra sets forth the manner in which water ownership or control is so ascribed.

Further authority to engage in soil and watershed conservation activities beyond that granted under the Taylor Act was made available to BIM in 1939 when the provisions of the Soil Conservation and Domestic Allotment Act pertaining to Interior Department administered lands were transferred to the Secretary of the Interior from the Secretary of Agriculture under Reorganization Plan No. 3. The Act as interpreted by Solicitor Opinions M-30997 Oct. 25, 1941, and M-36047 Aug. 28, 1950, and amended by M-36677 Feb. 23, 1965, provides authority to conduct soil and moisture conservation operations on lands under its jurisdiction where the primary benefit from such operations accrue to lands in private ownership or to federally owned improvements which are under jurisdiction of other Federal agencies as well as Interior. In addition, BIM may perform similar operations on lands not under its jurisdiction, provided that the operations have as their primary purpose the protection and benefit of lands which are under the jurisdiction of the Department of the Interior.

Additionally, under Section 3 of the Resource Protection, Management, and Development laws Lower Colorado River Land Use Program was initiated in the Lower Colorado River Basin to correct the problem of illegal occupancy of Federal (withdrawn) lands along the Colorado River below Davis Dam and to provide a recreation-oriented land use plan. The Secretary of the Interior established the Lower Colorado River Land Use Office by Secretarial Order 2854 in April 1961 as a branch of the Office of the Secretary. The functions and programs concerning the lands involved, and the duties of the Lower Colorado River Land Use Office are defined in the Lower Colorado River Land Use Plan approved by the Secretary of the Interior in January 1964. As of December 1968, the administration of this program was transferred to the Bureau of Land Management (Secretarial Executive Order No. 2915).

## Disposition of Public Lands

The Bureau studies, classifies and conducts a realty program for public domain lands to support BLM and other Federal agency programs; satisfy State indemnity rights in public lands; meet land needs for State and local government, public purposes, and private needs for land for residential, commercial, industrial, and agricultural purposes. It acts upon applications and claims for the use of or title to public lands. It issues permits, licenses, or leases for land use, mineral development, and grants instruments for patent or other title conveyance in fulfillment of public land laws. Under the mining laws it issues mineral patents for lands containing certain minerals.

## Survey of Public Lands

The Bureau is charged with the original survey of the public lands and maintenance of survey grid and records for all the Federal lands. It conducts new, special, and resurveys to establish legal boundaries of lands which is an essential prerequisite to disposal or other disposition of any of these lands. It performs surveys for other Federal agencies upon request, such as for the Bureau of Reclamation along the Lower Colorado River to reestablish survey monuments destroyed by the building of water control structures.

## Evaluation of Laws

A generalization of the present status of the public land laws runs something like this: (1) There are too many of them, (2) they are not consistent with each other and objectives are unclear and sometimes conflicting, (3) they contain too much administrative procedure, (4) they contain too few policy directives, (5) they do not add up to a complete national program for resource management. Public Law 88-606 established a Public Land Law Review Commission specifically to deal with this situation. The Commission report was submitted to the President and Congress on June 23, 1970.

## Abstract of Laws

Reorganization Plan No. 3, May 16, 1946 (60 Stat. 1097, 1099). Created the Bureau of Land Management by consolidating the General Land Office (established in 1812) and the Grazing Service (established in 1934 under the Taylor Grazing Act).

Establishment of General Land Office. Act of April 25, 1812, Ch. 68, 2 Stat. 716 as amended. Functions of General Land Office embraced issuance of land warrants and grants, schedule of sales at various district land offices, collection of monies from land sales, preparation and issuance of patents or deeds, and the maintenance of land records--including copies of plats of survey, tract books, original entries, copies of patents, case records, and related data.

Taylor Grazing Act as amended and supplemented (43 U.S.C. 315 et seq.). The basic authority for the protection, administration, regulation, and improvement of the public rangelands. The Act authorizes the establishment of grazing districts or additions thereto and/or to modify the boundaries thereof, of vacant, unappropriated, and unreserved lands from any part of the public domain of the United States which are not in national forests, national parks and monuments, Indian reservations, or revested Oregon and California railroad grant lands. The Act further authorizes the Secretary of the Interior to do any and all things necessary to regulate the occupancy and use of these grazing districts, to preserve the land and its resources from destruction or unnecessary injury, and to provide for the orderly use, improvement, and development of the rangelands. Section 8 authorizes the Secretary of the Interior when the public interests will be benefited thereby to accept on behalf of the United States title to any privately owned land within or without the boundaries of a grazing district and in exchange therefor to issue a patent for not to exceed an equal value of surveyed grazing district land or of unreserved surveyed public land in the same State or within a distance of not more than 50 miles within the adjoining State nearest the privately owned land. It also authorizes the exchange of lands between the United States and a State, upon the application of a State, and provides for the issuance of patent for the selected lands upon acceptance of title to the lands conveyed to the United States in exchange therefor.

Classification and Multiple Use Act, 78 Stat. 986 (Sept. 19, 1964), 43 U.S.C. 1411 (Supp. 1964). Provides a system for determining which public lands are to be disposed of under applicable public land laws and which are to be retained for interim management pending the implementation of recommendations to be made by the Public Land Law Review Commission. Those lands retained will be administered under multiple use principles. Those principles call for management of the lands and their resources "... in the combination that will best meet the present and future needs of the American people." This combination is to be achieved by judicious use, and harmonious and coordinated management over large enough areas to provide periodic adjustment, without impairment of the productivity of the land, with consideration of the relative values of the various resources. There is no requirement that the best combination of uses must necessarily give the greatest dollar return of the greatest unit output.

This interim act expired December 23, 1970.

## Resource Protection, Management, and Development

Acquired Lands Mineral Leasing Act of August 7, 1947 (30 U.S.C. 351 et seq.). This Act for the first time opened lands, other than public domain lands, to the leasing of the same minerals as are covered by the Mineral Leasing Act of Feb. 25, 1920. Coupled with Section 402 of Reorganization Plan No. 3 of 1946 (60 Stat. 1099), these laws provide the basic tool for the leasing of any type of mineral on the acquired lands of the United States.

Act of February 18, 1875 (43 U.S.C. 2). This Act authorizes the Secretary of the Interior and those he designates to perform all executive duties respecting the public lands. This Act is used as authority for the protection of the public lands.

Act of July 26, 1955 (69 Stat. 374). This Act provides for the acquisition of rights-of-way and existing and connecting roads for timber access roads.

Acts Permitting Disposition of Timber by Free-Use (Act of June 3, 1878, (16 U.S.C. 604-606) Act of March 3, 1891, (16 U.S.C. 607) as supplemented by the Act of Jan. 11, 1921, (16 U.S.C. 604, 612)). These Acts permit settlers on the public lands, citizens and residents of the State and corporations doing business in the State to obtain free-use permits for felling and removing timber on the public lands for specified purposes.

Bankhead-Jones Farm Tenant Act of July 22, 1937 (7 U.S.C. 1000 et seq.). Authorizes the Secretary of Agriculture to protect, improve, develop, and administer lands acquired under the Act, to make such rules and regulations as he deems necessary to prevent trespass and otherwise regulate their use, and to recommend to the President other Federal, State, or territorial agencies to administer such property. Various executive orders, notably order 10787, transferred certain "Bankhead-Jones" lands to the Secretary of the Interior for administration under provisions of the Taylor Grazing Act, the Coordination Act, the Migratory Bird Conservation Act, or the general land-management authority of the Secretary of the Interior with certain revenue disposition restrictions.

Halogeton Glomeratus Control Act (7 U.S.C. 1651 et seq.). Specifically authorizes the Secretary of the Interior to control, suppress, and eradicate the weed, Halogeton glomeratus on lands under his jurisdiction. It provides for (1) conducting surveys to detect the presence and effect of Halogeton glomeratus; (2) to determine those measures and operations which are necessary to control, suppress, and eradicate such weed; and (3) to plan, organize, direct, and carry out such measures and operations deemed necessary to carry out the purposes of the Act.

Materials Act of July 31, 1947, as amended (30 U.S.C. 601 et seq.). Authorizes the disposal of mineral materials (including but not limited to common varieties of the following: sand, stone, gravel, pumice, pumicite, cinders, and clay) on the federally owned public lands of the United States. The Act authorizes the disposal of the materials by negotiation of a contract under certain circumstances and by sale to the highest responsible qualified bidder after formal advertising and such other public notice as the Secretary of the Interior may deem appropriate.

Authorizes the disposal of timber on the public domain lands of the United States, if the disposal of such timber (1) is not otherwise expressly authorized by law; (2) is not expressly prohibited by the laws of the United States; and (3) would not be detrimental to the public interest. The Act also provides for the disposition of the receipts from the sale of timber from the public lands.

Mineral Development of Lands Withdrawn for Power Development (30 U.S.C. 621 et seq.). Authorizes mining developments on lands withdrawn for power development or power sites. The Act substantially reiterates Sec. 24 of the Federal Power Act (16 U.S.C. 818) providing that locations shall be subject to the paramount use of the United States for power purposes. It provides for the recording of claims and determinations concerning whether placer mining operations would materially interfere with other uses of the land included within the placer claim; if material interference would result from the placer mining operations, such operations may be enjoined.

Mineral Leasing Act of February 25, 1920 (30 U.S.C. 181 et seq.). This Act provides generally for the leasing of deposits of coal, phosphate, sodium, oil, potassium, oil shale, native asphalt, solid and semi-solid bitumin, and bituminous rock (including oil-impregnated rock or sands from which oil is recoverable only by special treatment after the deposit is mined or quarried) or gas and lands containing such deposits owned by the United States in the public domain and deposits of sulphur and the public lands containing such deposits in the State of New Mexico.

Multiple Mineral Development Acts (30 U.S.C. 501 et seq.) (30 U.S.C. 521 et seq.). Provides for the contemporaneous operation of the mining and the mineral leasing laws. In general, the Acts recognize the compatibility of the existence of mining locations and mineral leases on the same tract of land and set up a procedure for determining the rights between the lessees and the mining claimant.

Multiple Use Act of July 23, 1955, as amended (30 U.S.C. 611 et seq.). Provides that any mining claim thereafter located under the mining laws of the United States shall be used, prior to the issuance of patent therefor, for no purpose other than prospecting, mining or processing operations and uses reasonably incident thereto. It also provides that rights under any mining claim thereafter located would be subject, prior to the issuance of patent therefor, to the right of the United States to manage and dispose of the vegetative resources thereof and to manage other surface resources thereof. An elaborate procedure is set up by the Act for determining surface rights on the claims. This Act also withdraws from location under the mining laws "common varieties" of minerals and said minerals are now disposed of under the Materials Act.

Protection Act of September 20, 1922 (16 U.S.C. 594). Authorizes the Secretary of the Interior to protect and preserve timber owned by the United States on the public domain lands from fire, disease, or the ravages of beetles or other insects.

Public Land Administration Act of July 14, 1960 (43 U.S.C. 30). This law authorizes the Secretary of the Interior to conduct investigations, studies, and experiments on his own initiative or in cooperation with others, involving the improvement, management, use, and protection of the public lands and their resources under his jurisdiction. The Act also authorizes the Secretary of the Interior to accept gifts of land or interests in land.

Rights-of-Way Laws (45 U.S.C. 22). There are various Acts which are codified in Chapter 22 of Title 43 of the United States Code and which authorize the use of the public domain lands for railroad and station ground purposes, canals, ditches, reservoirs, telephone and telegraph lines, transmission lines, radio and television sites, tramroads, highways, etc. These various Acts authorize the use of the public domain lands for these purposes under licenses, permits, or easements in accordance with the provisions of the particular Act.

Soil Conservation and Domestic Allotment Act of April 27, 1935 (16 U.S.C. 590z et seq.). Authorizes the Secretary of Agriculture to provide for the control and prevention of soil erosion by means including, but not limited to studies, demonstrational projects, engineering operations, growing vegetation, and regulating land use. Such functions of the Secretary of Agriculture were transferred to the Secretary of the Interior with respect to lands under jurisdiction of the Department of the Interior by the 1939 Reorganization Plan No. 3 (54 Stat. 1234).

## Disposition of Public Lands

Color of Title Act, December 22, 1928, as amended (43 U.S.C. 1068, 1068a). Authorizes the issuance of patent for not to exceed 160 acres of public lands held under claim or color of title of either of two classes: (a) the land must have been held under claim or color of title for more than 20 years and valuable improvements must have been placed thereon or some part thereof must have been held under claim or color of title for the period commencing not later than January 1, 1901, to the date of application, during which time the taxes levied on the land by State and local governmental units must have been paid.

Desert Land Laws as amended (43 U.S.C. 321 et seq.). These laws provide for the entry of the arid and semi-arid public lands of the western United States which are susceptible of irrigation by practical means. The law requires the artificial irrigation of any lands entered thereunder. It is the purpose of these statutes to encourage and promote the reclamation, by irrigation, the lands of the western States through individual effort and private capital, it being assumed that settlement and occupation will naturally follow when the lands have been rendered more productive and habitable. The law requires the filing of yearly or annual proof of expenditures in the necessary irrigation, reclamation and cultivation of the land, in permanent improvements thereon, and in the purchase of water rights for the irrigation thereof. The entryman is allowed 4 years from the date of entry to submit final proof of reclamation and cultivation of the land as a condition precedent to acquiring title thereto.

General Mining Laws as amended (30 U.S.C. 21 et seq.). Declared the public lands valuable for minerals to be open to exploration and upon discovery of a valuable mineral deposit to be open to location and purchase. These laws prescribe for lode and placer mining claims and outline the procedure for locating, maintaining, and proceeding to patent for each type of claim. These laws also provide for millsite locations in connection with mining claims and for the patenting of nonmineral lands as millsites.

Homestead Laws (43 U.S.C. 161 et seq.). There are various homestead laws codified in Chapter 7 of Title 43 of the United States Code which authorize the entry of public lands for agricultural purposes and generally require residence and cultivation of the land for specified periods and for the construction of a habitable house as conditions precedent to the acquisition of title to the land from the United States.

Mineral Reservation Laws (30 U.S.C. 81-90, 121-124) (48 U.S.C. 376, 377). These Acts allow for the entry and patent of public lands which are withdrawn classified, or reported as being valuable for specified minerals with a reservation of those minerals to the United States.

Mining Claims Occupancy Act (30 U.S.C. 701 et seq.). Authorizes the conveyance under certain conditions to any qualified applicant who is an owner-occupant of valuable improvements on an unpatented mining claim which is determined by the Secretary to be invalid, an interest, up to and including a fee simple, in and to an area within the claim of not more than (1) 5 acres or (2) the area actually occupied by the applicant, whichever is less. The Act also authorizes a like conveyance under certain conditions to the occupant of an unpatented claim who, after notice from a qualified officer of the United States that the claim is believed to be invalid, relinquishes all interest therein to the United States.

Public Sale Act, Section 2455 of the Revised Statutes as amended (43 U.S.C. 1171). Authorizes the sale at public auction at the land office of the district in which the land is situated, for not less than the appraised value, any isolated or disconnected tract or parcel of public land, not exceeding 760 acres, the greater part of which is mountainous or too rough for cultivation. For a period of not less than 30 days after the highest bid has been received, any owner or owners of contiguous land have a preference right to buy the offered lands at the highest bid price, but in no case are the contiguous owners required to pay more than three times the appraised price of the land. Purchasers under this Act may be individuals, partnerships, associations, or corporations.

Public Sale Act of September 19, 1964 as amended (43 U.S.C. 1421, 1964). Authorizes the Secretary of the Interior to sell public lands that have been classified for disposal after a determination that (a) the lands are required for the orderly growth and development of a community, or (b) the lands are chiefly valuable for residential, commercial, agricultural (exclusive of lands chiefly valuable for grazing and raising forage crops), industrial, or public uses or development. Sales shall be in tracts not greater than 5,120 acres each to (1) States or local government agencies at the appraised fair market value, or (2) qualified individuals through competitive bidding at not less than the appraised fair market value. The Act requires local governments to have zoning regulations in effect prior to sale. At least 90 days before offering lands for sale, the Secretary is required to notify the head of the local government or, in the absence of such political subdivision, the Governor of the State, to give an opportunity to provide zoning for the use of the land in accordance with local planning and development. No sale shall be conducted under the Act until zoning regulations have been enacted by the appropriate local authority.

This interim Act expired December 23, 1970.

Recreation and Public Purposes Act as amended (43 U.S.C. 869; 869:1-4). Authorizes the lease or sale of public lands to a State, territory, county, municipality, or other State, territorial, or Federal instrumentality on political subdivision for any public purposes, or to a nonprofit corporation or nonprofit association for any recreational or public purpose consistent with its articles of incorporation or other creating authority. Before lands may be leased or sold under this Act, it must be shown that the land is to be used for an established or definitely proposed project. The Act also prescribes limitations on the acreage which may be conveyed in any one calendar year to the above-named beneficiaries of the legislation.

School Indemnity Selection Act as amended (43 U.S.C. 851, 852). These Sections authorize the public lands States to select lands (or the retained or reserved interest of the United States in lands which have been disposed of with a reservation to the United States in lands which have been disposed of with a reservation to the United States of all minerals, or any specified mineral or minerals) of equal acreage within their boundaries as indemnity for grant lands in place lost to the States because of appropriation before title could pass to the State or because of natural deficiencies resulting from such causes as fractional sections and fractional townships.

Small Tract Act, June 1, 1938, as amended (43 U.S.C. 682a). Authorizes the lease or sale of tracts of public lands, not exceeding five acres, which are classified as chiefly valuable for residence, recreation, business or community sites. Under this Act lands may be classified for direct sale, for lease and sale, or for lease only. Lands may be leased or sold to (a) an individual who is a citizen of the United States or who has filed his declaration of intention to become a citizen as required by the naturalization laws; (b) a partnership or an association, each of the members of which is a citizen of the United States, or of any State thereof, and authorized to do business in the State in which the land is located; and (d) a State, municipality, or other government subdivision.

Township Laws (43 U.S.C. 17) (48 U.S.C. 255). Provide for the reservation of public lands as townsites and authorize the platting of townsites by or for the occupants and the disposal of such townsites where townsite settlement has been or may be made upon unreserved public lands subject to such settlement.

DEPARTMENT OF THE INTERIOR

Bureau of Mines

As a research agency, the Bureau of Mines is concerned with water supplies necessary to the production of the Nation's minerals. It also is concerned with technology to reduce contained pollutants of both mining and milling process waters so that they may be recycled for further use.

Of the six principal water-using manufacturing industries that accounted for 81 percent of the total water requirements for manufacturing in the United States in 1959, four -- iron and steel, chemical, aluminum, and copper, which represented 72 percent of the total manufacturing -- are a part of the mineral industry. <sup>1/</sup> The projected total water requirement for these six industries for 1980 is expected to be nearly three times that of 1959, and to be more than six times the 1959 requirement by 2000.

Water problems of the mining industries are varied. In water-short areas, such as the Lower Colorado Region, an adequate supply of water of satisfactory quality for mining and metallurgical operations is a major problem. In other areas the flooding of mines by excess ground water and surface flow is equally serious. Disposal of oil-well brines and refinery wastes is a problem of the oil industry, and control of acid mine water from the coalfields is an important problem of the coal industry. Disposal of waterborne wastes resulting from metallurgical operations and from grinding, sizing, and cleaning minerals is a disposal problem of the mineral industry in general.

Research efforts of the Bureau of Mines are directed to these and related problems as permitted by the priorities of its overall program.

<sup>1/</sup> Kerns, William H., Water. Ch. in Mineral Facts and Problems. Bureau of Mines Bull. 630, 1965, pp. 1055-1074.

DEPARTMENT OF THE INTERIOR

Bureau of Outdoor Recreation

The Bureau of Outdoor Recreation was created April 2, 1962. Under the Act of May 28, 1963, 1/ the Bureau is responsible for promoting coordination and development of effective programs relating to outdoor recreation. In performing these responsibilities the Bureau reports to the Secretary of the Interior through the Assistant Secretary -- Public Land Management. The Bureau carries out most of the responsibilities delegated to the Secretary under the Land and Water Conservation Fund Act of 1965. 2/ Numerous functions are performed under the Federal Water Project Recreation Act. 3/

The Bureau is responsible for preparing and maintaining a continuing inventory and evaluation of the outdoor recreation needs and resources of the United States; preparing a system for classification of outdoor recreation resources; formulating and maintaining a comprehensive nationwide outdoor recreation plan; promoting coordination of Federal plans and activities relating to outdoor recreation; cooperating with and providing technical assistance to States, political subdivisions, and private interests; encouraging interstate and regional cooperation; sponsoring, engaging in, and assisting with research relating to outdoor recreation; and cooperating with and providing technical assistance to Federal departments and agencies.

Under the Land and Water Conservation Fund Act of 1965, the Bureau also administers a program of financial assistance grants to States for the purpose of facilitating outdoor recreational planning, acquisition, and development activities. Under the provisions of the Federal Water Project Recreation Act, the Bureau participates directly in the planning, coordination, and establishment of uniform policies with respect to recreation and fish and wildlife benefits and costs of Federal multipurpose water resource projects.

1/ 16 U.S.C. 460L

2/ 78 Stat. 897; 16 U.S.C. 460L-4

3/ 79 Stat. 213; 16 U.S.C. 460L-12, note.

## DEPARTMENT OF THE INTERIOR

### Bureau of Reclamation

#### Origin and Background

Irrigation in the West was practiced by the settlers as early as 1847 and before that by Indians and mission settlements. With the westward migration during the late 1880's, reclamation and settlement of arid lands emphasized the need to provide storage works to conserve flood waters and equalize the flow of streams. Recognizing these needs, President Theodore Roosevelt was instrumental in the formation and passage of the Newlands Bill, later to become popularly known as the Reclamation Act of 1902.

In July 1902, the Secretary approved the organization of the Reclamation Service within the Geological Survey. In March 1907, the Reclamation Service was removed from the Survey and established under a director. In June 1923, the Secretary created the position of Commissioner of Reclamation and changed the name Reclamation Service to Bureau of Reclamation.

#### Responsibility

The Bureau of Reclamation's major responsibilities in the 17 western States are: (1) investigate and develop plans for potential projects to conserve and utilize water and related land resources; (2) design and construct authorized projects for which funds have been appropriated by Congress; (3) operate and maintain projects and project facilities constructed by the Bureau, and inspect the operation and maintenance of projects and project facilities constructed by the Bureau but operated and maintained by water users; and, (4) negotiate, execute, and administer repayment contracts, water service contracts, and water-user operation and maintenance contracts.

The Bureau of Reclamation also has responsibility for the administration of Small Projects loans under the Small Reclamation Projects Act of August 6, 1956, and of distribution system loans under the Act of July 4, 1955.

## Policy

The concept of reimbursement is a controlling and major influence in all reclamation financial and formulation activities. Federal Reclamation Law requires that all costs allocated to irrigation be repaid to the Federal Government over a 40-year period without interest. Annual operation and maintenance costs also must be fully borne by the water users. The law further provides for an initial development period of up to 10 years during which no repayment of construction costs are required. When appropriate, specific projects are authorized to allow for a 50-year repayment period. Irrigators repay construction costs up to their ability to pay. Costs beyond the irrigators' ability to repay have traditionally been returned to the Treasury through surplus Federal power revenues from power or municipal and industrial water, conservancy district taxes, or other similar means.

In multi-purpose projects, costs for flood control, and some parts of costs for designed enhancement of fish and wildlife, recreation, and water quality are nonreimbursable by law. The reimbursable portions of recreation, water quality, and fish and wildlife costs must be borne by a non-Federal public entity. Reimbursable costs allocated to recreation fish and wildlife, and water quality must be repaid with interest in 50 years. Costs of commercial power and municipal and industrial water supply are reimbursable and must be repaid to the Federal Government with interest generally in 40 or 50 years, depending upon the laws under which a project is authorized.

Local interest and support are primary requirements for starting and carrying out all types of investigations. Feasibility studies must be authorized by Congress before such studies can be initiated.

## Basic Authorizations

### Irrigation:

1. The Reclamation Act of June 17, 1902 <sup>1/</sup>, together with the acts amendatory thereof or supplementary thereto, authorizes the Secretary of the Interior to locate, construct, operate and maintain works for the storage, diversion, and development of waters for the reclamation of arid and semi-arid lands in the western States. To carry out these objectives, the Act provided for the establishment of the Reclamation Fund for planning, construction and operation of irrigation projects.

As a revolving fund, the money expended was to be repaid without interest in 10 years by the owners of the property benefited. The Act also provided for acreage limitations in compliance with homestead laws to continue family-size farm opportunities in the West. This provision, which still applies, is that no right to the use of water for land in private ownership should be sold for more than 160 acres in his ownership (or 320 acres for man and wife).

2. The Warren Act of February 21, 1911 <sup>2/</sup>, permits the Secretary, subject to acreage limitations, to sell Reclamation project water to nonproject water users and to permit such water users to carry or store water in project works if there is capacity surplus to the needs of the Reclamation project.
3. The Extension Act of August 13, 1914 <sup>3/</sup>, extended the time for repayment of construction charges by water right applicants to 20 years, permits water users to take over the operation and maintenance of Reclamation projects through water users' organizations and includes acreage limitation provisions.
4. The Irrigation District Act of May 15, 1922 <sup>4/</sup>, authorizes the Secretary of the Interior to contract with irrigation districts for the repayment of construction and operation and maintenance costs and dispensing, in such event, with the requirement that landowners or entrymen make individual water right applications. No contract with a district shall be binding until the proceedings organizing the district and contracting with it are confirmed by a court of competent jurisdiction.
5. The Fact Finders Act of December 5, 1924 <sup>5/</sup>, and the Reclamation Project Act of 1939 <sup>6/</sup>, authorizes the repayment of Reclamation construction costs to be adjusted to the payment capacity of the lands involved.
6. The Omnibus Adjustment Act of May 25, 1926, 44 Stat. 636, Sec. 46, extended the repayment period of construction charges, under prescribed conditions, to not more than 40 years. Section 46 also provided that no water shall be delivered upon the completion of any new project or new division of a project until a contract is made between the United States and an irrigation district organized under State law (as opposed to individual water applications) providing for payment by the district of the cost of constructing, operating, and maintaining the works. It further required the execution of said contract to be confirmed by a decree of a court of competent jurisdiction. Furthermore, Section 46 provides explicit acreage limitations, provisions, and procedures.

7. The Reclamation Project Act of 1939 provides for variable repayment contracts for irrigation. It requires the Secretary of the Interior for each new project to make investigations and prepare a report to Congress on the engineering feasibility, estimated cost, probable repayment by irrigators and from power and municipal and miscellaneous purposes, together with portions of costs properly allocable to flood control and navigation. It provides that no water from a new project may be delivered until a repayment contract is made and provides for up to 40-year repayment without interest for irrigation purposes with provision for a 10-year development period for new lands. It provides for contracts for power and for water for municipal and industrial purposes with repayment within 40 years with interest.
8. The Act of October 7, 1949, provides for the rehabilitation and betterment of Reclamation project irrigation systems and for the return of so-called "rehabilitation and betterment" costs (maintenance and replacement costs which the water users cannot finance currently) on an installment basis.
9. The Distribution System Loans Act of July 4, 1955, 69 Stat. 244, authorized the Secretary to make loans for construction of irrigation distribution systems to be constructed by the irrigation districts in lieu of construction by the Secretary.
10. Drainage Works and Minor Construction Act of June 13, 1956, 70 Stat. 274, authorized the Secretary to use funds for construction of irrigation works in order to construct drainage facilities and other minor items by contract entered into with the repayment organization concerned, whereby said organizations shall perform such work.
11. The Small Reclamation Projects Act of 1956, Act of August 6, 1956 (70 Stat. 1044) (Public Law 984) authorizes loans and grants to irrigation districts for construction of projects, primarily for irrigation purposes.

Electric Power:

The Town Site Act of 1906 <sup>7/</sup>, authorized the Secretary of the Interior to develop and sell electric energy in connection with Reclamation projects. This law also provided that preference be given to municipal use in the sale or lease of power. This provision has evolved into the present concept of establishing Federal, State, or local government units or cooperative agencies as preference customers. The Reclamation Act of 1939 provides for the sale of electric power in connection with Bureau of Reclamation projects to be repaid in not to exceed 40 years with interest with sales preference being given to municipalities and other public corporations or agencies.

The Flood Control Act of 1944 <sup>8/</sup>, authorized the Secretary of the Interior to administer the delivery of power generated at "reservoir projects" of the Department of the Army not needed for the operation of such projects.

#### Flood Control:

The Reclamation Act of 1939 provides for inclusion of flood control allocations in Bureau of Reclamation projects. The Act of December 22, 1944, provides for cooperation between the Secretary of the Interior and the Chief of Engineers in the investigation and development of flood control on Bureau of Reclamation projects.

#### Fish and Wildlife:

The Fish and Wildlife Coordination Act as amended in 1958 <sup>9/</sup>, made fish and wildlife conservation and development a full partner in Reclamation projects. The Act of August 14, 1946, provides for the inclusion of fish and wildlife purposes in Bureau of Reclamation projects.

#### Municipal and Industrial Water Supply:

Title III of the Water Supply Act of July 3, 1958 <sup>10/</sup>, authorizes construction of storage for future municipal and industrial use when constructing an irrigation project.

The Townsite Act of 1906 provides for the Secretary to furnish water to townsites established in connection with Reclamation projects. The Act of February 25, 1920, authorized the Secretary of the Interior to enter into contracts to supply water near Reclamation projects for purposes other than irrigation. The Reclamation Project Act of 1939 authorizes the Secretary of the Interior to enter into contracts to furnish water for municipal or miscellaneous purposes with repayment required in a period not to exceed 40 years with interest.

#### Recreation:

Pursuant to the Federal Water Project Recreation Act of 1965 <sup>11/</sup>, recreation (and fish and wildlife) may be recommended as a purpose of a Federal Project.

#### Other Functions:

Other purposes such as water quality control, navigation, water salvage, and ground-water recovery are considered and included as project functions when found to be economically justified.

#### Small Reclamation Projects:

The Small Reclamation Projects Act of 1956 <sup>12/</sup>, as amended June 5, 1957, and September 2, 1966, established a program under which certain types of organizations can obtain loans for small reclamation projects.

#### Assistance Due to Disasters:

The Bureau of Reclamation also provides assistance to existing irrigation projects suffering from natural disasters such as major floods. Upon the President's declaration of a major disaster, the Office of Emergency Planning has the responsibility of coordinating Federal disaster assistance under the Federal Disaster Act of 1950 (Public Law 875). When irrigation systems are involved, the Bureau of Reclamation provides assistance in evaluating the damage, recommends means of rehabilitating the system and, in some cases, provides supervision during construction of new facilities.

#### Special Acts of General Application:

1. Act of August 30, 1890 <sup>13/</sup>. On all patents for lands west of 100 meridian reserve a right-of-way for ditches or canals constructed by the United States.
2. Act of February 8, 1905 <sup>14/</sup>. Authorizes the use of earth, stone, and timber on public lands and forests for Reclamation projects.
3. Act of June 25, 1910 <sup>15/</sup>. The President is empowered to withdraw public lands for water, power, irrigation sites, and other public purposes.
4. Act of August 9, 1912, 43 U.S.C. 541, which provides the procedure for entrymen to obtain patents and final water right certificates. Section 3 contains acreage limitation provisions.
5. Act of February 25, 1920, 41 Stat. 451, which authorized the Secretary to contract to supply water from any project irrigation system for purposes other than irrigation where not detrimental to water service for the irrigation project.
6. Act of March 3, 1921 <sup>16/</sup>. Congress must consent before water storage and carriage works can be constructed in national parks or monuments.
7. Act of May 26, 1926 <sup>17/</sup>. The excess land provisions of Reclamation law are largely found in the Omnibus Adjustment Act of May 25, 1926. Section 46 of the 1926 Act contains an elaborate and detailed statement of the provisions of the excess land laws, and of the means of their implementation.

8. Act of June 26, 1948 <sup>18/</sup>. Provides authority for emergency fund for Reclamation projects.
9. Act of July 10, 1952 <sup>19/</sup>. Consents to joinder of United States in State general water adjudication suits.

#### RECLAMATION LAW APPLICABLE TO LOWER COLORADO RIVER BASIN

1. The Colorado River Compact of November 24, 1922, apportions the water of the Colorado River between the Upper Colorado River Basin and the Lower Colorado River Basin, and spells out the manner in which the apportionments are to be met. It is the basic law for operation of the Colorado River and all projects, contracts, and operations of the Colorado River system must be made in conformance with the Compact.
2. The Boulder Canyon Project Act authorizes the Secretary of the Interior to construct, operate, and maintain Hoover Dam and to construct the All-American Canal system: Provided the dam and reservoir to be used (1) for river regulation, improvement of navigation, and flood control; (2) for irrigation and domestic uses and satisfaction of present perfected rights; and (3) for power. It approved the Colorado River Compact and authorized California, Arizona, and Nevada to enter into an agreement on apportionment of Lower Colorado River water under the Compact. It made all uses of water and contracts for water and power subject to and controlled by the Colorado River Compact.

It authorized the Secretary of the Interior to enter into contracts for delivery of Colorado River water for irrigation and domestic uses, and required contracts with the Secretary for use of water for any purpose, all contracts being for permanent service.
3. Act of July 19, 1940 (Boulder Canyon Project Adjustment Act) directs the Secretary in the matter of promulgating charges for electrical energy generated at Hoover Dam and provides for annual payments to the States of Arizona and Nevada in lieu of taxes. It creates a special fund in the Treasury designated the Colorado River Development Fund with payments into this fund to be annually from revenues derived from the sale of energy at Hoover Dam.
4. The Acts of January 21, 1927; July 1, 1940; and June 28, 1946, (Colorado River Front Work and Levee System) authorize construction repair, and preservation of works on the Colorado River for the purpose of controlling floods, improving navigation, and regulating the flow of the Colorado River.
5. Treaty with Mexico of February 3, 1944, allotted to Mexico a guaranteed annual quantity of 1,500,000 acre-feet of Colorado River water to be increased in years of surplus to 1,700,000 acre-feet and

reduced in years of extraordinary drought in proportion to the reduction of consumptive uses in the United States. The Treaty spelled out the manner in which the delivery is to be made, the points of delivery, and the manner and points of measurement. It also required the Mexican Government to construct a diversion structure (Morelos Dam) below the point where the northernmost part of the International Boundary intersects the river, and for construction by the United States of Davis Dam on the Colorado River, a part of the capacity of which is to be used for regulation of Colorado River water to be delivered to Mexico.

6. Supreme Court Opinion of June 3, 1963, and Decree of March 9, 1964, in Arizona v. California. The Decree apportions the water of the main stream of the Lower Colorado River between Arizona, California, and Nevada. If sufficient water is available to satisfy 7,500,000 acre-feet of annual consumptive use in the three States, it apportions 2,800,000 acre-feet to Arizona, 4,400,000 acre-feet to California, and 300,000 acre-feet to Nevada. It also spells out the manner for apportioning surpluses and deficiencies. It spells out the rights of Indian reservations and other Federal reservations on the river and establishes the rights as between New Mexico and Arizona on the Gila River. It invests in the Secretary of the Interior the responsibility for the operation of the river and administration of the provisions of the Decree.

7. Act of September 30, 1968, (Colorado River Basin Project Act) provides a program for further comprehensive development of the water resources of the Colorado River Basin and for the provision of additional and adequate water supplies for use in the Upper as well as in the Lower Colorado River Basin. This program is declared to be for the purposes, among others, of regulating the flow of the Colorado River; controlling floods; improving navigation, providing for the storage and delivery of the waters of the Colorado River for reclamation of lands, including supplemental water supplies, and for municipal, industrial, and other beneficial purposes; improving water quality; providing for basic public outdoor recreation facilities; improving conditions for fish and wildlife, and the generation and sale of electrical power as an incident of the foregoing purposes.

In the Lower Colorado River Basin, the Central Arizona Project and the Dixie Project are two of the most notable features authorized by this Act.

Footnotes

- 1/ 32 Stat. 388
- 2/ 36 Stat. 925; 43 U.S.C. 523
- 3/ 38 Stat. 686
- 4/ 42 Stat. 541; 43 U.S.C. 511
- 5/ 43 Stat. 701
- 6/ 53 Stat. 1187
- 7/ 34 Stat. 116
- 8/ 58 Stat. 887
- 9/ 72 Stat. 563
- 10/ 72 Stat. 297; amended by Act of July 20, 1961 (75 Stat. 204)
- 11/ 79 Stat. 213
- 12/ 70 Stat. 1044, amends 71 Stat. 48, 80 Stat. 376
- 13/ 26 Stat. 391; 43 U.S.C. 945
- 14/ 33 Stat. 706; 43 U.S.C. 420
- 15/ 36 Stat. 847; 43 U.S.C. 141
- 16/ 41 Stat. 1353
- 17/ 44 Stat. 649, 650; 43 U.S.C. 423e
- 18/ 62 Stat. 1052
- 19/ 66 Stat. 549, 560; 43 U.S.C. 666

DEPARTMENT OF THE INTERIOR

Federal Water Quality Administration \*

History

The water Quality Act of 1965, Public Law 89-234,<sup>1/</sup> established the Federal Water Pollution Control Administration (FWPCA) in the Department of Health, Education, and Welfare (HEW). Previously, the Federal water pollution program had been conducted by the Division of Water Supply and Pollution Control, Bureau of State Services, Public Health Service, Department of Health, Education, and Welfare.<sup>2/</sup> FWPCA was transferred from HEW to the Department of the Interior by the Reorganization Plan No. 2 of 1966.<sup>3/</sup> Under this plan, HEW retained responsibility for public health aspects of water pollution. \* Public Law 91-224 changed the name of the agency to Federal Water Quality Administration (FWQA).

The establishment of FWQA resulted from the gradual emergence of a Federal role in the field of water pollution control. Prior to 1948, the Federal Government dealt with water pollution control primarily in connection with protecting the navigability of navigable waters of the United States.<sup>4/</sup> Some Federal statutes, such as the Oil Pollution Act of 1924,<sup>5/</sup> dealt with specific kinds of refuse or wastes. Public health aspects of water pollution were assigned to the Public Health Service under the Public Health Service Act of 1912.<sup>6/</sup> The Public Health Service was given responsibility for suppression of water-borne diseases and worked closely with State health agencies to that end.

The Federal Water Pollution Control Act of 1948<sup>7/</sup> was the beginning of a major Federal role in water pollution control. The original Act of 1948 and amending acts are listed below:

1. Federal Water Pollution Control Act of 1948<sup>8/</sup>
2. Water Pollution Control Act Amendments of July 9, 1956<sup>9/</sup>
3. Federal Water Pollution Control Act Amendments of July 20, 1961<sup>10/</sup>
4. Water Quality Act of October 2, 1965<sup>11/</sup>
5. Clean Waters Restoration Act of November 3, 1966<sup>12/</sup>
6. The Water Quality Improvement Act of 1970, April 3, 1970, Public Law 91-224.

6a. The Federal Water Quality Administration was transferred on December 2, 1970, from the Department of the Interior to the Environmental Protection Agency where it is designated as the Water Quality Offices.

While the original Act of 1948 was temporary, it was made permanent by the Act of 1956 which provided for Federal participation in a wide variety of activities including Federal-State cooperation in developing comprehensive programs, increased technical assistance, intensified and broadened research, grants for the support of State programs and for construction of waste-treatment works, and modified and simplified enforcement measures for controlling pollution of interstate waters. Subsequent amendments have strengthened and extended the previous law, especially in the area of enforcement, grants, and research.

#### Activities

FWQA administers the Federal Water Pollution Control Act and carries out the provisions of Section 702 (a) of the Housing and Urban Development Act of 1965,<sup>13/</sup> Section 212 of the Appalachian Regional Development Act of 1965,<sup>14/</sup> Section 106 of the Public Works and Economic Development Act of 1965,<sup>15/</sup> Section 48(h)(12)(B) of the Internal Revenue Code of 1954, as amended,<sup>16/</sup> and parts of: Executive Order 11507, Prevention, Control and Abatement of Air and Water Pollution of Federal facilities;<sup>17/</sup> Executive Order 11514, Protection and Enhancement of Environmental Quality;<sup>18/</sup> and Executive Order 11574, Administration of Refuse Act Permit Program.<sup>19/</sup> The activities of FWQA include grant programs, research and development, technical assistance, comprehensive water pollution control programs, pollution surveillance, training, public information, regulatory enforcement actions, control of pollution from Federal installation, control of oil pollution, and special studies.

Several of these activities, namely research, training, technical assistance, and pollution surveillance, are carried on to some degree at seven major FWQA laboratories located throughout the country. A number of other laboratories are in various states of planning and design to provide the necessary National Coverage.

#### Grants:

Grants provide support for activities that contribute directly or indirectly to the prevention and control of water pollution. The amount of support and matching requirements vary greatly from program to program. The grant programs administered by FWQA include the following:

1. Grants for Waste Treatment Works Construction.<sup>20/</sup> These grants are made to States, municipalities, intermunicipal or interstate agencies to assist in construction of waste treatment works including intercepting and outfall sewers which are needed to prevent discharge of inadequately treated sewage or other wastes. The amount of these grants varies from 30 to 55 percent of the eligible cost of the project depending upon certain qualifying conditions.
2. Grants for State and Interstate Agency Programs.<sup>21/</sup> The purpose of these grants is to assist State and interstate agencies in meeting the costs of establishing and maintaining adequate measures for the prevention and control of water pollution, including the training of personnel of public agencies. The amount of these grants to States varies from 33-1/3 to 66-2/3 percent of the eligible costs depending upon certain qualifying conditions.
3. Grants for Comprehensive Basin Plans for Water Quality Control and Abatement.<sup>22/</sup> The purpose of this grant program is to pay up to 50 percent of the administrative expenses of planning agencies which are developing comprehensive water quality control and pollution abatement plans for river basins or portions thereof.
4. Grants for Research and Development.<sup>23/</sup> Grants and contracts are awarded to support and promote the coordination of research, development, and demonstration projects (including basic and applied research studies, investigations, and experiments) relating to the causes, control, and prevention of water pollution. Research and development grants are specifically authorized for projects concerned with (a) storm and combined sewers; (b) advanced waste treatment and joint treatment systems for municipal and industrial wastes; and (c) methods for prevention of pollution by industry, including treatment of industrial wastes.
5. Research, Training, Demonstration and Research Fellowship Grants.<sup>24/</sup> Training grants are awarded to universities, colleges, and other public and private institutions to expand the base of training and education in the causes, control, and prevention of water pollution and for the purpose of increasing the professional, scientific, and technical manpower in this field.

Research fellowships are awarded to individuals for specialized research training in institutions of their choice for the purpose of increasing the number of scientists qualified to carry on independent research in water supply and pollution control.

#### Research and Development:25/

Research is conducted by the Administration to develop improved technology for water pollution control. Increased demands on water resources as opposed to increases in the amount of complexity of wastes calls for developing technology to permit more and more reuse. That technology is being actively pursued by FWQA not only through research and development grants but also through its program of advanced waste treatment research. Work in this program is conducted in laboratory investigations and pilot-scale research projects as well as in a variety of other pollution-related work. Success in this program would increase available water supplies and abate the widespread health, economic, and aesthetic damages caused by water pollution.

#### Technical Assistance:26/

States, local authorities, and industry, on request through the State water pollution control agencies and the appropriate regional offices of the Federal Water Quality Administration, may obtain expert scientific and engineering assistance to help solve specific water pollution problems. This assistance ranges from simple responses to letter requests for information to project investigations requiring several years.

#### Comprehensive Water Pollution Control Programs:27/

The Clean Water Restoration Act of 1966 and subsequent efforts by FWQA have emphasized the need to achieve systematic cleanup of the entire river basins. This new approach includes extensive efforts to develop basin-wide pollution control action programs which can be implemented immediately, to provide technical guidance to basin planning agencies, and to relate State-local planning efforts to Federal planning. Assistance is provided to develop planning agencies as authorized by the Clean Water Restoration Act of 1966.

Specifically, the program involves (a) developing a comprehensive guide to pollution control actions necessary in each major river basin in terms of immediate cleanup needs and long-range preventive measures; (b) participating in Federal interagency water resources planning; (c) building, assisting, and encouraging activities of State-local basin planning agencies; and (d) advising Federal construction agencies on the value of and need for water quality control in Federal reservoirs.

The Administration's comprehensive programs will continue to provide the solid basis for technical planning for water pollution control on a basin-wide basis. For purposes of establishing comprehensive programs, the Nation has been divided into 20 major river basins, including the Colorado River Basin.

Pollution Surveillance:<sup>28/</sup>

Under this program, water quality data and related water pollution information are collected, evaluated, and disseminated. The data provides current information upon which to base short-range decisions involving the initiation of water pollution abatement proceedings or water quality standards proceedings, or the recommendation of solutions to specific water pollution problems which require immediate decisions. In addition, the data provide a source of historic information which can be used for long-range planning and comprehensive programs. Data are provided to State, interstate, and Federal agencies through a storage and retrieval system (STORET) that is based in a flexible program of water quality monitoring stations located throughout the Nation.

Training:<sup>29/</sup>

This program supports training of qualified personnel in specialized disciplines related to water pollution control. A large number of short, technical training courses have been directed from the Sanitary Engineering Center in Cincinnati, but training programs are also being conducted at the field laboratories.

Advanced training is supported for skilled personnel to improve and expand their capabilities in the diverse and complex programs of water supply and pollution control. Efforts are also being made to improve and accelerate the flow of information gained from research and technical improvements to practicing engineers and scientists.

Public Information:<sup>30/</sup>

The public information program presents the facts about water pollution and water pollution control to the American people generally, and to interested groups and organizations in particular. It serves the public's right to know what the Administration is doing and trying to do. It also serves those who need particular kinds of information in order to participate effectively in water pollution control programs.

Enforcement Program:<sup>31/</sup>

FWQA conducts enforcement proceedings and encourages interstate cooperation, the enactment of improved and uniform State water pollution control laws, and the formulation of interstate compacts for the prevention and control of water pollution. Two types of enforcement proceedings are available: (1) water pollution abatement proceedings, which have been available in one form or another since the first Federal Water Pollution Control Act in 1948<sup>32/</sup> and (2) water quality standards proceedings, which were added by the Water Quality Act of 1965.<sup>33/</sup>

1. Water Pollution Abatement Proceedings.<sup>34/</sup> The policy declared by the Federal Water Pollution Control Act is to encourage State and interstate action to abate pollution of interstate<sup>35/</sup> or navigable waters without Federal involvement. Federal abatement proceedings are initiated only as specified in the Federal Water Pollution Control Act.

The steps in an abatement enforcement proceeding may involve the following:

- Conference - held with representatives of each of the State water pollution control agencies involved and the Department of the Interior.
- Hearings - called when conference recommendations have not been complied with.
- Court Action - a suit brought against polluters if abatement is not secured.

2. Water Quality Standards Proceedings.<sup>36/</sup> The Water Quality Act of 1965 provided for the establishment of Federal water quality standards on interstate streams. Under this law, the States had until June 30, 1967, to adopt water quality criteria for their interstate waters and a plan for implementing and enforcing the criteria adopted. Criteria and plans acceptable to the Secretary become the water quality standards applicable to the State's interstate waters.

In the event any State standards are unacceptable, the Secretary of the Interior has the authority to establish standards, but only after States and all other affected interests have had a full opportunity to be heard. Once adopted, standards are enforceable by the States and the Federal Government if any occurrence reduces the quality of the water below the established standards.

The Secretary of the Interior is empowered to act to abate pollution where water quality in interstate waters or portions thereof is not in compliance with the standards established under the Water Quality Act of 1965. That is, once the States have adopted water quality

and the Secretary has found them acceptable as Federal standards, a violation of the standards is subject to enforcement action. States have the initial responsibility for taking action if standards are violated. If States do not act, the United States Attorney General at the request of the Secretary of the Interior may initiate an enforcement action.

The standards make it possible for municipalities, industries, and other water users to know in advance what their responsibilities are for keeping clean waters clean, and for restoring polluted waters to a reasonable degree of purity. In the past the Federal Government had only a remedial authority to institute enforcement action after health and welfare were proven to be endangered by pollution. The standards give the Federal Government a preventative authority to obviate pollution before it occurs. The end result of the standards is to provide, for the first time throughout the country, a specified set of conditions to adhere to and look for in enhancing and protecting water quality.

#### Refuse Act of 1899

Section 13 of the River and Harbor Act of 1899, known as the "Refuse Act", extends Federal authority to certain discharges of waste into navigable water and provides a valuable additional enforcement tool. FWQA and the U.S. Army Corps of Engineers coordinate the enforcement of the Refuse Act with the enforcement of the Federal Water Pollution Control Act. Executive Order 11574 dated December 23, 1970, provides for the implementation of a Refuse Act permit program to regulate waste discharges into navigable waters.

#### Control of Pollution from Federal Installations:37/

Government installations scattered throughout the Nation and located in almost every city have a responsibility in controlling pollution arising from their operations. Recognizing this, Executive Order 11507 dated February 4, 1970,<sup>38/</sup> was issued to provide stronger Federal leadership in preventing and abating water pollution in the United States by controlling pollution from all of its installations and activities.

This order has a far-reaching impact since it involves a diversity of installations, such as military bases, hospitals, national parks, forests, Federal dams, and post offices. Recipients of Federal grants, loans, and contracts are also to subscribe to the order. FWQA, through a program of review, approval, and technical assistance, cooperates with the other Federal agencies in developing water pollution control plans for Federal installations.

Executive Order 11518 dated March 5, 1970, delineates the responsibilities of Federal agencies and the Council on Environmental Quality in furtherance of the National Environmental Policy Act of 1969.

FWQA prepares reports for the heads of Federal department, agencies, and other establishments to advise them of the potential impact of their projects or programs on water quality. Recommendations concerning any changes or other measures with respect to the design, construction, and operation of projects are made.

Oil Pollution:<sup>39/</sup>

Responsibility for administering the Oil Pollution Act of 1924 was transferred from the Secretary of the Army to the Secretary of the Interior by the Clean Water Restoration Act of 1966. This legislation authorizes the Secretary of the Interior, with the consent of the Commandant of the Coast Guard and the Secretary of the Army, to make use of Coast Guard or Army personnel, equipment, organization, and agencies in administering the Act, and of Army Corps of Engineers, Customs, and Coast Guard personnel in its enforcement, as well as using persons under his own jurisdiction. Persons discharging or permitting discharge<sup>40/</sup> of oil are required to remove it from the navigable waters and adjoining shorelines immediately or pay the costs of its removal by the Secretary.

The Water Quality Improvement Act of 1970 repealed the 1924 act and greatly increases the regulatory controls for oil pollution incidents. The National Multi-Agency Oil and Hazardous Materials Contingency Plan, together with supplemental mechanisms for a coordinated Federal, State, and local response to oil and hazardous materials incidents.

Special Studies:

The Clean Water Restoration Act of 1966 authorized several special studies in recognition of the lack of information on certain water pollution control problems. These studies are briefly described below:

1. National Estuarine Study.<sup>41/</sup> The Secretary of the Interior was directed to undertake a comprehensive study of the effects of pollution on beneficial uses in the estuaries and estuarine zones of the United States.
2. Manpower Evaluation.<sup>42/</sup> A report has been submitted to the Congress which sets forth an action program for meeting needs, drawing upon a variety of approaches to meet the demand for skilled personnel.<sup>43/</sup>

3. Cost Estimate and Study.<sup>44/</sup> A report has been submitted to the Congress which sets forth a detailed estimate of the cost of carrying out the provisions of the Federal Water Pollution Control Act; a comprehensive study of the economic impact on affected governmental units of the cost of treatment-facilities installation; and a comprehensive analysis of the national requirements for and cost of treating municipal,<sup>45/</sup> industrial, and other effluent to attain water quality standards.<sup>45/</sup>
4. Watercraft Pollution Study.<sup>46/</sup> A report has been submitted to the Congress with recommendations for a legislative program to control vessel pollution.<sup>47/</sup>
5. Industrial Incentives Study.<sup>48/</sup> A report has been submitted to the Congress which sets forth methods for providing incentives to assist in the construction of water pollution control facilities by industry.<sup>49/</sup>

Water Pollution Control Advisory Board:<sup>50/</sup>

The Federal Water Pollution Control Act of 1956 established a nine-member Water Pollution Control Advisory Board, chaired by the Secretary or his designee. Members are appointed by the President and serve 3-year terms.

The Board is to "advise, consult with, and make recommendations to the Secretary on matters of policy relating to the activities and functions of the Secretary under this Act." Under this authority, the Board regularly examines all phases of the water pollution problem and, from time to time, holds public meetings to hear the views of citizens, government, and private agencies.

Enforcement Actions in the Colorado River Basin

Abatement Proceedings:

1. Animas River. At the request of the New Mexico Department of Public Health, the Surgeon General of the Public Health Service called the first session of a conference on the interstate pollution of the Animas River which was held on April 29, 1958.<sup>51/</sup> The Animas River rises in southwestern Colorado and flows southerly for approximately 100 miles to its junction with the San Juan River at Farmington, New Mexico. The conference was called to consider water pollution caused by the discharge of radioactive wastes from uranium refining activities in the vicinity of Durango, Colorado,

which were suspected to be endangering the health and welfare of persons in New Mexico. As a result of the conference a cooperative fact-finding survey was conducted in the Durango-Farmington area by private, county, State, and Federal agencies to determine the extent of radiation exposure and radioactive waste discharge, and to suggest any necessary remedial measures.<sup>52/</sup> At the second session of the conference, held on June 24, 1959, a report of the results of the survey was presented and remedial measures were agreed upon by private, State, and Federal representatives.

A second survey was conducted to evaluate the effectiveness of the remedial measures.<sup>53/</sup> Results of the survey indicated that the remedial measures had brought about considerable improvement in the quality and condition of the Animas River below the uranium refining activities.

2. Colorado River and All its Tributaries. At the request of the New Mexico Department of Public Health, Arizona State Department of Health, Nevada State Board of Health, Colorado Department of Public Health, Utah Water Pollution Control Board, and California State Water Pollution Control Board, the Surgeon General of the Public Health Service called the first session of a conference on the interstate pollution of the Colorado River and all its tributaries. Six conference sessions have been held as follow:

First session:	January 13, 1960 <sup>54/</sup>
Second session:	May 11, 1961 <sup>55/</sup>
Third session:	May 9-10, 1962 <sup>56/</sup>
Fourth session:	May 27-28, 1963 <sup>57/</sup>
Fifth session:	May 26, 1964 <sup>58/</sup>
Sixth session:	July 26, 1967 <sup>59/</sup>

Private, State, and Federal interests have been represented at all of the conferences.

All participating interests recognized initially that the Colorado River does present a water quality management problem. The Public Health Service, in cooperation with the States, agreed to undertake a study to define the types of interstate pollution problems which might exist. This study was to include determination of the nature and extent of pollution problems and their effects on water users, and recommendations for remedial measures. This study was continued by FWQA after the Water Quality Act of 1965 <sup>60/</sup> and represents in land area the largest water pollution control study ever undertaken.

Although all types of pollution problems were to be considered in the study, the most critical and pressing problems were to be given priority and remedial measures developed. The most pressing pollution problem in the Colorado River Basin at the time of the first session, in the opinion of the conferees, was water pollution caused by the discharge of radioactive wastes. Remedial action was undertaken through the cooperation of private, State, and Federal interests. At the fourth session, such significant progress was indicated in the control of radioactive discharges that the conferees then gave study priority to salinity problems caused by the accumulation and concentration of total dissolved solids. At present, although investigation and action are continuing on the other objectives of the study, the primary emphasis is on the salinity problem.

#### Water Quality Standard Proceedings:

The States of the Lower Colorado River Basin submitted State water quality standards to the Secretary of the Interior by July 1, 1967, pursuant to the Water Quality Act of 1965. The standards of each State (Arizona, Nevada, Utah, and New Mexico) have been accepted by the Secretary of the Interior. No Federal water quality standard enforcement proceedings have been held in the Lower Colorado Region. A summary of the water quality standards is presented in Appendix XV, Water Quality, Pollution Control, and Health Factors.

#### Legal and Institutional Aspects of Water Quality

The environment of the Colorado River Basin has historically dictated the establishment of unique legal systems and institutional arrangements to manage a scarce water resource. These legal systems and institutional arrangements remain fundamentally unchanged although significant revisions have been necessitated by the changing nature of society and its effects on the environment of the Colorado River Basin. The changes which have been effectuated have been primarily concerned with water quantity.

There is an increasing awareness in the Colorado River Basin that the problems of water quantity cannot be divorced from the problems of water quality. Certainly any future water management program for the Basin must incorporate a consideration of the impact which water quality problems will have upon Basin development.

Water quality problems of the Basin are currently being defined by the cooperative efforts of local, State, and Federal participants in the abatement conference proceedings on the Colorado River Basin under the authority of the Water Quality Act of 1965. The search for solutions to the Water Quality problems so defined must necessarily extend to an examination of existing legal systems and institutional arrangements to determine their efficacy in implementing any proposed plan for the

management of water quantity and quality. The changing environment of the Colorado River Basin will again demand unique solutions.

#### Footnotes

- 1/ 79 Stat. 903.
- 2/ FWPCA, U.S. Department of the Interior, Program of the Federal Water Pollution Control Administration (July 1967).
- 3/ 80 Stat. 1608.
- 4/ Rivers and Harbors Act of March 3, 1899, ch. 425, sec. 10, 30 Stat. 1151, 33 U.S.C. 403; Act of March 3, 1899, ch. 425, sec. 12, 30 Stat. 1151, as amended, 33 U.S.C. 406; Act of March 3, 1899, ch. 425, sec. 13, 30 Stat. 1152, 33 U.S.C. 407; Act of March 3, 1899, ch. 425, sec. 16, 30 Stat. 1153, 33 U.S.C. 411.
- 5/ Act of June 7, 1924, ch. 316, 43 Stat. 604, 33 U.S.C. 431 to 437 as amended by section 211 of the Clean Waters Restoration Act of November 3, 1966, P.L. 89-753 80 Stat. 1252.
- 6/ 37 Stat. 309 (the present Public Health Service Act is Act of July 1, 1944, ch. 373, 58 Stat. 682, as amended, 42 U.S.C. 201 et seq.)
- 7/ Act of June 30, 1948, ch. 758, 62 Stat. 1155, as amended, 33 U.S.C. 466-466g; 466h to 466n.
- 8/ See n. 7 supra.
- 9/ 70 Stat. 498.
- 10/ P.L. 87-88, 75 Stat. 204.
- 11/ See n. 1. supra.
- 12/ P.L. 89-753, 80 Stat. 1246.
- 13/ 79 Stat. 490; 42 U.S.C. 3102.
- 14/ 79 Stat. 16; 40 U.S.C. App. 212.
- 15/ 79 Stat. 554; 42 U.S.C. 3136.
- 16/ 80 Stat. 1508; 26 U.S.C. 48.
- 17/ Federal Register, Vol. 35, No. 25, pp. 2573-76, February 5, 1970.
- 18/ Federal Register, Vol. 35, p. 4247, March 5, 1970.
- 19/ Federal Register, Vol. 35, No. 250, December 25, 1970.
- 20/ Sec. 8, FWPC Act, as amended.
- 21/ Sec. 7, FWPC Act, as amended.
- 22/ Sec. 3(c), FWPC Act, as amended.
- 23/ Sec. 6, FWPC Act, as amended.

- 24/ Sec. 5(a), FWPC Act, as amended.
- 25/ Sec. 5, FWPC Act, as amended.
- 26/ Sec. 5 (b), FWPC Act, as amended.
- 27/ Sec. 3, FWPC Act, as amended.
- 28/ Sec. 5(c), FWPC Act, as amended.
- 29/ Sec. 5(a), FWPC Act, as amended.
- 30/ Sec. 5(a), FWPC Act, as amended.
- 31/ Sec. 10, FWPC Act, as amended.
- 32/ See n. 7 supra.
- 33/ See n. 1 supra.
- 34/ Sec. 10(a) and (d) to (k), FWPC Act, as amended.
- 35/ The term "interstate waters" means all rivers, lakes, and other waters that flow across or form a part of State boundaries, including coastal waters. Sec. 13(e), FWPC Act, as amended.
- 36/ Sec. 10(c), FWPC Act, as amended.
- 37/ Sec. 11, FWPC Act, as amended.
- 38/ See n. 18 supra.
- 39/ See n. 5 supra.
- 40/ Discharge means any grossly negligent, or willful spilling, leaking, pumping, pouring, emitting or emptying of oil. Sec. 2(3), the Oil Pollution Act, 1924, as amended.
- 41/ Sec. 5(g), FWPC Act, as amended.
- 42/ Sec. 16(b), FWPC Act, as amended.
- 43/ FWPCA, U.S. Dept. of the Interior, "Manpower and Training Needs in Water Pollution Control" (Dec. 1966).
- 44/ Sec. 16(a), FWPC Act, as amended.
- 45/ FWPCA, U.S. Dept. of the Interior, "The Cost of Clean Water," Vol. 1 - 4, (Jan. 10, 1968).

- 46/ Sec. 17, FWPC Act, as amended.
- 47/ FWPCA, U. S. Dept. of the Interior, "Water Pollution Caused by the Operation of Vessels" (Dec. 1966).
- 48/ Sec. 18, FWPC Act, as amended.
- 49/ FWPCA, U. S. Dept. of the Interior, "Incentives to Industry for Water Pollution Control; Policy Considerations" (1968).
- 50/ Sec. 9, FWPC Act, as amended.
- 51/ Public Health Service, U. S. Dept. of HEW, "Transcript of Conference on Interstate Pollution of the Animas River, Colorado - New Mexico" (April 29, 1958).
- 52/ Public Health Service, U. S. Dept. of HEW, "Survey of Interstate Pollution of the Animas River, Colorado - New Mexico" (May 1959).
- 53/ Public Health Service, U. S. Dept. of HEW, "Survey of Interstate Pollution of the Animas River, Colorado - New Mexico, II 1959 Surveys" (January 1960).
- 54/ Public Health Service, U. S. Dept. of HEW et al, "Transcript of Conference on Pollution of the Interstate Waters of the Colorado River and Its Tributaries, First Session" (Jan. 13, 1960).
- 55/ Public Health Service, U. S. Dept. of HEW, et al, "Transcript of Conference on Pollution of the Interstate Waters of the Colorado River and Its Tributaries, Second Session" (May 11, 1961).
- 56/ U. S. Dept. of HEW et al, "Transcript of Conference in the Matter of Pollution of the Interstate Waters of the Colorado River and Its Tributaries, Third Session" (May 9-10, 1962).
- 57/ Public Health Service, U. S. Dept. of HEW, "Conference in the Matter of Pollution of the Interstate Waters of the Colorado River and Its Tributaries" (May 27, 1963).
- 58/ Public Health Service, U. S. Dept. of HEW, "Conference in the Matter of Pollution of the Interstate Waters of the Colorado River and Its Tributaries, Fifth Session" (May 26, 1964).
- 59/ FWPCA, U. S. Dept. of the Interior, "Conference: Pollution of the Interstate Waters of the Colorado River and Its Tributaries - Colorado, New Mexico, Arizona, California, Nevada, Wyoming, Utah" (July 26, 1967).
- 60/ See n. 1 supra.

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

The presently constituted United States Fish and Wildlife Service of the Department of the Interior was established by the Fish and Wildlife Act of August 8, 1956 (70 Stat. 1119), as amended (16 U.S.C. 742a-742k). The Act created within the Department of the Interior an Assistant Secretary for Fish and Wildlife, a Commissioner of Fish and Wildlife, and the Bureau of Sport Fisheries and Wildlife. The new Service succeeded to and replaced the then existing Fish and Wildlife Service. The 1939 Organization Plan No. II had earlier placed most Federal fish and wildlife management activities under the Secretary of the Department of the Interior. Under the 1940 Reorganization Plan No. III, these functions were consolidated in the newly created Fish and Wildlife Service.

This report is primarily concerned with activities in the Lower Colorado Region. The Bureau of Sport Fisheries and Wildlife is the agency that is involved in virtually all of them. There follows a discussion of authorities that are significant in land and water development and management of fish and wildlife resources in the Region. A more complete listing is found in the Senate Commerce Committee 1965 print entitled Compilation of Federal Laws Relating to the Conservation and Development of our Nation's Fish and Wildlife Resources.

Migratory Bird Treaty Act of July 3, 1918 (40 Stat. 755), as amended (16 U.S.C. 703-711). The Bureau of Sport Fisheries and Wildlife carries out extensive Federal responsibilities for the conservation of migratory birds. This assumption of authority stems from treaties with Great Britain in 1916 and Mexico in 1936. This act provides the regulatory authority to discharge the United States' obligations under the 1916 treaty.

Migratory Bird Conservation Act of February 18, 1929 (45 Stat. 1222), as amended (16 U.S.C. 715-715r). This is the basic legislation for acquisition, development, and maintenance of migratory bird refuges. Under this authority, the Imperial and Havasu National Wildlife Refuges have been established on the Colorado River in California and Arizona. Authorized and being established on the Colorado River is the Cibola National Wildlife Refuge. The Pahrangat National Wildlife Refuge on the White River in Nevada, also has been established under this Act.

Fish and Wildlife Coordination Act of March 10, 1934 (48 Stat. 401), as amended (16 U.S.C. 661-666c). This Act authorizes assistance to Federal, State, and other agencies in the development, protection, rearing and stocking of fish and wildlife and controlling losses thereof; authorizes surveys of fish and wildlife of all Federal lands; authorizes surveys and reports by the Fish and Wildlife Service which recommend measures needed to prevent losses of, and to enhance, fish and wildlife at water-use projects constructed or licensed by the Federal Government; authorizes land acquisition for fish and wildlife conservation purposes; authorizes Federal construction agencies to make available project lands for use and administration by the Bureau of Sport Fisheries and Wildlife or State wildlife agencies; and authorizes Federal water development agencies to modify projects for the conservation of fish and wildlife resources.

In the Lower Colorado Region, the Bureau of Sport Fisheries and Wildlife and the concerned State fish and game agencies must be consulted whenever any water project is proposed for Federal construction or under a Federal license or permit. The Bureau of Sport Fisheries and Wildlife cooperates with the State agencies in the studies of the possible damages to wildlife resources caused by water projects and recommends means and measures which should be adopted to prevent loss or damage of resources and to provide for the development and improvement of such resources.

Federal Aid in Wildlife Restoration Act (Pittman-Robertson Act) of September 2, 1937 (50 Stat. 917), as amended (16 U.S.C. 669-669j). This Act provides Federal grants to States in wildlife restoration projects. Funds from an excise tax on sporting arms and ammunition are provided to States on a matching basis of \$3 Federal to \$1 State for research, land acquisition, development, maintenance, and management projects. The Federal funding is administered by the Bureau of Sport Fisheries and Wildlife.

Federal Aid in Sport Fish Restoration Act (Dingell-Johnson Act) of August 9, 1950 (64 Stat. 430), as amended (16 U.S.C. 777-777k). This Act provides Federal aid to States for sport fish restoration projects. Federal funds are derived from excise tax revenues on sport fishing tackle, and are administered by the Bureau of Sport Fisheries and Wildlife in the same way as Pittman-Robertson funds.

Watershed Protection and Flood Prevention Act of August 4, 1954 (68 Stat. 666), as amended (16 U.S.C. 1001-1009). This Act authorizes certain fish and wildlife improvement activities at small watershed projects, including: (1) surveys, investigations, and reports with recommendations concerning the conservation and development of fish and wildlife resources, by the Bureau of Sport Fisheries and Wildlife in cooperation with the State fish and game agencies; (2) the inclusion in

project work plans of such works of improvement for fish and wildlife resources recommended by the Bureau of Sport Fisheries and Wildlife as are agreed to by local sponsors and the Soil Conservation Service; and (3) cost sharing by the Federal Government of developments and necessary lands, easements, or rights-of-way acquired by local sponsors for fish and wildlife purposes.

Small Reclamation Projects Act of August 6, 1956 (70 Stat. 1044), as amended (43 U.S.C. 422h). Procedures for applying the principles of the Fish and Wildlife Coordination Act to this type of project are provided. The Bureau of Sport Fisheries and Wildlife and the concerned State fish and game agencies assist in project planning. A cost-shared grant can be made for including fish and wildlife conservation as a project purpose.

Sikes Act of September 15, 1960 (74 Stat. 1052; 16 U.S.C. 670a-670c). This Act provides for cooperation by the Department of Defense, the State fish and game departments, and the Bureau of Sport Fisheries and Wildlife in developing plans for the conservation and management of fish and wildlife resources on military installations.

Commercial Fisheries Research and Development Act of 1964. Act of May 30, 1964, (78 Stat. 197; 16 U.S.C. 779-779f). Authorizes the Secretary of the Interior to cooperate with the States through their respective State agencies in carrying out projects designed for the research and development of commercial fisheries resources of the Nation. Federal funds made available under this Act will be used to supplement and, to the extent practicable, increase the amounts of State funds that would be made available for commercial fisheries research and development in the absence of these Federal funds.

Land and Water Conservation Fund Act of September 3, 1964 (78 Stat. 897; 16 U.S.C. 4601-4--4601-11), as amended (P.L. 90-401). This Act creates a Land and Water Conservation Fund from which Congress may appropriate funds for specified purposes, including the acquisition of lands and waters for any national area that may be authorized for the preservation of species of fish and wildlife threatened with extinction.

Federal Water Project Recreation Act of July 9, 1965 (79 Stat. 213; 16 U.S.C. 4601-12--4601-21). This Act provides uniform policies with respect to recreation and fish and wildlife benefits and costs of Federal multiple-purpose water-resources projects and administration by non-Federal agencies of project lands and waters for recreation and fish and wildlife enhancement purposes and to operate and maintain facilities for these purposes; authorizes the Secretary of the Interior to provide for outdoor recreation and fish and wildlife facilities at reservoirs under his control; and authorizes the expenditures of project funds to acquire lands for enhancement of migratory waterfowl at Federal water-resources projects to an aggregate of \$28,000,000.

Food and Agriculture Act of November 3, 1965 (79 Stat. 1187, 1206; 7 U.S.C. 1838). This Act is known as the Cropland Adjustment Act Title VI, and authorizes the Secretary of Agriculture to transfer funds to any other Federal agency or to States or local government agencies for use in acquiring cropland for the development of wildlife facilities.

Endangered Species Act of October 15, 1966 (80 Stat. 962; 16 U.S.C. 668aa(c)). This Act provides for the conservation, protection, and propagation of native species of fish and wildlife threatened with extinction and consolidates authorities relating to administration of the National Wildlife Refuge System.

Colorado River Basin Project Act of September 30, 1968 (82 Stat. 885). This Act authorizes the construction, operation, and maintenance of the Colorado River Basin Project and the Central Arizona Project, and includes provisions for fish and wildlife resource developments.

## DEPARTMENT OF THE INTERIOR

### Geological Survey

Geological Survey was established by the Congress<sup>1/</sup> to classify the public lands and examine the geological structure, mineral resources and products of the public domain. Geological Survey performs surveys, investigations and research as to the water resources of the United States and classifies land as to water and power resources. It furnishes engineering supervision for power permits and FPC leases.

Specifically as to water resources Geological Survey determines the source, quantity, quality, distribution, movement and availability of both surface and groundwaters. This work includes investigations of floods and droughts, their magnitude, frequency, and relation to climatic and physiographic factors; the evaluation of available waters in river basins and groundwater provinces, including water requirements for industrial, domestic, and agricultural purposes; the determination of the chemical and physical quality of water resources and the relation of water quality and suspended sediment load to various parts of the hydrologic cycle; special hydrologic studies of the interrelations between climate, topography, vegetation, soils and the water supply; research to improve the scientific basis of investigations and techniques; scientific and technical assistance in hydrologic fields to other Federal agencies; and the coordination of national network and special water data acquisition activities of Federal agencies.

The Geological Survey prepares and publishes the maps of the National Topographic Map Series; and revises existing maps to maintain their usefulness. These maps are basic to other functions of the Survey as well as to many activities of other agencies.

The Director of Geological Survey is charged with the responsibility<sup>2/</sup> of determining the value of water developed as a result of any drilling under an oil and gas lease issued pursuant to the Mineral Leasing Act, as amended,<sup>3/</sup> and the conditioning and maintaining of water wells and development of water supplies in abandoned wells.

The Geological Survey also makes geologic surveys and investigations to determine and appraise the mineral and mineral-fuels resources and the geologic structure of the United States and its territories. These investigations define the subsurface geology and character of water-bearing rocks, and assist in defining the magnitude and movement of groundwater resources. Results of investigations are published in bulletins, professional papers, circulars, and in geologic and related map series.

The results of these investigations are published in the series of Geological Survey publications, and in publications of various state agencies cooperating in the work. Publications of the Geological Survey include water supply papers many of which are applicable to the Lower Colorado Region. The papers cover inventories, drainage problems and a myriad of specific data relevant and necessary to a comprehensive understanding of water resource development.

Footnotes

- 1/ Act of March 3, 1879 (20 Stat. 394; 43 U.S.C. 31).
- 2/ 30 CFR 241.
- 3/ Act of June 16, 1934 (48 Stat. 977; 30 U.S.C. 229a), amending Act of February 25, 1920 (41 Stat. 441-445; 30 U.S.C. 221, 223-228).

DEPARTMENT OF THE INTERIOR

National Park Service

The fundamental objective of the National Park Service is to promote and regulate the use of national parks, monuments, and similar reservations in conformity with the Act of August 25, 1916, as amended,<sup>1/</sup> in order to "conserve the scenery and natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."<sup>2/</sup> Other legislation authorizes acquisition and preservation of, among other things, national seashores, national lake-shores and national riverways.<sup>3/</sup>

The United States Government Organization Manual 1968-69, outlines the activities of the Park Service as follows: The programs carried on by the National Park Service stem primarily from its responsibility to provide and promote the use of areas for public enjoyment, and to protect the natural and historic resources comprising such areas. The protection program consists not only of preventing fires, stream pollution, and injury to natural, historic, or prehistoric features, but also of restricting uses that are incompatible with the basic purposes of the parks. An integral part of the overall program is to provide for the needs of the visiting public. The Service also conducts interpretive, informational, and investigative programs relating to park resources and use.<sup>4/</sup>

These activities include development of water supplies, sewage treatment facilities, and water-based recreation facilities.

The Park Service manages large areas on the headwaters of streams and areas where water and land uses are important and closely related. The Secretary of the Interior has authority to make rules and regulations for such areas and he may, among other things, provide for erosion prevention and control and water pollution control.<sup>5/</sup>

The Service conducts and contracts for studies directed toward solving national park system resource and conservation problems. Studies are made concerning pertinent aspects of water, as well as in the areas of natural sciences, history, archeology, fish, wildlife, soil, and geology. The studies are used as a basis for more effective management, development, and conservation of the national park systems. Also, the Service conducts continuing special studies in selective fields. The Service exercised the authority of the Secretary of the Interior under the Act of June 27, 1960 (popularly termed The River Basin Salvage Act),<sup>6/</sup> which specifically provides for the preservation of historical and archeological data that might be irreparably lost or destroyed as the result of activities associated with the construction of dams or through the impoundment of waters behind dams. Surveys of project areas are made to evaluate the historical and archeological resources, investigations are undertaken to determine significance of threatened resources, and information contained in important sites and their associated microenvironments are scientifically studied

and the information they contain, including representative artifacts, are salvaged.

Under the authority of the Park, Parkway and Recreation Area Act<sup>7/</sup> the Park Service has been active in assisting the Bureau of Reclamation in planning, developing, and administering recreation at Reclamation reservoirs.

Park Service has authority for certain acquisitions of water rights or interests in lands for water supply developments in the national park system and area administered in connection therewith.<sup>8/</sup>

Water resource developments which might affect national parks and monuments are subject to effective restrictions and limitations.<sup>9/</sup>

#### Footnotes

- 1/ 39 Stat. 535; 16 U.S.C. 1 et seq.
- 2/ United States Government Organization Manual 1968-69, (Office of the Federal Register, National Archives and Records Service, General Services Administration) p. 254.
- 3/ Federal Outdoor Recreation Programs, Department of the Interior, Bureau of Outdoor Recreation (1967) pp. 73, 75.
- 4/ U.S. Government Organization Manual op. cit. supra note 2 at 255.
- 5/ Waters and Water Rights, Ciriacy-Wantrup, et al. (Allen Smith Co., 1967), Vol. I, p. 45. Regulations issued by the Secretary of the Interior governing areas administered by the National Park Service are found in Title 36, Code of Federal Regulations, Parts 1 through 55.
- 6/ Public Law 86-523, 86th Congress, S. 1185, June 27, 1960 (74 Stat. 220).
- 7/ Act of June 23, 1936 (49 Stat. 1894; 16 U.S.C. 17k-17n).
- 8/ Act of August 7, 1946 (60 Stat. 885; 16 U.S.C. 17j-2). 16 U.S.C. 17j-2(g) provides: Appropriations for the National Park Service are authorized for. . . investigation and establishment of water rights in accordance with local custom, laws, and decisions of courts, including the acquisition of water rights or of lands or interests in lands or rights-of-way for use and protection of water rights necessary or beneficial in the administration and public use of the national parks and monuments.

The Act of August 8, 1953 (67 Stat. 495; 16 U.S.C. 1b through 1d) broadens the authority of 16 U.S.C. 17j-2, supra, to include all of the "National Park System and miscellaneous areas administered in connection therewith." See also 1953 U.S. Code Cong. and Adm. News, p. 2240.

- 9/ See Solicitor's Opinion, M-36747 (July 11, 1968) construing the Act of March 3, 1921 (41 Stat. 1353; 16 U.S.C. 797a) in view of the 1935 amendments to the Federal Power Act, 49 Stat. 838, to restrict the licensing authority of the Federal Power Commission by precluding the licensing of hydroelectric projects in national parks and monuments without specific authority of Congress. And 43 CFR 2234.1-3(e)(3) provides: Whenever a right-of-way is desired through any national park or monument or purposes other than those excepted by the Act of March 3, 1921, or not otherwise expressly prohibited by law, the applicant must show to the satisfaction of the Director, National Park Service, that the location and use of the right-of-way for the purposes contemplated will not interfere with the uses and purposes for which the park or monument was originally dedicated, and will not result in damage or injury to the natural conditions of property or scenery existing therein. The applicant must also file such stipulations and bond as may be required by the Director, National Park Service. Ordinarily, such a right-of-way may be allowed only on a showing of absolute necessity.

DEPARTMENT OF THE INTERIOR

Office of Saline Water

The Office of Saline Water performs functions vested in the Secretary of the Interior by the act of July 3, 1952 (66 Stat. 328, as amended; 42 U.S.C. 1951-1958). These functions provide for research and development of practical means for the economical production, from sea or other saline water, of water suitable for agricultural, industrial, municipal, and other beneficial consumptive uses.

The program is conducted by means of research grants to, and contracts made with, chemists, physicists, engineers, educational institutions, scientific organizations, or industrial or engineering firms, to conduct research and technical development work.

The Office of Saline Water is now engaged in an accelerated and intensified effort to find economical and feasible means of converting saline waters to fresh water.

The Saline Water Demonstration Act (72 Stat. 1706; 42 U.S.C. 1958a-1958g) was approved on September 2, 1958, and authorized the construction and operation of saline water conversion demonstration plants in various parts of the country. An amendment to the basic Saline Water Act of 1952 (66 Stat. 328, as amended; 42 U.S.C. 1951-1958), approved on June 24, 1967, changed these demonstration plants into research and development test beds and thus made them a part of the basic research and development program where experimental hardware can be introduced into the saline water conversion process employed by the specific plant in order to obtain performance data.

DEPARTMENT OF THE INTERIOR

Office of Water Resources Research

The Office of Water Resources Research administers the program of water resources research and training authorized by act of July 17, 1964 (78 Stat. 329; 42 U.S.C. 1961).

The program provides for promotion and support of research programs and training in the study of water supply and of resources which affect water.

DEPARTMENT OF STATE

International Boundary and Water Commission

Summary of treaties, legislation, and projects relating to activities of the International Boundary and Water Commission, United States Section, in the Lower Colorado Region.

I. Treaties with Mexico:

Treaty of February 2, 1848 (Treaty Series 207 - 9 Stat. 922) - establishes the boundary between California and Mexico as a straight line, drawn from the middle of the Rio Gila, where it unites with the Colorado to a point on the coast of the Pacific Ocean, distant one marine league due south of the southernmost point of the port of San Diego.

Treaty of December 30, 1853 (Treaty Series 208 - 10 Stat. 1031) - Reestablishes the boundary in New Mexico and Arizona which adds 20 miles of the Colorado River below the junction with the Gila River.

Convention of July 29, 1882 (Treaty Series 220 - 22 Stat. 986) - Provides for a reconnaissance of the land boundary between United States and Mexico and the reestablishment of destroyed or displaced monuments and the establishment of new monuments where advisable.

Convention of November 12, 1884 (Treaty Series 226 - 24 Stat. 1011) - Defines the international boundary line where it follows the bed of the Rio Grande and the Colorado River, to avoid difficulties which may arise through the changes of the channel to which those rivers are subject through operation of natural forces. Sets exclusive jurisdiction in the case of such difficulties in the International Boundary Commission.

Convention of March 1, 1889 (Treaty Series 232 - 26 Stat. 1512) - To facilitate the carrying out of the principles contained in the Convention of November 12, 1884, and to avoid the difficulties occasioned by reason of the changes which take place in the bed of the Rio Grande and the Colorado River.

Treaty of February 3, 1944 (Treaty Series 994 - 59 Stat. 1219) - To fix and delimit the rights of the two countries with respect to the waters of the Rio Grande, Colorado, and Tijuana Rivers, and to obtain the most complete and satisfactory utilization thereof. The two Governments agreed in the Treaty to give preferential attention to the solution of all border sanitation problems.

With respect to the Colorado River, the Treaty allots to Mexico a guaranteed annual quantity of 1,500,000 acre-feet to be delivered in accordance with other provisions of the Treaty, and any other quantities arriving at the Mexican points of diversion, with the understandings outlined in the Treaty. The Treaty provides for the construction by Mexico of a main diversion structure on the Colorado River below the point where the northmost part of the international land boundary intersects the river.

The Treaty provides that the Commission shall construct, operate, and maintain on the main channels of the boundary rivers, and that each Section shall construct, operate, and maintain on the measured tributaries in its country, the gaging stations and apparatus necessary for the purpose of making computations and obtaining the necessary data for a record of waters belonging to each country in the Rio Grande and of the deliveries to Mexico of waters of the Colorado River.

## II. Legislation - (Title 22, United States Code Annotated):

Public Law 88-411 - 88th Congress - 78 Stat. 386 (Approved August 10, 1964) "An act to authorize the conclusion of agreements with Mexico for the joint construction, operation, and maintenance of emergency flood control works on the lower Colorado River, in accordance with the provisions of Article 13 of the 1944 Water Treaty with Mexico, and for other purposes."

Douglas Sanitation Project - Public Law 786, 64 Stat. 846 (approved September 13, 1950) 22 USCA Sec. 277d-6. "An act to facilitate compliance with the Treaty between the United States of America and the United Mexican States signed February 3, 1944."

Nogales Flood Control Project - Act of August 19, 1935 - Exchange of notes between the Governments for original project. Construction 1933 through 1936 performed with allotments from P.W.A. funds. 1948-1949 construction authorized by Appropriation Act for F.Y. 1947, Public Law 490, 79th Congress, approved July 5, 1946.

Nogales Sanitation Project - Public Law 150, 67 Stat. 195 (Approved July 27, 1953) 22 USCA Sec. 277d-10. "An act to authorize an agreement between the United States and Mexico for the joint operation and maintenance by the International Boundary and Water Commission, United States and Mexico, of the Nogales Sanitation Project, and for other purposes."

Douglas Sanitation Project. The project, consisting of primary and secondary treatment works, was constructed in 1947-1948 through the International Boundary and Water Commission. In 1961, and again in 1966 the plant was improved and expanded through the Commission to keep up with the needs of the growing cities. Since 1964 the works in each country have been operated under the direct supervision of its Section with overall control by the Commission.

## III. The current activities of the Commission in the Lower Colorado River Region summarized as follow:

Nogales Flood Control Project - The constructed works consist of an international system of lined flood conduits beginning in Nogales, Sonora, and extending downstream northward across the international boundary and through Nogales, Arizona, to provide flood protection to the two adjoining border cities. The United States portion of the project was completed in 1949 and turned over to the City of Nogales, Arizona, for operation and maintenance under the technical supervision of the United States Section of the Commission.

Nogales Sanitation Project - The existing international project for the purpose of correction of a serious sanitation problem at the adjoining border cities of Nogales, Arizona, and Nogales, Sonora, which in reality comprise a single community, has become badly overloaded.

Designs, plans, and specifications have been completed for an enlarged international outfall sewer about 8.8 miles in length and sewage treatment facilities consisting of aerated lagoons and stabilization ponds with capacity estimated to be adequate for both cities until the year 2000.

Construction of the enlarged international project, the costs of which will be met by the United States, Mexico, and the City of Nogales, Arizona, is expected to begin in early 1970 and to be completed by mid-1971. Upon completion of the enlarged project, the facilities will be operated and maintained by the City of Nogales, Arizona, under the technical supervision of the Commission. Costs of operation and maintenance will be shared by Mexico and the City of Nogales, Arizona.

Morelos Diversion Dam on the Colorado River - In accordance with the 1944 Water Treaty, Mexico constructed, at its expense, the main diversion structure which it required on the Colorado River for diversion of its allotted waters. This structure, the Morelos Diversion Dam, was completed in 1950.

International Stream Gaging Program - In accordance with the 1944 Water Treaty, each section maintains a hydrographic organization which obtains the necessary field data and computes the records of flows in the main river, diversions, and return flows. The information obtained is exchanged between the two Sections. Joint accounting is maintained of the waters of the Colorado River delivered to Mexico.

Colorado River Salinity Problem - In 1962, the Commission was directed by the two Governments to investigate and recommend measures to reach a permanent and effective solution of the problem of the salinity of the waters of the Colorado River which reach Mexico for irrigation of lands of its Mexicali Valley. The problem was due to an increase in salinity of the waters reaching Mexico incident to drainage of lands of the Wellton-Mohawk Irrigation District in the United States. Each Commissioner made studies and sought technical advice and assistance of other agencies of his Government, and each

availed himself of qualified water and soil scientists in his country. The objective was, without prejudice to the legal rights of either country, to agree upon and actually put into operation remedial measures within the shortest possible time. In the meantime, temporary alleviating measures were immediately taken by the two Governments.

On March 22, 1965, the Commission submitted by a Minute its recommendations to the two Governments for works and measures to reach a permanent and effective solution, using as a basis the scientific and engineering studies made by engineers and scientists of both Governments. The recommendations were approved, works required were constructed and placed in operation by the United States in November 1965.

The approved Minute states that it is to be in effect for a period of five years beginning on the date the extension channel is placed in operation during which period the Commission shall review conditions which gave rise to the problem and in due time recommend whether, in keeping with the purpose expressed by the two Governments of achieving a permanent and effective solution, a new Minute should be adopted to become effective upon termination of this period. The Minute states that its provisions will not constitute any precedent, recognition, or acceptance affecting the rights of either country, with respect to the Water Treaty of February 3, 1944, and the general principles of law.

## THE NATIONAL WATER COMMISSION

### General

In 1968, Congress established the National Water Commission to consist of seven members who were to be appointed by the President from outside the Federal Government. The Commission was to review National water resource problems and consult with other water resource agencies during the period ending September 26, 1973.

### Basic Authorization

The Act of September 26, 1968 (P. L. 90-515) authorized the establishing of the National Water Commission.

## NATIONAL ENVIRONMENTAL POLICY ACT OF 1969

The National Environmental Policy Act of 1969, Public Law 190 (83 Stat. 852), establishes a national policy which will encourage productive and enjoyable harmony between man and his environment; promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; and enrich the understanding of the ecological systems and natural resources important to the Nation. The Act also establishes a Council on Environmental Quality. Under section 102 of the Act, all Federal agencies must, among other requirements, include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on: (a) the environmental impact of the proposed action, (b) any adverse environmental effects which cannot be avoided should the proposal be implemented, (c) alternatives to the proposed action, (d) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and (e) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

"The Act provides legislative guidance to Federal agencies in making decisions which find environmental values in conflict with development programs. It directs all Agencies to the fullest extent possible to interpret and administer existing laws, regulations and policies in accordance with the policies set forth in the Act.

"It requires a systematic, interdisciplinary approach in the planning and decision making process which may have an impact on man's environment and it recognizes historical, archeological, cultural, and natural values as significant environmental resources."

## THE WATER RESOURCES COUNCIL

### General

In 1965, Congress established the Water Resources Council to be composed of the Secretaries of the Interior; Agriculture; Army; Health, Education and Welfare; and the Chairman of the Federal Power Commission.

The Council was directed to maintain a continuing study and prepare an assessment biennially, or at such less frequent intervals as the Council may determine, of the adequacy of supplies of water necessary to meet the water requirements in each water resource region in the United States and the national interest therein; and to maintain a continuing study of the relation of regional or river basin plans and programs to the requirements of larger regions of the Nation, and of the adequacy of administrative and statutory means for the coordination of the water and related land resources policies and programs of the several Federal agencies; it shall appraise the adequacy of existing and proposed policies and programs to meet such requirements; and it shall make recommendations to the President with respect to Federal policies and programs.

### Basic Authorization

The Water Resources Planning Act of July 22, 1965 (P. L. 89-80) established the Water Resources Council and authorized the President of the United States to establish River Basin Commission when requested by a majority of the governors of the affected States. The River Basin Commission was to include a representative from each State within the Basin and one representative from each Federal agency having a substantial interest in the Commission work within the Basin; also, if appropriate, a representative of any interstate compact commission having authority within the Basin and a member of any international commission having jurisdiction in the Basin. Each commission's function was to carry out in its own Basin the work for which the Water Resources Council had overall responsibility as above stated.

TREATIES, COMPACTS,  
AND AGREEMENTS

CHRONOLOGY OF THE LAW OF THE RIVER  
FOR THE LOWER COLORADO REGION

Introduction

For many years before 1922, when the Colorado River Basin Compact was negotiated, the flows of the river had been unpredictable and erratic. Flood flows seriously menaced the lower basin, particularly in the Yuma area and Imperial Valley where both lives and property were threatened. Thus flood control by storage was essential to protect the lower basin.

There was also an immediate need for storage in the lower basin to control the river's flow in order to assure a regulated supply to meet the existing demands along the river and to make further development possible. The Colorado River also carried large amounts of silt which were damaging irrigation works and agricultural lands and this made silt control essential in the lower basin for protection and development.

Additionally, the Alamo Canal which conveyed the water from the river to the Imperial Valley in California lay, throughout most of its length, in Mexico. It was recognized that a canal wholly within the United States carrying water to the Imperial Valley would eliminate complications arising from the location of the Alamo Canal in Mexico and would remove the Valley's water supply dependency from the Mexican control concession.

These circumstances also occasioned apprehension. Obviously, the construction of storage facilities on the mainstream of the Colorado River for the exclusive benefit of the lower basin would permit a more rapid agricultural expansion and uses of water in the lower basin which could form the basis for possible claims of rights that could conceivably interfere with long range development in the upper basin.

Genesis of the Compact

The necessity for adjustment of the conflicting interests of the upper and lower basins had been recognized long before 1922. In 1920 the League of the Southwest was organized for the purpose of promoting western development and greater water unity. All seven of the Colorado Basin States were represented in this league and the discussions during the first meeting included the consideration of upper versus lower basin storage sites and the possibility of formulating an interstate compact. A resolution was adopted by the league which established procedure for such a compact to be negotiated.

In early 1921 the seven Colorado River Basin States by legislation authorized appointment of commissioners to negotiate a compact for apportionment of the water supply of the river and its tributaries. Later the same year Congress consented that the States might negotiate and conclude a compact which would apportion the water of the Colorado River and its tributaries among such States on the condition that a representative of the United States be appointed by the President to participate in the negotiations and report to Congress on the proceedings and any compact that might result.

The Colorado River Commission consisted of commissioners appointed by the seven Colorado River Basin States and the representative of the United States, Mr. Herbert Hoover. After a series of hearings, their final meeting convened on November 9, 1922, and continued until November 24, 1922, when the agreement they negotiated was signed by the seven appointed Commissioners and Chairman Hoover as the Colorado River Compact.

The Compact was ratified by six of the seven signatory States, the exception being Arizona. In 1925, the six ratifying States waived the requirement of seven-State approval and ratified the Compact to become effective upon approval of at least six States and the consent of the United States; the latter's consent was embodied in the Boulder Canyon Project Act of 1928. This consent was conditioned upon California passing an act agreeing to limit her consumptive use of Colorado River water. Such an act was passed and the Compact became effective June 25, 1929, without ratification by Arizona. Arizona later ratified the Compact in 1944.

#### The Colorado River Compact

Essentially, as stated in Article I, the Colorado River Compact sought to "provide for the equitable division and apportionment of the use of the waters of the Colorado River System; to establish the relative importance of different beneficial uses of water; to promote interstate comity; to remove causes of present and future controversies; and to secure the expeditious agricultural and industrial development of the Colorado River Basin, the storage of its waters and the protection of life and property from floods." The remaining principal features of the Compact are as follow:

Article II defined the "Colorado River Basin" as "all of the drainage area of the Colorado River System and all other territory within the United States of America to which the waters of the Colorado River System shall be beneficially applied."

It further divided, by definition, the Colorado River Basin into two sub-basins, namely "Upper Basin" as being composed of the "States

of the Upper Division" and "Lower Basin" being composed of the "States of the Lower Division" with Lee Ferry being made the division point on the river.

Article III of the Compact is stated as follows:

"(a) There is hereby apportioned from the Colorado River System in perpetuity to the Upper Basin and to the Lower Basin, respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist.

"(b) In addition to the apportionment in paragraph (a), the Lower Basin is hereby given the right to increase its beneficial consumptive use of such waters by one million acre-feet per annum.

"(c) If, as a matter of international comity, the United States of America shall hereafter recognize in the United States of Mexico any right to the use of any waters of the Colorado River System, such waters shall be supplied first from the waters which are surplus over and above the aggregate of the quantities specified in paragraphs (a) and (b); and if such surplus shall prove insufficient for this purpose, then, the burden of such deficiency shall be equally borne by the Upper Basin and the Lower Basin, and whenever necessary the States of the Upper Division shall deliver at Lee Ferry water to supply one-half of the deficiency so recognized in addition to that provided in paragraph (d).

"(d) The States of the Upper Division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of ten consecutive years reckoned in continuing progressive series beginning with the first day of October next succeeding the ratification of this compact.

"(e) The States of the Upper Division shall not withhold water, and the States of the Lower Division shall not require the delivery of water, which cannot reasonably be applied to domestic and agricultural uses.

"(f) Further equitable apportionment of the beneficial uses of the waters of the Colorado River System unapportioned by paragraphs (a), (b), and (c) may be made in the manner provided in paragraph (g) at any time after October first, 1963, if and when either Basin shall have reached its total beneficial consumptive use as set out in paragraphs (a) and (b).

"(g) In the event of a desire for a further apportionment as provided in paragraph (f) any two signatory States, acting through their Governors, may give joint notice of such desire to the Governors of the other signatory States and to The

President of the United States of America, and it shall be the duty of the Governors of the signatory States and of the President of the United States of America forthwith to appoint representatives, whose duty it shall be to divide and apportion equitably between the Upper Basin and the Lower Basin the beneficial use of the unapportioned water of the Colorado River System as mentioned in paragraph (f), subject to the legislative ratification of the signatory States and the Congress of the United States of America."

Article IV insures that agriculture and domestic uses will have a priority over those uses for power purposes and further that all three of these uses will be superior in priority to navigation.

Articles V through XI, respectively, relate to cooperation of the signatory States with the United States officials and their administrative responsibilities; establish procedures for claims or controversies to be considered; state that nothing in the Compact shall be construed as affecting the obligations of the United States to Indian tribes; acknowledge that present perfected water rights are unimpaired and establish the necessary provisions for future legal actions, termination of the Compact if desired; and finally, provide for the Compact to become binding and obligatory.

The Colorado River Compact presents a number of problems. The principal cause for the difficulties resulting from the Colorado River Compact arises from the fact that the water supply of the Colorado River system is less than that anticipated by the Commissioners who negotiated the Compact.

Various interpretations of the Compact have been made with the principal differences appearing to be in the manner in which the method of construction of the pertinent paragraphs are viewed.

Another Colorado Basin issue related indirectly to the Compact which could conceivably create problems in the future is the fact that the water use accounting methods for determination of chargeable water depletions differ in the Upper Basin from that of the Lower Basin.

#### Unsuccessful Attempts to Form a Lower Basin Compact

During the period 1925-1927 negotiations repeatedly failed between Arizona, California, and Nevada for a Lower Basin Compact which would have divided among them the water apportioned to the Lower Basin by the Colorado River Compact.

### Boulder Canyon Project Act

In 1928, 6 years after the negotiation of the Colorado River Compact, Congress adopted the Boulder Canyon Project Act which authorized the construction of Hoover Dam and Powerplant and of the All-American Canal to Imperial and Coachella Valleys. The Act also authorized the States of Arizona, California, and Nevada to enter into an agreement which provided that the 7,500,000 acre-feet of water that was apportioned to the Lower Basin by paragraph (a) of Article III of the Colorado River Compact would be apportioned as follows: to California, 4,400,000 acre-feet annually; to Arizona, 2,800,000 acre-feet annually; and to Nevada, 300,000 acre-feet annually.

In view of Arizona's reluctance, at that time, to ratify the Compact, the Congress finally waived that requirement provided that California would adopt legislation which would set a limit on its use of Colorado River water. California did adopt such legislation which is known as the California Limitation Act and President Herbert Hoover subsequently declared the Boulder Canyon Project Act and the Colorado River Compact in effect on June 25, 1929. Arizona later ratified the Compact in 1944.

### California Limitation Act

On March 4, 1929, the California legislature, as required by the Boulder Canyon Project Act, agreed that California's annual consumptive use of Colorado River water shall not exceed 4,400,000 acre-feet of the 7,500,000 acre-feet apportioned to the Lower Basin States by Article III(a) of the Colorado River Compact, plus "not more than one-half of any excess or surplus waters unapportioned by said compact . . ."

### Seven-Party Agreement

Prior to execution of water contracts with them and in response to a request by the Secretary of the Interior, the seven major users of Colorado River water in California agreed among themselves as to their relative priorities of rights to Colorado River water. This seven-party priority agreement was made a part of each water delivery contract. The first three priorities go to the agricultural agencies: Palo Verde Irrigation District, Yuma Project, Imperial Irrigation District, and lands in Imperial and Coachella Valley, with the fourth priority going to the Metropolitan Water District of Southern California.

The total of the first three priorities is 3,850,000 acre-feet per year. These, with Metropolitan's fourth priority of 550,000 acre-feet, total 4,400,000 acre-feet of the 7,500,000 apportioned to the Lower Basin by the Compact and equates to that quantity which

California is held to by its Limitation Act. An additional amount is covered in the fifth priority and comprises 662,000 acre-feet per year which includes Metropolitan's right to 550,000 acre-feet and the City of San Diego's right to 112,000 acre-feet and any additional water for the agricultural agencies, must come from the "excess or surplus" referred to in the Project Act and Limitation Act.

At the time the seven-party agreement was reached in 1931, it was generally believed that there would be ample "excess or surplus" water beyond the 4,400,000 acre-feet basic quantity to provide the remaining 662,000 acre-feet of Metropolitan's contract amount, plus additional water for the agricultural agencies.

#### Water Delivery Contracts for Colorado River Water in the Lower Colorado Basin

During the period 1930-1934 the Secretary of the Interior, pursuant to the Project Act, executed contracts on behalf of the United States with California agencies for the delivery of water from Lake Mead subject to the availability thereof for use in California under the Compact and Project Act. Those contracts could, in the aggregate, call for the delivery of water of 5,362,000 acre-feet per year.

By contracts dated March 30, 1942, and January 3, 1944, made by the Secretary of the Interior with the State of Nevada, the United States agreed to deliver to Nevada from Lake Mead storage so much water as might be necessary to supply the State with a total quantity of water from the Colorado River System not to exceed 300,000 acre-feet per year subject to the availability thereof for use in Nevada under the Compact and Project Act.

Arizona entered into a contract with the Secretary of the Interior on February 9, 1944, wherein the United States agreed to deliver annually to Arizona and its water users from storage in Lake Mead so much water as might be necessary for irrigation and domestic uses in Arizona of a maximum of 2,800,000 acre-feet per year plus one-half of any surplus water unapportioned by the Compact, subject to the availability thereof for use in Arizona under the Compact and Project Act. This contract became effective on February 24, 1944, when the Arizona Legislature ratified the Colorado River Compact of 1922.

#### Mexican Water Treaty

The last 75 miles of the Colorado River flows through Mexico and land south of the International Boundary was being irrigated from the river even before the 1922 Colorado River Compact negotiations. That the negotiators were aware of this international problem on the

Colorado River is evidenced by Article III(c) of the Compact. Congress also recognized the problem in the Boulder Canyon Project Act (45 Stat. 1057) in Section 20 which reads:

"Nothing in this Act shall be construed as a denial or a recognition of any rights, if any, in Mexico to the use of the waters of the Colorado River System."

Throughout this period Mexican officials watched the rapid increase in water use of the Colorado River in the United States with apprehension.

In 1935 Congress extended the authority of the American Section of the International Boundary Commission so that the President acting through the American section authorized further studies with Mexico looking toward a treaty. The State Department consulted with the seven Colorado Basin States through the Committees of Fourteen and Sixteen. There were actually two committees. The Committee of Fourteen was made up of two representatives from each of the seven basin States. The Committee of Sixteen was composed of the same two State representatives plus two representatives from the Hoover power purchasers.

The Senate Report, *supra*, indicates that five of the seven Colorado River Basin States approved the formula which served as a basis for negotiation of the Colorado River part of the treaty. The Colorado River portion of the treaty is covered in Part III, beginning with Article 10.

A summary of the Treaty Articles dealing with the Colorado River follows:

Article 10 allots to Mexico an annual quantity of 1,500,000 acre-feet which quantity is to be delivered according to the provision of Article 15. Mexico is also allowed any other water which may arrive at Mexican points of diversion. In any year that the United States Section determines that there is excess water above the needs in the United States, and the 1,500,000 acre-feet to Mexico, the United States may deliver not to exceed 1,700,000 acre-feet, but Mexico will not acquire any right to water in excess of 1,500,000 acre-feet annually. In the event of an extraordinary drought or serious accident to the irrigation system in the United States causing delivery difficulty to Mexico, deliveries to Mexico may be reduced in the same proportion as consumptive uses in the United States are reduced.

Article 11 provided in part for the manner in which the allotted water would be delivered and established as one of the primary functions of Davis Dam the regulation of the Mexican delivery schedules which are set up under the terms of the Treaty.

Article 12 provided for the construction by Mexico of a main diversion structure on the Colorado River below the point where the northernmost part of the international land boundary line intersects the river.

In accordance with this provision Mexico completed Morelos Diversion Dam in 1950 which is operated by the International Boundary and Water Commission at the expense of Mexico.

Articles 13, 14, and 15, respectively, authorized the Commission to continue to study and make proposals for flood control measures below Imperial Dam; provided the conditions for the use of the All-American Canal and terms of payments and repayments by Mexico; and provided for delivery schedules of water to Mexico.

This Water Treaty between the United States and Mexico (Treaty Series 994 (59 Stat. 1219) became effective November 8, 1945. While the Treaty actually involved three rivers, namely, the Rio Grande from Fort Quitman, Texas, to the Gulf of Mexico, the Colorado River and the Tijuana River, only that part of the Treaty which dealt with the Colorado River has been discussed here.

It was declared by Congress in Section 202 of Public Law 90-537, Colorado River Basin Project Act, September 30, 1968, that the satisfaction of the requirements of the Mexican Water Treaty from the Colorado River constitutes a national obligation which shall be the first obligation of any water augmentation project planned and authorized by the Congress pursuant to Section 201 of the Colorado River Basin Project Act.

Minute 218, executed March 22, 1965, is a 5-year agreement relative to the quality of water delivered to Mexico in the Colorado River under terms of the Mexican Water Treaty of 1944 between the Mexican and the United States Sections of the International Boundary and Water Commission. This agreement has as its objective reaching "a permanent and effective solution" to the problem of high salinity of the waters of the Colorado River reaching Mexico.

The principal provision that was implemented as a result of this agreement was the construction of an extension to the drainage canal of the Wellton-Mohawk District to discharge return flows from the District either to the bed of the Colorado River at a point above or below Morelos Dam. This extension provides a measure of control of the salinity of the waters delivered to Mexico. This agreement provides that approximately 54,000 acre-feet of Wellton-Mohawk returns may be bypassed around Morelos Dam, and while chargeable to Mexico under this Treaty, shall not constitute a part of the basic 1,500,000 acre-feet of delivery to Mexico required by the Treaty.

The agreement also provided that the Minute would be in effect for a period of 5 years beginning on the date which the conveyance channel was placed in operation. It was further agreed that the Commission would review the resulting conditions during this period to evaluate whether a permanent and effective solution had been achieved. The date for the termination of Minute 218 was November 1970 but has been extended for 1 year.

#### Upper Colorado River Basin Compact

The Upper Colorado River Basin Compact was entered into on October 11, 1948, by the States of Arizona, Colorado, New Mexico, Utah, and Wyoming. It was ratified by the State Legislatures and consented to by Congress by Act of April 6, 1949. The Compact apportions 50,000 acre-feet a year to Arizona and divides the remainder of the Upper Basin's share of Colorado River System water in these percentages: Colorado, 51.75; New Mexico, 11.25; Utah, 23.00; and Wyoming, 14.00. Arizona, New Mexico, and Utah have areas in both the Upper and Lower Basins as defined in the 1922 Colorado River Compact.

#### Colorado River Storage Project Act

In 1956 the Congress enacted Public Law 84-485 authorizing major developments in the Upper Basin, consisting initially of four large storage units and eleven "participating" water-use projects which have since increased in number. The participating projects, for irrigation and other purposes, share in the benefits of a basin fund deriving mostly from the sale of electric power generated at the storage units.

#### U.S. Supreme Court Decree in Arizona v. California

Failure of the three Lower Basin States to achieve agreement as to the sharing of Colorado River Compact water, despite long years of negotiation and controversy, led finally to the Supreme Court suit filed by Arizona in 1952, known as Arizona v. California, et al. Arizona's filing was prompted by the refusal of a House of Representatives committee in 1951 to approve a bill to authorize Federal construction of the Central Arizona Project, a proposal to pump more than a million acre-feet of water annually from the main river into the Phoenix area until Arizona had clarified its rights to the necessary water supply. California had opposed repeated attempts at project authorization, chiefly on the ground that the river would not supply that quantity of water permanently in addition to supplying the then existing uses and commitments in the Lower Colorado River Basin.

The opinion in 1963 and the decree handed down in 1964 divided the Lower Basin's 7,500,000 acre-feet per annum among the three Lower Basin States, as follow: Arizona, 2,800,000; California, 4,400,000; and Nevada, 300,000. Any excess above 7,500,000 acre-feet is divided, 50 percent to California and 50 percent to Arizona, except that Nevada may have 4 percent if she desires, to come out of Arizona's half. The Court did not say how to divide the supply in years of less than 7,500,000 acre-feet, leaving that decision to the Secretary of the Interior unless and until Congress legislates on the subject.

However, the Court did direct that apportionment of consumptive uses would be made after first providing for present perfected rights in order of priority without regard to State lines. Present perfected rights, therefore, became a primary right which the Court defined as a Colorado River water right existing as of June 25, 1929 (the effective date of the Boulder Canyon Project Act) and which had been acquired in accordance with State law.

#### Colorado River Basin Project Act - P.L. 90-537

This act, which was signed into law on September 30, 1968, by President Lyndon B. Johnson, provided a program for the further comprehensive development of the water resources of the Colorado River Basin and for the provision of additional and adequate water supplies for use in the Upper as well as in the Lower Colorado River Basin.

The objective as stated in Title I of the Act is to provide a program for further comprehensive development of the water resources of the Colorado River Basin and for the provision of additional and adequate water supplies for use in the Upper Basin as well as in the Lower Colorado River Basin. This program was declared to be for the purposes, among other, of regulating the flow of the Colorado River; controlling floods; improving navigation; providing for the storage and delivery of the waters of the Colorado River for reclamation lands, including supplemental water supplies; and for municipal, industrial, and other beneficial purposes; improving water quality; providing for basic public outdoor recreation facilities; improving conditions for fish and wildlife, and the generation and sale of electric power as an incident of the foregoing purposes.

Title I of the Act also directs the Secretary of the Interior to continue to develop a regional water plan, consistent with the provisions of the act.

A brief summary of some of the pertinent features in the other five Titles of the Act is as follows:

Title II accomplished two significant things. First, it directs the Secretary of the Interior to conduct full and complete reconnaissance investigations for development of a plan to meet future water needs of the Western States, and to make a report in 1977. It provides, however, that studies shall not be made of water importation into the Colorado River Basin from any other natural river drainage basin lying outside of the Basin States for a period of 10 years.

Secondly, Title II declares that the satisfaction of the requirements of the Mexican Water Treaty from the Colorado River constitutes a national obligation which shall be the first obligation of any water augmentation project planned pursuant to the Act and authorized by the Congress.

Title III of the Act authorizes the Central Arizona Project works with an aqueduct capacity of up to 3,000 cubic feet per second. This section also provides that the Supreme Court Decree in Arizona v. California shall be so administered that in any year in which the Secretary determines there is insufficient mainstream water to satisfy 7,500,000 acre-feet of consumptive use in Arizona, California, and Nevada, diversions to the Central Arizona Project shall be so limited as to assure the priority to California of 4,400,000 acre-feet per year of mainstream water to satisfy present perfected rights, contract rights, and Federal reservations. This provision will not affect the relative priorities, among themselves, of water users in Arizona, Nevada, and California which are senior to diversions for the Central Arizona Project or amend any provision of the Supreme Court Decree in Arizona v. California. The limitation is inoperative in any year in which the Secretary of the Interior proclaims that means are available in the Colorado River to satisfy the annual consumptive use of 7,500,000 acre-feet in Arizona, California, and Nevada.

Power requirements for CAP pumping are provided for in Title III of the Act. The Secretary of the Interior is authorized to purchase generating capacity in thermal plants built by non-Federal utilities. This provision is a substitution for the more usual Reclamation procedure of generating hydroelectric power for water projects.

Title IV established the Lower Colorado River Basin Development Fund and provided for the allocation and repayment of costs. Costs incurred to replenish the depletion of the Colorado River flows available for use in the United States occasioned by compliance with the Mexican Water Treaty shall be nonreimbursable.

Title V of the Act authorizes five Upper Basin Projects which will benefit the Upper Basin States of Colorado, New Mexico, and Utah.

Lastly, Title VI contains the general provisions, definitions and conditions. Significantly, it directs the Secretary of the Interior to propose criteria for the coordinated long-range operation of Federal reservoirs in the Colorado River Basin. The Secretary is to comply with the "Law of the River" and follow a priority with regard to storage of water in units of the Colorado River Storage Project and releases from Lake Powell. These criteria for the coordinated long-range operation of the reservoirs were developed as provided by Section (602) and adopted by the Secretary of the Interior on June 8, 1970.

The Act authorizes appropriations of \$832,180,000 for the Central Arizona Project, and \$392,000,000 for the Upper Basin works.

STATE LAWS, POLICY,  
AND ADMINISTRATION

LEGAL AND ADMINISTRATIVE ASPECTS  
OF  
ARIZONA WATER LAW

INTRODUCTION

This report deals primarily with Arizona's water law, pertinent decrees, State regulations and institutions. In addition to summarizing the law and administrative practices relating to these subjects, some of the problems and constraints of the present system will be noted throughout the following discussion and also in the summary appraisal section.

It should also be noted that the following discussions in this report of legal documents are descriptions in general terms only. These explanations are not to be construed as legal interpretations of the documents, but are intended merely to be informative and to enlighten the reader. Persons seeking legal interpretation should refer to the original document.

HISTORY AND LAW

Surface Water

When the colonial fathers settled the eastern shores of our land they brought with them from England the common law concept of a water right--the riparian principle which, stated simply, holds that ownership of land through which a stream of water flows gives rise to certain rights in the water of the stream--a right to have the water continue to flow "as it was wont to flow," to turn one's water wheel, to water one's livestock and to drink therefrom. A right to use water apart from ownership of land riparian to the stream did not exist. However, the downstream landowner had the right to enforce the continued natural flow of the river and the upstream owner might not deplete this flow to the damage of the downstream landowner. Ownership of land bordering the stream was the sine qua non of a riparian right. The phrase "riparian right" was derived from the Latin work "ripa" meaning shore or border of a stream.

Alfred C. Lockwood, Justice of the Arizona State Supreme Court thus defined riparian water in Water Conservation District No. 1 v. Southwest Cotton Co., 39 Ariz. 65, 4 P.2d 369 as follows:

". . .the common law adopted as governing the use of such waters which is known as the doctrine of riparian rights, the fundamental principle of which was that the water could be used by riparian proprietors alone, and by them only in such a manner, aside from strictly domestic purposes, as not to diminish or alter the course or quantity of the waters of the stream to the deprivation or injury of the other riparian proprietors. Miner v. Gilmour, 14 Eng. Rep. 861, 12 Moore, 131. Navigable waters were, under the common law, considered as under the exclusive control of the Government, in trust for the general public, so far as the rights of navigation, etc., were concerned, but were otherwise subject to the usual riparian rights of owners of adjoining lands."

In the case of Stewart v. Verde Irrigation & Power District, 49 Ariz. 531 68 P.2d 329, our Court said: "At the time of the acquisition of what is now the State of Arizona from the republic of Mexico, the Government of the United States and its agent, the government of the territory of Arizona, had the right to dispose of and regulate the use of the water therein of every nature, both surface and subterranean, in its dual capacity as sovereign and as proprietor of the public domain, subject only to such rights to the use of specific waters as had previously been acquired, and to the right of use of percolating waters underlying lands then in private hands. . ."

Governor Goodwin, our first Territorial Governor, recommended adoption of Article 22 of the Bill of Rights (Comp. Laws 1864 - 1871, p. 25) which read: "All streams, lakes and ponds of water capable of being used for the purposes of navigation or irrigation, are hereby declared to be public property; and no individual or corporation shall have the right to appropriate them exclusively to their own private use, except under such equitable regulations and restrictions as the Legislature shall provide for that purpose."

Pursuant to the recommendation of Governor Goodwin, the first Territorial Legislature of the Arizona Territory in 1864 enacted: ". . .all rivers, creeks, and streams of running water are hereby declared public, and applicable to the purposes of irrigation and mining; all the inhabitants who own or possess arable and irrigable lands shall have the right to construct public or private acequias (canals) and obtain the necessary water for the same from any convenient river, creek, or stream of running water; . . ." It also prohibited the obstruction of canals ". . .as the right to irrigate the fields shall be preferable to all others."

In 1888 the Arizona Territorial Supreme Court decided the landmark case of Clough v. Wing, 2 Ariz. 371, involving the use of water of

Granite Creek, firmly establishing the doctrine of appropriative rights in Arizona and rejecting the so-called riparian doctrine.

As civilization moved westward, miners of necessity dammed streams and conducted water by flumes to lands far from the stream. The arid character of the land required that water from sources other than natural rainfall be used to water crops. The homesteader therefore likewise followed similar practices. This practice and custom was not peculiar to our West.

However, a question existed as to the legal right of the miners and settlers to follow this practice. Accordingly Congress, in 1866, enacted a statute commonly referred to as the "statute of 1866" which provided in part (14 Stat. 253): ". . . whenever, by priority of possession, rights to the use of water for mining, agricultural, manufacturing, or other purposes have vested and accrued, and the same are recognized and acknowledged by the local customs, laws and decisions of courts, the possessors and owners of such vested rights shall be maintained and protected in the same."

This was followed by what is generally called the Desert Land Act of 1877 which, in substance, severed the ownership of non-navigable water on public lands from the land so that a right to use it could be acquired and perfected apart from ownership of the land.

Thus, as Arizona achieved Territorial status, the Federal recognition of appropriative rights was echoed in our local legislation.

The riparian right doctrine was rejected by our first Legislature and the theory of appropriative right or prior appropriation was firmly established in our law both by legislative enactment and court decision.

In early days and prior to 1919 an appropriative right was gained by posting and recording a rather simple notice of appropriation thereby gaining a right dated as of the posting of the notice, which right was "perfected" when the water was put to beneficial use and the right thereupon related back to the date of posting the notice.

In 1919 our State Legislature enacted a rather comprehensive code governing the procedure which must be followed in acquiring a water right and no such right could be acquired except through compliance with those procedures.

This procedure has remained substantially as established in 1919 to this day. Briefly, an application must be filed with the State Land Department for a permit to appropriate intra-State water. If the State Land Commissioner finds the application in order he issues a

permit which authorizes construction of the necessary works. After the water is applied to beneficial use, proof is made of this fact to the Department and a Certificate of Water Right is issued to the applicant.

Our present statute, Section 45-101 A.R.S., reads in part: "The waters of all sources, flowing in streams, canyons, ravines or other natural channels, or in definite underground channels, whether perennial or intermittent, flood, waste or surplus water, and of lakes, ponds and springs on the surface, belong to the public and are subject to appropriation and beneficial use as provided in this chapter. Beneficial use shall be the basis, measure and limit to the use of water."

Thus, the definition of waters which are subject to appropriation has been enlarged from the statute enacted in 1864.

The keystone of the doctrine of appropriative rights or of "prior appropriation" is that he who is first in time has the better right--the senior in time prevails over the junior in times of shortage.

The second fundamental tenet of this doctrine is that beneficial use is the only use which can give rise to a "water right." Section 45-101, B, A.R.S., supra.

Section 45-147 provides: "As between two or more pending conflicting applications for the use of water from a given water supply, when the capacity of the supply is not sufficient for all applications, preference shall be given by the department according to the relative values to the public of the proposed use. The relative values to the public for the purposes of this section shall be: (1) Domestic and municipal uses. Domestic uses shall include gardens not exceeding one-half acre to each family. (2) Irrigation and stock watering. (3) Power and mining uses; and (4) Recreation and Wildlife including fish, as amended in 1962."

Finally, Section 45-143 provides in part: ". . . Applications for municipal uses may be approved to the exclusion of all subsequent appropriations if the estimated needs of the municipality so demand after consideration thereof and upon order of the department."

The discussion to this point has treated only the surface water aspects referred to in the statutes, Section 45-101 et seq.

#### Underground Waters

In considering the historical and legal aspects of Arizona's underground water, Section 45-101 speaks of water flowing in definite underground channels and makes it subject to appropriation.

In the important case of Howard v. Perrin, 8 Ariz. 347, the Supreme Court of the Territory of Arizona, in 1904, held that the common law governed underground water and, therefore, that the owner of the land owns not only the surface but also everything, including the underground water beneath the surface, and that percolating subterranean waters were not subject to appropriation, was and still is the law of Arizona.

So the matter rested until 1952 and the first decision of the Arizona Supreme Court in Bristor v. Cheatham, 73 Ariz. 228, 240 P.2d 185, wherein a divided court held percolating groundwater subject to appropriation, in effect overruling the Southwest Cotton Company case. Needless to say, the decision gave rise to a raging controversy and the court granted a rehearing of the matter. A new opinion, again by a divided court, reversed the first decision and held to the test of the Southwest Cotton Company case as to what water could be the subject of a valid appropriation. In substance the court held that reasonable use by a landowner of underground water was the criterion by which legal damage or lack of such damage to another landowner should be judged. If the use was reasonable there could be no legal damage even though the well of the adjoining landowner went dry. No fixed or clear formula for determining what constituted reasonable use was stated. Rather the court indicated each case must be judged upon its peculiar facts.

The Arizona Legislature adopted a groundwater code in 1948 which governed certain uses of groundwater and authorized restrictions upon drilling of additional wells in areas of critical groundwater depletion. However, this code is only applicable to irrigation wells and not to water rights as such and hence will not be considered further here. More will be said about the groundwater code in another section.

In summary then, as to the right to use groundwater, if it can be proven that the water which is being withdrawn from the underground comes from an underground stream flowing in a channel with a defined bed and banks, it is subject to the same rules which govern the right to use surface streams. With respect to the right to use percolating groundwater, the owner of the soil within and through which it is percolating has the full use to withdraw and use it, subject to the limitation that if in so doing he injures a neighboring landowner by drying up his well or unreasonably lowering his water table, then such use must be for a beneficial purpose upon the property from which the water is withdrawn and the water must be used reasonably.

Early in the development of the body of Arizona water law the Arizona Supreme Court held that the right to use water for irrigation was appurtenant to the land and that there must be a described and

ascertained tract of land upon which the water was used for the right to vest. By statute the legislature provided that if for causes beyond the control of the landowner, water could not be used on the tract to which it was appurtenant, then such right could be transferred to another tract without losing its priority date, provided the approval of the State Land Department to such transfer was obtained.

The code further provides: "A change in the use of water appropriated for domestic, municipal or irrigation uses shall not be made without approval of the department. ."

In 1962 the Legislature amended our water code and among other things specifically provided for a transfer of a water right. Chapter 113, Sec. 5 Laws 1962.

Briefly stated, this statute authorized severance of a water right from the land to which it is appurtenant or from the site of its use if used for non-irrigation purposes and transfer to other lands for irrigation or for municipal, stock watering, power and mining purposes or to the State or its political subdivisions for use for recreation and wildlife purposes (including fish) without losing priority but subject to stipulated conditions and securing required approvals.

1. Unless the right is an irrigation right transferred from one tract of land within an irrigation district to another tract within such district the severance and transfer must have the approval of the Department. A severance and transfer within a district requires only the approval of the district and the landowners involved.
2. Any other transfer must be approved by the Department which safeguards rights of others and defines and limits the amount to be used and diverted after transfer.
3. If the land is within an irrigation district no such transfer is permitted without the consent of such district and no such severance and transfer of a right to the use of water on or from any watershed or drainage area which supplies or contributes water for the irrigation of lands within an irrigation district, agricultural improvement district or water users association may be severed or transferred without the consent of the governing body of such irrigation district, agricultural improvement district or water users association.

## Loss of an Appropriative Water Right

A water right, even though evidenced by a court decree or a water certificate, may be lost in either one of two ways: by non-use for 5 years or by abandonment. Abandonment requires an intention to give up one's rights to use the water coupled with a cessation of use. There is no requirement that the intention to abandon or the cessation exist for any particular length of time. There may be either a total or a partial abandonment of an appropriation.

Under the Arizona law, the non-use of the water for beneficial purpose for 5 years constitutes a forfeiture of the water right, even though the appropriator does not intend to abandon his right. The forfeiture may be complete or partial, depending on the extent of the non-use. However, the general rule in the West is that non-use of the water for the statutory period does not cause a forfeiture if, from natural causes, there was insufficient water in the stream to supply the appropriation. Arizona would probably follow this rule.

The user has no right to waste the water even if the quantity he is diverting from the stream is within his appropriation or decreed allotment. If he is doing so, a junior appropriator has a right to compel him to cease the practice. The water right under a decree or certificate is always subject to the qualification that the water be devoted to a beneficial use.

The law does not require that the water user go to unreasonable expense to prevent the loss of water from canals or reservoirs by seepage, evaporation, or transpiration from plants. Presumably, the same rule applies to the method of applying the water to crops or other beneficial uses. In this area the rule of reason is followed.

Water in the form of subflow, underflow, or undercurrent, as it is variously called, may be appropriated. The subflow may be defined as "those waters which slowly find their way through the sand and gravel constituting the bed of the stream, or the lands under or immediately adjacent to the stream, and are themselves a part of the surface stream." Such subterranean water is considered a part of the surface stream, whose flow it tends to support and perhaps augment. The existence and lateral extent of the subflow may be determined by noting whether the pumping of the subterranean water diminishes the surface stream flow.

## Diffused Surface Water

Diffused surface water may be captured and put to a beneficial use as, for example, in ponds or small reservoirs for stock watering.

The general rule is that the proprietor of the land has a right to capture diffused surface water after it comes on his land and to put it to a beneficial use. While there appears to be no Arizona case or statute directly in point, this State probably would follow the general rule, especially since this class of water is not subject to appropriation. The proprietor does not acquire a vested right to have the water flow to his land from the neighboring lands. The owner of the adjacent higher land has a similar right and could later construct small reservoirs and capture the diffused surface water. The lower proprietor would be without legal remedy.

Water may flow after heavy rains in arroyos or washes for a few hours or days. It may not be easy to determine, in some instances, whether or not this intermittent flow constitutes a surface stream or merely diffused surface water running in small depressions. If the law of prior appropriation applies, then a vested water right may be acquired by following the required statutory procedure for making an appropriation.

#### Arizona's Groundwater Code

Concern for groundwater conservation in Arizona continued to mount during the 1930's until the legislature finally directed the State Land Commissioner in 1939 to gather information for future groundwater legislation. The result of the action was the passage of the Ground Water Act of 1945, which merely required owners and operators to report, to the State Land Commissioner, data pertaining to their wells and notice of intent before drilling new wells. Although the Act did make the first attempt to provide information about the rate of depletion, it did nothing to lessen or control the excess pumping.

On April 1, 1948, the Arizona legislature enacted the first groundwater code, which was presumably pursuant to the information so acquired from the 1945 Act. This code is found in Sections 45-301 through 45-324 of the Revised Statutes, 1956. The code does not abolish the law with respect to the ownership of the groundwater or the rules of reasonable use, which remain the basic law in Arizona. In Southwest Engineering Co. v. Ernst, 79 Ariz. 403 (1955), the Court said: "It should be emphasized that in critical areas the Act does not purport to regulate the use of groundwater between owners of land in cultivation, nor does it regulate the use of groundwater outside of critical areas with the exception that waste as defined is universally prohibited." That case held that the Code was a valid conservation measure enacted under the police power. Its primary purpose is to regulate the pumping and use of water for irrigation in critical areas in an attempt to slow down the exhaustion of groundwater.

Another purpose is to require the State Land Department to gather information regarding groundwater basin, their location, extent and depletion. The statute does, in some instances, however, curtail the freedom of the overlying owner to use his property as he sees fit.

Section 45-301 defines certain terms in part as follow: "In this article, unless the context otherwise requires:

"1. Critical groundwater area means any groundwater basin. . or any designated subdivision thereof, not having sufficient groundwater to provide a reasonably safe supply for the irrigation of the cultivated lands in the basin at the then current rates of withdrawal. . .

"3. Exempted well means a well or other works for the withdrawal of groundwater used for domestic, stock watering, domestic water utility, industrial or transportation purposes. . .

"5. Groundwater basin means land overlying, as nearly as may be determined by known facts, a distinct body of groundwater. . .

"6. Groundwater subdivision means an area of land overlying . . . a distinct body of groundwater. It may consist of any determinable part of a groundwater basin. . .

"8. Irrigation well means any well or works for the withdrawal of groundwater primarily used for irrigation purposes and having a capacity in excess of one hundred gallons per minute. . .

"14. Well means only those wells used for irrigation or drainage and having a capacity of more than one hundred gallons of water per minute."

The term "a reasonably safe supply" has not yet been construed or defined by the State Supreme Court or by an administrative regulation. In view of the legislative purpose, a groundwater basin or a subdivision thereof is probably considered as no longer having "a reasonably safe supply" for irrigation, and is therefore a critical groundwater area when the total annual withdrawal, from both irrigation and exempted wells, exceeds the annual recharge.

In a recent case handed down June 24, 1969, the Supreme Court of Arizona, in W. W. Jarvis v. The State Land Department, et al, decided that transportation of water from a critical groundwater area

to an area outside of that groundwater basin was prohibited by Arizona law. This case involved the pumping and transportation of water from Avra and Altar Valleys to the City of Tucson. The Court, in its opinion, discussed the enactment of the Groundwater Code by the State Legislature and again affirmed its application and affirmed the continuous line of cases in Arizona holding that the owner of the land has the right to make reasonable use of the percolating water beneath that land. Deciding that the transportation of the water outside the critical groundwater area by the City of Tucson would deplete the source of supply of existing users, the Court decided the transportation of the water was illegal.

#### Administration of the Groundwater Code

The Groundwater Code provides that the statute shall be administered by the State Land Department. Any person aggrieved by an order of the Department may have the decision reviewed by a Superior Court.

When the Department has obtained sufficient information, Section 45-303 requires it to issue an order designating groundwater basins and subdivisions thereof. Before the order is made, a map describing the lands to be included, together with the supporting factual data, must be prepared and filed as a public record. If justified by future conditions, the boundaries of such a basin may later be altered by the Department.

Section 45-305 provides that "no person shall drill. . .any well for the. . .use of groundwater without first filing notice of intention to drill with the department. . ." This section appears to apply to both irrigation wells and exempted wells. The notice must contain certain designated information, and the well must be completed within 1 year. No permit seems to be required by this section. Section 45-306 stipulates that a copy of the log of the drilled well be filed by the driller with the Department.

As adequate factual data become available to justify action, the State Land Department, either upon its own initiative or that of the water users, is directed by Sections 45-308, 45-309, and 45-310 to designate critical groundwater areas. Notice must first be given, and a public hearing held. The notice must contain certain specified information, and the notice and the map describing all the lands to be included must be published. Any interested person may appear at the hearing and submit evidence for or against the proposed designation.

At the conclusion of the hearing, the Department must make and file its findings of fact. If it decides to designate a critical

groundwater area, it must make, file, and publish its order to that effect, together with its findings of fact and the map of the area included. The order may later be modified or dissolved.

Section 45-312 prohibits any groundwater from an exempted well or from any well drilled in violation of certain prior session laws from being used for irrigation purposes.

Section 45-313 provides in Subsection A that: "No person, except as otherwise provided, shall construct an irrigation well in a critical groundwater area established as provided by this article without a permit therefor." Subsection B requires a person proposing to construct an irrigation well in such an area to file an application with the Land Department, which must contain the prescribed information. Subsection C states that no permit is required for the completion of any well located in such an area if the well was substantially commenced prior to the designation of the critical groundwater area and if it is completed within one year thereafter.

Section 45-314 provides in part: "A. Upon application as provided in Section 45-313, the department shall issue a permit for the construction of an irrigation well, but no permit shall be issued for the construction of an irrigation well within any critical groundwater area for the irrigation of lands which on the date the area was declared critical, were not irrigated, or had not been cultivated within five years prior thereto."

No permit is to be issued except to the owner of the land where the well is to be located or to "irrigation or agricultural improvement district or other organized irrigation project for use upon lands within the district or project." This provision appears to allow an irrigation district to pump groundwater from beneath 1 tract in the district for use on other tracts some miles away. This may conflict with the restrictive rule of the Bristor v. Cheatham case that the use of underground water must be confined to the reasonable enjoyment of the owner's overlying land.

A permit for the replacement or deepening of an existing irrigation well may be issued "upon a satisfactory showing that the well intended to be replaced or deepened will no longer yield sufficient water to irrigate the land normally supplied by it within the 5 years immediately prior to filing application for the permit." (Section 45-316)

The Department can demand that information be furnished to it regarding the use and amount of withdrawals from exempted wells in a critical groundwater area. (Section 45-318)

Waste of groundwater is prohibited, and the Department is authorized to require that all wells be equipped with certain devices to prevent waste. However, Section 45-319 states that "the reasonable withdrawal of groundwater for drainage purposes. . .shall not be construed as waste. . ."

Section 45-322 is important and provides in part: "Nothing in this article shall be construed to affect the right of the person to construct and operate an exempted well. . .nor to affect the right of any person to continue the use of water from existing irrigation wells."

With this authority granted to it by the Legislature, the State Land Department has from time to time issued orders resulting in the designation of a large part of the cultivated area of the State as critical groundwater areas. Most of the cultivated land in central and southcentral Arizona today is located in such critical areas and is closed to the drilling of new irrigation wells.

#### ARIZONA WATER DECREES

##### The Norviel Decree

Early in the history of the Little Colorado River Basin, the development of irrigated lands and the overappropriation of waters from the Little Colorado River and its tributaries progressed to the point where a court decree was necessary to establish priorities.

The decree, commonly referred to as the Norviel Decree, was filed March 24, 1904, and the final decree was issued April 29, 1918. The original decree listed 37 streamflow diversion rights dating from 1872 to 1906, and 8 reservoir rights dating from 1883 to 1898.

It was ordered, adjudged, and decreed by the Court that the acres under cultivation listed in the decree are entitled to water for irrigation from the Little Colorado River and its tributaries in order of priority rights.

The irrigation season was originally designated as April 15 to September 15 of each year, and the period September 15 to April 15 was the time designated whereby owners of reservoirs may use surplus flows from the Little Colorado River and tributaries, on a priority basis, for filling these reservoirs with water to be stored for the following irrigation season. The decree was reopened in 1961 on the basis of the restricted irrigation season and the court ruled that the water could be used during any period it was needed. This ruling was later appealed in the Arizona Supreme Court and denied in January of 1969.

### The Kent Decree

The Kent Decree, which was filed March 10, 1910, and became effective April 1, 1910, established water rights dating from 1869 to 1909 on the Salt and Verde Rivers for about 4,800 early-day irrigators in the Salt River Valley. The United States intervened and became a party to the suit to protect its interests under the canal systems and the interests of certain Indian reservations.

This original decree gave first priority in normal riverflows to those lands, designated Class A, which from the date of their reclamation had been more or less constantly irrigated. Second priority was given to those lands, designated Class B, which, while having a history of irrigation mainly from high riverflows, had discontinued cultivation before the year 1903 due to several reasons, mainly: (1) Prior appropriators' rights in time of short supply; and (2) Lack of storage facilities, resulting in an uncertain supply of water for irrigation. The third class of land is known as Class C. These uncultivated lands under the canal systems had no prior appropriation, but were given the right to apply for their proportionate share of the stored waters from the Roosevelt Dam. The Salt River Indian Reservation water rights were increased and decreed, the Fort McDowell Indian Reservation water uses were recognized, and consideration was given to their unique areas. The waters so adjudicated were to consist of normal riverflow supplemented when available from storage waters from the Roosevelt Dam. Not made a part of this decree were the water rights of the Upper Verde River lands and pumping from groundwater in the Salt River Valley.

### The Gila Decree

In order to protect the interests of the Gila River Indian Reservation in Pinal County, the United States Government, in 1925, filed a bill of complaint in U.S. District Court for and on behalf of the Indian lands, which were to constitute a part of the San Carlos Project. The complaint was filed for the purpose of having the project's water rights definitely determined and defined. Water users and canal companies, both above and below the San Carlos Reservoir, were named as parties defendant. After negotiation for a number of years, the parties by stipulation agreed to the entry of the decree which was adopted June 29, 1935. This decree is commonly referred to as the Gila Decree.

The decree recognized the early irrigation activities of the Indians and the later irrigation practices of both Indian and non-Indian water users. The court awarded lands on the Gila River Indian Reservation an immemorial right to the use of water for 35,000 acres,

and rights for 15,546 additional acres with a priority date of 1924. In addition, the court granted rights to 50,000 acres of non-Indian lands in the San Carlos Project in Pinal County with various dates of priority.

The decree also established rights and priorities for lands served by the Gila River in other divisions of the valley--such as Safford Valley, 23,512.40 acres; the Duncan-Virden Valleys of Arizona and New Mexico, 8,061.35 acres, of which the Arizona portion is 5,201.20 acres; San Carlos Indian Reservation, 1,000 acres; Winkelman Valley, Arizona, 1,335.16 acres; natural flow lands, 1,544.50 acres; and Gila Crossing District (Indian), 2,992.50 acres; for a total of 147,991.91 decreed acres. Diversion rights for non-Indian lands situated outside the San Carlos Project boundaries were granted to the various canal companies and industrial and individual water users who diverted or pumped directly from the river. Diversion rights for Indian lands are held in trust by the United States for the benefit of the Indians.

The Gila Decree not only granted direct diversion rights and priorities, but also authorized the United States to store water in San Carlos Reservoir of the San Carlos Project, to the extent of the full 1,285,000 acre-feet capacity of said reservoir, when waters are available above Coolidge Dam for such storage with a priority not later than June 7, 1924. Lands upstream from the reservoir were "apportioned" an amount of water equal to the amount stored in the reservoir and to be taken from the natural flow of the river without due regard to downstream priorities. This right to divert "apportioned" water by upstream water users is in addition to the right to divert on regular priorities.

The Decree set forth certain principles as follow:

1. Total allowable diversions from the river during each irrigation season are 6 acre-feet per acre.
2. The rate of diversion from the stream is 1 cubic foot per second for each 80 acres (may be modified under certain conditions).
3. Diversions can be made only for beneficial use.
4. The irrigation season begins January 1 and ends December 31 of each year.

The decree also provides for a commissioner appointed by the court to carry out its provisions. Regulations have been carried out under these provisions since 1936. The commissioner may appor-

tion more water to the upper valley water users as additional waters flow into the reservoir and become available as stored water.

One irrigation district is organized in Graham County. This district, which is known as the Gila Valley Irrigation District, operates as a legal entity for 11 canal companies operating in the county. There are two other canal companies--namely, Colvin Jones and T. D. Burton--that have decreed water rights from the Gila River and are not associated with the district.

#### STATE WATER AND ELECTRICAL USE ORGANIZATIONS

Described in this section, in general terms, are the Arizona statute requirements for the organization of commissions and districts whose duties are concerned with the regulation and utilization of water supplies. Except for statute excerpts, the descriptions given are for general information only, and pertinent Arizona statutes should be consulted for details.

##### State Land Department

The State Land Department was created by the Arizona Legislature in 1915. This department administers all laws relating to lands owned by, and under the control of, the State. It also administers waters within its jurisdiction.

The executive office of the department is headed by the State Land Commissioner, who is appointed by the Governor for a term of 6 years, subject to confirmation by the Senate.

The Commissioner's duties include control, supervision, appropriation, and distribution of State waters, except distribution of water reserved to water commissioners who are court-appointed under existing decrees. He makes surveys, investigations, and compilations of the State water resources and their potential development, and maintains a permanent public record of streamflow and other data relating to State water resources. He also formulates and prescribes rules and regulations governing the appropriation and distribution of water. The State Land Department also has the authority for and administration of the license issuance pertaining to weather control and cloud modification. Arizona law (ARS-45-2401) provides that such activities require approval and licensing by the State.

##### Arizona Interstate Stream Commission

Under an enabling act of January 31, 1948, the Arizona Interstate Stream Commission was created as a State agency. The governing body

of the Commission consists of seven members who are appointed by the Governor with the advice and consent of the Senate and represent not less than six separate counties of the State. Members are appointed for staggered terms of 6 years each.

The more important of the powers, jurisdiction, and authorities of the Commission are:

- "1. Prosecute and defend all rights, claims and privileges of the state respecting interstate streams.
2. Formulate plans and development programs for the practical and economical development, control and use of the water of interstate streams. . .
- "4. Apply for and hold permit and licenses from the United States or any agency thereof for reservoirs, dam sites and right of ways. . .
- "6. Negotiate and cooperate with agencies of the United States, or any state or government concerning matters within its jurisdiction, subject if required to Federal consent.
7. Investigate works, plans or proposals pertaining to interstate streams, and acquire, preserve, publish and disseminate information relating thereto which the commission may deem advisable.
8. Recommend to the governor and the legislature action to be taken on proposed contracts or agreements with other states, governments or representatives thereof."

The Commission was subsequently granted additional powers in 1962 and again in 1967 by the Arizona State Legislature. This increase in authority, as stipulated in the Arizona Revised Statutes is listed as follows:

"45-512. Additional powers

A. The Arizona Interstate Stream Commission is hereby duly authorized, for and on behalf of the state of Arizona, to consult, advise and cooperate with the secretary of the interior of the United States, as follows:

1. In the exercise of any authority conferred upon the secretary of the interior under the provisions of sections 4, 5, and 14 of the act commonly known as the Boulder Canyon project act (43 U.S.C. sec. 617-617t), as contemplated and provided in section 16 of the Boulder Canyon project act.

2. In respect to the authority of the secretary of the interior to contract for the delivery of water of the main stream of the Colorado river for use within the state of Arizona.

3. In respect to all powers and duties of the secretary of the interior under the provisions of that certain contract between the United States of America, acting by Harold L. Ickes, secretary of the interior, and the state of Arizona, acting by the Colorado river commission, entered into on the 9th day of February, 1944, pursuant to chapter 46 of the 1939 session laws of Arizona, and approved by chapter 4 of the 1944 session laws of Arizona.

4. In respect to the exercise by the secretary of the interior of any authority relative to the water of the Colorado River conferred upon the secretary of the interior by the provisions of any legislation enacted by the congress of the United States of America."

Subsections B and C of this amended act contain restrictions to the Arizona Interstate Stream Commission powers which protect Arizona's existing contracts and water rights on the Colorado River.

State Water and Power Plan (45-2501 to 2521, inclusive)

Effective March 14, 1967, the Arizona Legislature adopted a State Water and Power Plan. This Plan authorized the Arizona Interstate Stream Commission and Arizona Power Authority to construct and maintain the Central Arizona Project and the Bridge and Marble Canyon Hydroelectric Projects, together with the Montezuma and Havasu Pump Storage Power Projects. Beyond those Projects, the State Water and Power Plan also authorized such further water and power projects in addition to or in substitution of the projects just named as are specifically authorized in the future by the Legislature. This legislation, in order to carry out and effectuate its purposes, authorized the Interstate Stream Commission or Arizona Power Authority to construct works across public or private land and vested in them the right of eminent domain and the power to issue bonds and notes for financing purposes. There was also created a State Water and Power Development Fund.

State Water Engineer

The Arizona Interstate Stream Commission was also authorized and directed by legislative act of 1962 to retain the services and fix the compensation of a registered professional engineer experienced and competent in the field of hydrology. This engineer has the title of "State Water Engineer" and performs duties prescribed

by the Arizona Interstate Stream Commission, consistent with the powers and duties of the Commission.

#### Arizona Power Authority

Arizona Power Authority is a State agency created and established by the State Legislature of Arizona on March 27, 1944. Its creation was necessary because power from Hoover Dam was allotted to Arizona by the Federal Government using the words "in its sovereign capacity." The use of these words requires the State, or one of its agencies, to receive and distribute its allotted share of Hoover energy.

The governing body of the Power Authority consists of five members appointed by the Governor and approved by the State Senate. Members are appointed for staggered terms of 6 years each. Functions and responsibilities of the Authority are:

- "1. Obtain and distribute electric power generated by waters on main stem of the Colorado River.
2. Distribute available power to marketing areas of the State.
3. Acquire, construct, and operate electric transmission systems, standby or auxiliary plants and facilities; and generate, produce, sell at wholesale, transmit and deliver electric power to qualified purchasers if conducive to efficiency and convenience.
4. Enter into agreements for interconnection or pooling with projects, plants, systems, or facilities of other distributors of electric power."

#### Public Organizations

Article 13, Section 6, Arizona Revised Statutes, states: "Irrigation, power, electrical, agricultural improvement, drainage, flood control districts, and tax levying public improvement districts organized pursuant to law are public, political, taxing subdivisions of the State, and vested with all the rights, privileges and benefits, and entitled to the immunities and exemptions granted municipal corporations and political subdivisions, including immunity of its property and bonds from taxation, under this constitution or any law of the State or of the United States."

The formation of the several bodies enumerated above have much in common in organizational requirements, although they vary individually in certain details.

Generally, a formal petition from a specified number of property owners within the affected area must be presented to the appropriate county board of supervisors. After a notice of hearing is published for a specified number of days or weeks in the local newspaper, the board of supervisors holds a public hearing. Following the hearing, an election is held whereby specified residents or real property owners within the affected area accept or reject the proposed organization.

All of the organizations described in the following paragraphs, except one, have the exemptions and immunities granted to municipal corporations, with assessments collectible through county taxation channels. The exception is the irrigation water delivery district which has no municipal immunities, but functions as any private organization.

The above criteria will not be repeated in the following discussions, and pertinent statutes should be consulted for details on individual organizations.

#### Agricultural Improvement District

"No agricultural improvement district shall be formed which includes lands wholly or in part within the boundaries of a district already organized without the consent of the directors of the included district, but a district may be formed to include all of the lands susceptible of irrigation under a single system of irrigation works. . . without the consent of included districts. The included districts shall not thereby be dissolved or their existence terminated, or their assets or liabilities affected, except by and through their own voluntary proceedings in a manner provided by law."

This law is applicable to lands within the exterior boundaries of a United States Reclamation project and susceptible of irrigation by the same general system of irrigation works.

The management of the district is vested in a board of directors of three to nine members, representing three to eight division, with the directors serving a 4-year staggered term in office.

An alternate form of administration composed of 10 directors from 10 divisions may be elected to the district by appropriate resolution. A district organized under this provision must have

170,000 acres or more of land under cultivation. Under this arrangement there are 30 council members elected, consisting of 3 members from each division. The directors and councilmen must be landowners in their respective division of the district. The term of office for members and directors in the alternate form of administration is 2 years.

Organization under this act may be for any or all of the following purposes: to secure additional water; to improve or construct water storage facilities; to improve existing or construct new water delivery facilities; to provide drainage; to improve or increase existing irrigation or drainage facilities; to provide new or additional means of irrigation or drainage facilities; to reduce the cost of irrigation, drainage, and power by selling surplus water and power; to finance or refinance any construction costs or existing indebtedness.

#### Drainage District

The purpose of this law is to provide for drainage protection where it appears to the landowners to be more economical or efficient to form a separate district than to include these functions in previously formed districts. However, most irrigation districts in the State have drainage powers voted in as part of the district functions.

The drainage law is applicable only to agricultural land, and it confers title to drainage water collected to the district, and makes such water nonappropriable.

#### Electric District

An electrical district may be formed for the purpose of securing power for use, primarily for pumping irrigation water. Management of the district is entrusted in a board of directors, consisting of seven members serving 3 years each upon organization. The board has the power, with the consent of the electorate, to reduce the number of members on the board to 3 or to increase the number to 15 members. In either case, the number of members on the board shall remain an odd number.

The law provides that districts organized under this act shall have the rights and privileges granted to them by the act of Congress entitled "An act to promote the reclamation of arid lands, approved August 11, 1916," including amendments. Government lands or the Federal Government shall not be affected except as expressly authorized by the Federal Act. The board of directors may institute proceedings "for the purpose of securing the consent and official action of the secretary of the interior to make the federal act operative in the district."

A district may organize whether or not the benefits of the Federal act are obtained.

No electrical district shall be organized which includes any territory of a district already organized or in the process of organization. However, additional land may be added to a district already organized when one-third of the landowners, in the area to be included, file a signed petition with the board of directors for inclusion of the district. The proceedings and hearings for inclusion are the same as for organizing the original district, except that the original petition is presented to the county board of supervisors; whereas the petition for inclusion to a district is presented to the board of directors of the district. Also, two districts may consolidate into one district upon a favorable vote of each district. Upon favorable action of the merger, the two boards of directors will function as one board until the next annual election. Then one board of directors will be elected, with the number of members equal to the board which had the largest number of members.

#### Flood Control District

Lands to be included within the boundaries of proposed flood control districts are improved lands subject to overflow from any natural source.

Administration of the district is vested in a board of directors of three or five members, having staggered terms of office for 4 years.

"Any flood control district organized under this article shall have the power to cooperate with and receive donations from the state, from a county, city, town, or other municipality, and from responsible private corporations, associations, or individuals desiring to assist in such flood control."

In addition, counties, cities, or towns are empowered to cooperate with the United States or any authorized agency in the construction of flood control works, authorized under the Flood Control Act of 1948.

#### Irrigation District

The requirements for the organization of an irrigation district under this law are somewhat more complicated than for other types of districts, inasmuch as the signatures of a majority of property holders within the boundaries of the proposed district must be on the initiating petition.

On the organizational ballot the voters of the district may elect to include drainage powers as part of the district functions.

The board of directors, under the law, consists of three members if the district contains 10,000 acres or less, or, if the electors so choose, division may be made and one to three board members may represent each division. If more than 10,000 acres are involved, division is mandatory, but the board of directors may be made up of from one, two, or three elected from each division as the electors choose. Powers of management of the district are vested in the board of directors, but the board is limited by the wishes of the electorate to the amount the district may be bonded.

The law provides for the exclusion of lands within the exterior boundaries of the proposed district if an existing irrigation system provides water for 25 percent or more of the lands reached by the system. Also, if within 1 year additional land is added by extending the existing irrigation system, only 25 percent of the new land need be irrigated to be excluded from the district.

The law also permits the inclusion of any previously organized company, or mutual organization, upon the consent of the owner or owners, of individual or company organizations, or by the assent of a majority of stockholders or members of an interested association.

#### Power District

A power district may be formed for the purpose of supplying or securing power to irrigate croplands from a unified or individual system of power and distribution facilities.

Administration of the district is vested in a five-man board of directors serving 2 years each. Districts organized prior to March 26, 1919, may come under this law by a majority vote of the electors in the district at an election held under the provisions of the law under which the district was incorporated. No new district may include any area of another without consent of the board of directors from the district already established.

#### Irrigation Water Delivery District

A district of this type may be formed when three landowners, within the proposed district, file a petition with the board of supervisors for the formation of an irrigation water delivery district. Although the petition requires only three names, the proposed organization must be initiated by the owners of a majority of the acreage of lots or parcels, contiguous or noncontiguous, of land capable of receiving irrigation water from the same ditch or ditch system, pipeline, or system of pipes.

On inclusion of lands within another district, the petition must include:

1. Statement of purpose of petitioners.
2. Description of boundaries and acreage.
3. Location of irrigation water to be obtained.
4. Distance water will travel.
5. Written consent from the other district.

If the petition to be filed is signed by the owners of the entire acreage in the proposed district, the board of supervisors may immediately enter an order declaring the district duly organized. However, if, on or before the date of the hearing, a written protest is filed by the owners of the majority of the acreage, then the district cannot be organized.

When a district is ordered organized, it is governed by a three-member board with staggered terms of office. The district is a corporate body, and has the rights, privileges, and powers conferred by law, but the district is not considered a municipal corporation.

The district shall have perpetual succession and may:

1. Exercise power of eminent domain.
2. Make contracts.
3. Sue, and be sued, in its corporate name.
4. Acquire and hold real and personal property.
5. Borrow money.
6. Incur debts.
7. Issue warrants.
8. Levy and collect taxes.

This law provides for the organization of city, rural, and subdivision property owners for the purpose of delivering irrigation water to their residential and business holdings. It permits the pooling of individual water rights and demands to obtain rotational delivery at economical heads. It is not applicable to agricultural lands capable of service under regular deliveries.

#### SUMMARY APPRAISAL

##### General

While the courts speak of a water right as an interest in real property and permit suits to quiet title thereto as if it were real

property, in fact it has little in common with an interest in real property as we usually think of such an ownership.

Water has been characterized as wandering or fugacious. Water is not capable of true ownership. The right to use water is actually what we are talking about, for while we may apparently consume a glass of water by drinking it, it is, in due course and after it has served its biological function in our bodies, returned to the earth from whence it came to be used and re-used, but never lost or destroyed. Engineers speak of the hydrological cycle--the cycle which begins when water falls from the skies as rain only to be ultimately returned to the skies to again fall as rain.

So, from its very nature when we speak of a water right we, in fact, speak of a right to use water. Under the law relating to wild animals, once man has caught and reduced to possession the owl or the rabbit, it is his, but the minute the cage is left open and the wild animal escapes and returns to its wild state it re-enters the domain of public ownership subject to capture by the next sportsman or hunter. So it is with water. We may bottle it and say, "this is mine," but when it escapes our possessory grasp by evaporation or other process of nature, it again enters the domain of public ownership subject to capture and use by the next water user.

#### Problems Inherent in Changing Land Uses

The face of Arizona has changed greatly in the last decade. Agriculture, while still a major industry, no longer stands with the mining industry as a pivot about which the economy revolves. The green of alfalfa fields and citrus groves has been replaced by the multi-colored roofs of residences, shopping centers and like structures. The quiet and solitude of the desert, be it about Phoenix or Tucson or many of our other cities have been dispelled and broken by homes, swimming pools and riding trails.

Two areas of change in water use arising from changing land use suggest themselves. First, changes whereby lands irrigated with water secured through a valid appropriation right go out of cultivation and into residential, commercial or industrial uses. Second, changes whereby lands irrigated with percolating underground water captured through wells change to residential, commercial and industrial uses--and, of course, there are situations presenting a combination of the foregoing.

Illustrative of a changing land use are the lands within the Salt River Project served by the Salt River Valley Water Users'

Association with both appropriated surface water and water pumped from underground. The original acreage planned for irrigation under the Salt River Project was approximately 240,000 acres. Today the acreage devoted to irrigated farming is in the order of 150,000 acres. Similar changes, although possibly less dramatic, have occurred in other areas.

Another example of changing land and water use may be found in Deer Valley, long irrigated solely by groundwater pumping. It was estimated at one time, before the residential, commercial and industrial development which we now see there, that there was pumped from the underground water supply for irrigation purposes in the area one-third as much water as the entire City of Phoenix then used.

What major problems or questions then arise as land goes out of irrigated farming and is put to use for homes, places of business and for industry?

Various questions appear with respect to land irrigated with water, the use of which is based upon an appropriative right and with respect to land irrigated solely through pumping underground percolating water as they relate to change in type and amount of use.

A threshold question is whether a change in land use from agricultural to urban causes a change in water requirements on the land involved. The Salt River Valley Water Users' Association has completed one part of a three-part study of lands within the Salt River Project which so far shows m & i and irrigation use on urban lands to be nearly equal to former agricultural uses on such land. The study is continuing in concert with the Interstate Stream Commission.

Where the quantum of water used on urbanized land is substantially the same as that used when the land was devoted to agriculture, questions concerning unused water will not arise. In such cases the questions relate only to change in use. However, where the water use is less on urbanized land than it had been when the land was an irrigated farm, additional questions arise as to appropriated and unused surface water supplies.

Assume a forty-acre tract goes out of cultivation as a farm and is devoted in part to use as single-family residential lots and in part to a shopping center. Assume, further, there is no yard irrigation for either the residential area or the shopping center. In this case the m & i use will be less than past irrigation uses.

What happens to the unused portion?

A.R.S. 45-101 provides in part: "When the owner of a right to and use of water ceases or fails to use the water appropriated, for five successive years, the right to use shall cease, and the water shall revert to the public and shall again be subject to appropriation."

Where underground pumping is required to augment appropriated surface water, a diminished use on one parcel becomes available to satisfy unsatisfied appropriations for other parcels. Thus--as in areas such as Salt River and San Carlos Projects--there is no unused water which becomes subject to the appropriative process.

In light of Arizona's statutes and court decisions, the following conclusions would seem reasonable (although until further litigation confirms or rejects these suggested guide lines, it must be recognized that they are merely preliminary conclusions):

1. As to the water in urbanized areas which is continued in use by flood irrigation for lawns, shrubs and like uses, it is believed the right and its priority will not be impaired.
2. As to water, the use of which is, in fact, abandoned, if this failure to use continues for five successive years, the right is lost, and the water reverts to the public domain and is open to appropriation by any user--subject, however, in all instances to existing unsatisfied rights of other users having appropriative rights in the water supply.
3. The Arizona statutes suggest that uses of water may not be changed from one use to another without Department approval, and, if the transfer involves water use within an irrigation project or on its watershed, then, approval of the Reclamation of irrigation project is also required.

What of the land irrigated solely with water pumped from percolating underground water?

Let us assume a 160-acre tract of land irrigated from a well which, by reason of the fall of the land, is located at the northeast corner of the 160-acre tract. The northeast quarter or 40 acres upon which the well is located is sold for a subdivision and a shopping center. The southeast quarter is now in ownership different from the ownership of the tract upon which the well is located. Is it permissible for the owner of the northeast quarter to continue

pumping the irrigation well and to sell and deliver irrigation water to the southeast quarter no longer in common ownership with the tract upon which the well is located?

In the second Bristor-Cheatham case (supra) the Court quoted with approval various authorities and precedents as follows: "'But the marked tendency in American jurisdictions in later years has been away from the doctrine that the owner's right to sub-surface waters is unqualified; on the contrary there has been an ever-increasing acceptance of the viewpoint that their use must be limited to purposes incident to the beneficial enjoyment of the land from which they are obtained, and if their diversion or sale to others away from the land impairs the supply of a spring or well on the property of another, such use is not for a "lawful purpose" within the general rule concerning percolating waters, but constitutes an actionable wrong for which damages are recoverable. While there is some difference of opinion as to what should be regarded as a reasonable use of subterranean waters, the modern decisions are fairly harmonious in holding that a property owner may not concentrate such waters and convey them off his land if the springs or wells of another landowner are thereby damaged or impaired.'" (Emphasis supplied)

"'A possessor of land who, in using the subterranean water therein, intentionally causes substantial harm to a possessor of other land through invasion of the other's interest in the use of subterranean water in his land, is liable to the other if, but only if, the harmful use of water is unreasonable in respect to the other possessor.'"

"This rule does not prevent the extraction of groundwater subjacent to the soil so long as it is taken in connection with a beneficial enjoyment of the land from which it is taken. If it is diverted for the purpose of making reasonable use of the land from which it is taken, there is no liability incurred to an adjoining owner for a resulting damage."

"'. . .the rule of reasonable use as applied to percolating waters 'does not prevent the proper use by any landowner of the percolating waters subjacent to his soil in agriculture, manufacturing, irrigation, or otherwise; nor does it prevent any reasonable development of his land by mining or the like, although the underground water of neighboring proprietors may thus be interfered with or diverted; but it does prevent the withdrawal of underground waters for distribution or sale for uses not connected with any beneficial ownership or enjoyment of the land whence they are taken, if it thereby results that the owner of adjacent or neighboring land is interfered with in his right to the reasonable user of subsurface

water upon his land, or if his wells, springs, or streams are thereby materially diminished in flow or his land is rendered so arid as to be less valuable for agriculture, pasturage, or other legitimate uses.'"

These quotations from the Bristor decision point out the problem. Taken at face value, the questions force the conclusion that a landowner to the north of the well in question, if he could prove that the pumping of the well and conveyance of the water to lands other than the tract upon which the well is located unreasonably lowers his well or impairs its capacity, could enjoin such pumping.

The significant requirement of the foregoing statement is the requirement that the complaining party must prove that the pumping complained of in fact is the cause of his damage.

In conclusion, it can be stated that the picture with respect to water transfer problems is becoming clearer in light of the recent decision of 1969 of W. W. Jarvis v. The State Land Department, et al wherein the Supreme Court of Arizona concluded that transportation of water from a critical ground-water area to an area outside that ground-water basin was prohibited by Arizona law.

#### Groundwater Problems in Arizona

Unlike the more settled nature of the surface-water law, Arizona's history in the development of a groundwater law has been somewhat confusing and inconsistent. Moreover, the resulting legislation of the existing groundwater code, as evidenced in the foregoing discussion, is still a highly controversial issue. The Arizona Supreme Court has repeatedly stated that percolating waters belong to the surface landowner and may not be appropriated. Thus, the foundation of Arizona's groundwater law was established from court precedents by the distinction in that "waters percolating generally through the soil beneath the surface are the property of the owner of the soil," and "subterranean stream, flowing in natural channels, between well-defined banks, are subject to appropriation under the same rule as surface streams." (8 Ariz. 353)

Later, the courts further expanded this distinction of groundwaters in their presumption that water beneath the surface of the earth is percolating, and the burden rests on him who claims an appropriation to prove that the water comes in a definite underground channel; that is, that the stream has ascertainable beds and banks.

In principle, Arizona's groundwater code, which was enacted into legislation in 1948 (A.R.S. 45-301), simply provides a method by

which those areas not having a reasonably safe supply at current rates of withdrawal could be determined. These areas were to be defined as critical groundwater areas. The code further provides that, after the determination concerning the overlying lands within this critical groundwater area was declared, the drilling of additional irrigation wells was prohibited. Authority to enforce this action was granted to the State Land Commissioner.

The most notable aspect of the groundwater code is the complete absence of any attempt to apportion or control the use of groundwater among the overlying landowners within the critical groundwater area.

Still another frailty of the Arizona groundwater program, in both the manner prescribed by code and its execution thereof, is the lack of effective distinction between appropriative groundwaters and percolating groundwaters. The courts of Arizona have repeatedly refused to acknowledge an underground appropriation under the manner and definition prescribed by the code, and have been prone to view all contested underground waters as percolating waters subject to overlying use, and consequently not subject to the protection afforded an appropriator under Arizona's doctrine of appropriation.

#### Conclusion

In acknowledging the fact that desirable solutions to these aforementioned water issues can only be effectuated by legislation and adjudication, it must be realized that immediate resolutions cannot be expected.

There have been seriously considered and partially successful moves in Arizona and some of the other States in the region to merge at least some of the proliferation of agencies dealing with water resources development and management. Such a change in institutional arrangements may, through concentration of powers and personnel, result in more effective performance of the governmental role in this area.

## NEVADA

### State Water Law

#### Historical

A major portion of the area that is now the State of Nevada was included in the Territory of Utah, established on September 9, 1850, and the use of water had been subject to the laws of this Territory. The Territory of Nevada was created on March 21, 1861, and for several years after the organization of the Territory there were no statutes concerning water rights. Nevada was admitted to the Union as a State by proclamation of President Lincoln on October 31, 1864.

The Constitution of the State of Nevada does not contain any specific provision relating to water resources. The Constitution contained a general eminent domain clause which was construed to provide some relief in claims of water rights by due process and by condemnation for irrigation ditch right of way. During the period when Nevada was a Territory and for many years after Nevada became a State the right to the use of water was generally established under the common law doctrine of riparian rights.

#### State Water Policy

The water policy and philosophy of the State of Nevada has been developed by over one hundred years of usage beginning about 1849 for irrigation and mining, and is now contained in the Nevada Water Law, Nevada Revised Statutes of 1957, as amended. The fundamental right to the use of water in Nevada was completely changed in 1885 by a Nevada Supreme Court decision reversing its stand with respect to the riparian right doctrine and has since applied the doctrine of prior appropriation. The Court concluded that the riparian doctrine did not serve the wants and necessities of the people for either mining or agriculture.

The State water policy, procedure for acquiring a right to use water by adjudication and by appropriation, the administration for the conservation, regulation and distribution of the public water of the State above and below the ground are provided by statute in the Nevada Water Law under Chapters 533 through 544, inclusive, Nevada Revised Statutes of 1957, as amended.

Statutes relating to water were enacted by the Nevada legislature as early as 1866. Court decisions were the guidelines for the legislature to enact statutes to attempt to bring some order out of the chaos created by early mining booms and irrigation development in the semi-arid State of Nevada.

The basic concept of the present Nevada Water Law was developed from the Act of 1903, approved on February 16, 1903, which declared all natural water courses and natural lakes, and the waters thereof, belong to the public and are subject to appropriation for a beneficial use, and the right to the use of water so appropriated for irrigation shall be appurtenant to the land to be irrigated, and beneficial use shall be the basis, the measure and the limit of the right. The philosophy of the Act of 1903 was amended and further expanded by major legislation in the Acts of 1905, 1913, and 1939. The 1913 legislation provided a law for the conservation of underground waters and declared all sources of water supply within the boundaries of the State whether above or beneath the surface of the ground belong to the public. The Act of 1939, approved March 25, 1939, provided the first specific legislation for the regulation of underground waters as distinguished from all previous legislation relating to surface waters.

It is interesting to note that an Act of 1879 to encourage sinking of artesian wells provided a bounty of \$2.00 per foot after the first 500 feet if the well flowed beneficially. An Act of 1887 provided a bounty of \$1.25 per foot for sinking an artesian well if the well furnished 7,000 gallons of water every 24 hours flowing continuously for 30 days.

#### Case Law

In the early years of the Territory and later of the State application and use of water under the riparian doctrine on mining claims, where title was vested in the Federal Government, proved unsatisfactory and resulted in continuous litigation and conflict. The courts attempted to provide orderly development of the water resources by considered decisions but the applicability of the riparian doctrine did not suit the conditions prevailing in the State. Court decision did influence the legislature to enact laws to govern the regulation of water by statutory provisions which have been developed and expanded to the present Nevada Water Law.

#### Early Application of Appropriation Doctrine

Lodell v. Simpson, 2 Nev. 274, 278-279 (1866). The Supreme Court recognized and applied the doctrine of appropriation in its first reported decision in a controversy over water rights following the doctrine well settled in California that as between persons claiming rights to the use of water, merely by the appropriation of the water, the one has the best right who is the first in time. The court discussed the rights of a riparian proprietor, but specifically withheld comment as to what it might have held if the plaintiff had relied upon his rights as a riparian proprietor rather than as an actual appropriator.

#### Early Appropriation Doctrine on Public Lands

Ophir Silver Mining Co. v. Carpenter, 4 Nev. 534, 543 (1869). The court stated that where the right to the use of running water is based

upon appropriation and not upon an ownership in the soil, it is the generally recognized rule in Nevada that priority of appropriation gives the superior right. In *Convington v. Becker*, 5 Nev. 281, 282-283 (1869) the parties had agreed that the only title to the lands of the plaintiffs and defendants was a possessory one, the fee being in the Federal government; hence there could be no basis for a claim of riparian rights in the case.

#### Nevada Riparian Doctrine

*Vansickle v. Haines*, 7 Nev. 249, 256, 257, 260-261, 265, 258 (1872). The Nevada Supreme Court held that the common law was the law of Nevada and must prevail in all cases where the right to water was based upon absolute ownership of the soil; that running water was primarily an incident to or part of the soil over which it naturally flowed; that the right of the riparian proprietor was a right incident to his ownership of the land to have the water flow in its natural course and condition, subject only to certain uses by other riparian proprietors; and that a patent from the United States issued prior to the passage of the Act of 1866, conveyed to the patentee not only the land but the stream naturally flowing through it.

#### Repudiation of Riparian Doctrine

*Jones v. Adams*, 19 Nev. 78, 84-88, 6 Pac. 442 (1885). The Nevada Supreme Court reversed its stand with respect to riparian rights and concluded that the riparian doctrine did not serve the wants and necessities of the people for either mining or agriculture and has since applied the doctrine of prior appropriation.

#### Water Right Appurtenant to Land

*Prosoli v. Steamboat Canal Co.*, 37 Nev. 154, 161, 140, Pac. 720, 144 Pac. 744 (1914). It is well settled in Nevada and in the arid region generally that a water right for agricultural purposes, to be available and effective, must be attached to the land and become in a sense appurtenant thereto by actual application of the water to beneficial use.

#### Beneficial Use

*Union Mill & Mining Co. v. Dangberg*, 81 Fed. 73, 97 (D. Nev. 1897). An excessive diversion of water for any purpose cannot be regarded as a diversion to a beneficial use. Water in this State is too scarce, needful, and precious for irrigation and other purposes to admit of waste.

*In re. Manse Spring and Its Tributaries*, 60 Nev. 280, 286, 108 Pac. (2d) 311 (1940). An appropriative right is a usufructuary right, and the basis of its acquisition is beneficial use.

### Reservation Doctrine

United States v. Walker River Irrigation District, 104 Fed. (2d) 334, 335-336, 339-340 (C. C. A. 9th, 1939). The Federal Circuit Court of Appeals of the Ninth Circuit held that in the establishment of the Walker River Indian Reservation there was an implied reservation of water to the extent reasonably necessary to supply the needs of the Indians, even though there was no agreement or treaty with the Indians in connection therewith, the Indians being at that time at war with the whites. The court in the holding determined specific quantities of water for the Indian Reservation for specific purposes.

State of Nevada Ex Rel Hugh Shamberger v. United States 165 F. Supp. 600 (D. Nev. 1958). The State of Nevada sought a declaration that the United States may not make use of underground waters developed by wells located on a military reservation (U.S. Naval Ammunition Depot, Hawthorne, Nevada) without applying therefore pursuant to State law. The United States District Court, District of Nevada dismissed the complaint by decision dated August 27, 1958, on the grounds that there is no mandate in constitutional, statutory, or decisional law that compels the Federal Government to bend its knee to State law and regulation.

### Doctrine of Relation

Ophir Silver Mining Co. v. Carpenter, 4 Nev. 534, 543-544 (1869). If the works of constructing facilities, diverting, and using water is prosecuted with reasonable diligence, the date of priority of the right relates back to the time when the first step was taken to obtain the right. If, however, the work is not prosecuted with reasonable diligence, then the priority of the right does not relate back, but generally dates from the time when the work is completed or the appropriation fully perfected.

### Prescriptive Right

Application of Filippini, 66 Nev. 17, 22-23, 26-27, 202 Pac. (2d) 535, 538, (1949). The Nevada Supreme Court pointed out that an appropriation of water is an original acquisition from the Government by diversion and use and that no rights can be acquired against or from the Government by prescription, and hence there can be no appropriation by prescription.

### Developed Waters

Cardelli v. Comstock Tunnel Co., 26 Nev. 284, 293, 295, 66 Pac. 950 (1901). Developed waters are the property of the persons who develop them. Such waters are not like waters running in streams on the public domain of the United States. They are produced by the capital, labor, and enterprise of those developing them, and by such developing they become the property of those engaged in the enterprise. (Superceded - See Attorney General Opinion # 331-4/25/66.)

## ATTORNEY GENERAL OPINIONS

### Date of Appropriation

Opinion No. 94 dated October 14, 1919. The right to the water relates to the initiation by appropriation in the method prescribed by law and not to the time of application of the water to a beneficial use. However, the right once initiated is subject to forfeiture if future provisions of law are not pursued, but when once the law has been fully complied with, the right becomes irrevocable and thereafter may only be lost by abandonment or for some similar reason.

### Military Reservation

Opinion No. 740 dated April 19, 1949. The cession of jurisdiction over the land comprising the U. S. Naval Ammunition Depot at Hawthorne, Nevada, as contained in Chapter 144, Statutes of Nevada 1935, did not cede the jurisdiction of the State and/or its Water Law over and concerning the waters upon and in the lands comprising the Naval Depot.

### Geo-thermal Steam

Opinion dated August 12, 1965. Applications to appropriate geo-thermal steam are within the jurisdiction of the State Engineer and are to be administered under the provisions of the present Nevada Water Law.

### Developed Water

Opinion No. 331 dated April 25, 1966. Developed water is subject to appropriation and that the precedent of *Cardelli v. Comstock* is superseded by statutory water laws.

## ACQUISITION OF A WATER RIGHT

### General

Nevada Revised Statutes, Chapter 533, Sections .010 through .850, inclusive, express generally the basic concept and philosophy of the present Nevada Water Law. Sections .090 through .320, inclusive, provide the authority for the adjudication of claims of vested water rights which were initiated and used beneficially prior to legislation. Sections .325 through .435, inclusive, are the statutory procedure for appropriating the public waters and perfecting a water right.

### Adjudication

NRS 533.090 through 533.320, inclusive, provides the procedure for the adjudication of a claim of a vested water right where the use was

initiated prior to legislation. Claims of a vested right on surface waters must include evidence of application of water to a beneficial use prior to March 1, 1905. Claims of a vested right from an underground source must include evidence of application of water to a beneficial use prior to March 22, 1913, for water from an artesian well or definable aquifer and prior to March 25, 1939, for a well from percolating waters.

Adjudication to determine the relative rights to the use of the water on a stream system or within an underground basin may be commenced upon petition to the State Engineer signed by one or more water users. In the absence of a petition the State Engineer is required to enter an order for the determination of the relative rights to the use of the water on any stream system or underground basin selected by him if he finds the facts and conditions to justify an order. The proceeding begins with an examination of water supplies, diversions and irrigated lands, and taking proofs of appropriation filed by all claimants. Based upon these findings, a preliminary order of determination of water rights is made. The State Engineer's final order of determination, made after the hearing of objections, together with evidence taken, is filed in the appropriate district court as the basis of a civil action. Hearings are held by the court upon the exceptions. At the conclusion of the proceeding, the court enters a decree affirming or modifying the order of the State Engineer.

The above sections also provide for water distribution and regulation on adjudicated stream systems with annual budget certified to the board of county commissioners.

#### Appropriation of Public Waters

NRS 533.325 through 533.435, inclusive, provides the complete procedure for appropriation of the public waters of the State whether above or beneath the surface of the ground. Each application for a permit to appropriate water shall contain the following information:

1. The name and post office address of the applicant, and if the applicant is a corporation, the date and place of incorporation.
2. The name of the source from which the appropriation is to be made.
3. The amount of water which is desired to be appropriated, expressed in terms of cubic feet per second, except in an application for a permit to store water, where the amount shall be expressed in acre-feet.
4. The purpose for which the application is to be made.

5. A substantially accurate description of the location of the place at which the water is to be diverted from its source, and if any of such water is to be returned to the source, a description of the location of the place of return.
6. A description of the proposed works.
7. The estimated cost of such works.
8. The estimated time required to construct the works, and the estimated time required to complete the application of the water to a beneficial use.
9. The signature of the applicant or his properly authorized agent.

A fee of twenty-five (\$25.00) dollars is required by NRS 533.435 to accompany an application to appropriate the public waters. Fifteen (\$15.00) dollars of this fee is used to publish the application in the county where the diversion is made for five successive weeks. The State Engineer requires a map to accompany an application prepared by a State Water Right Surveyor and showing the point of diversion tied to a Government land survey marker and the place of use shown by 40 acre subdivisions. NRS 533.365 provides for a thirty (30) day period after the date of the last publication for filing a protest against the granting of an application. A protest must be received by the State Engineer in duplicate within thirty (30) days after the date of the last publication of the application to appropriate and accompanied by a ten (\$10.00) dollar statutory filing fee.

If the application to appropriate water does not interfere with prior rights at the source and no protests have been received the State Engineer will issue a permit to the applicant. The permit will allow the permittee a limited time to develop the water to a beneficial use with some extension of time for good cause. Certain proofs of due diligence are required and upon filing an acceptable proof of beneficial use the permittee will receive a certificate from the State Engineer as evidence of his appropriation and perfecting of the right.

The point of diversion, manner or place of use of an existing water right may be changed upon application to the State Engineer. If there is no interference with existing rights at the source of the proposed change the State Engineer will issue a permit granting a limited time to complete the change and develop the water to a beneficial use. Applications to change must be submitted on a prescribed form accompanied by a map showing the existing works and the location of the proposed works and with a thirty (\$30.00) dollar statutory fee. The application to change is then published for five consecutive weeks with a thirty (30) day period after the date of the last publication for filing protests.

### Beneficial Use

NRS 533.035. Beneficial use shall be the basis, the measure, and the limit of the right to the use of water. NRS 533.030 (2) declares that the use of water for any recreational purpose is a beneficial use. Under NRS 533.400 the proof of beneficial use deposition submitted to the State Engineer shall include the following information:

1. The name and post office address of the person making such proof.
2. The number and date of the permit for which proof is made.
3. The source of water supply.
4. The name of the canal or other works by which the water is conducted to the place of use.
5. The name of the original person to whom the permit was issued.
6. The purpose for which the water is used.
7. If for irrigation, the actual number of acres of land upon which the water granted in the permit has been beneficially used, giving the same by 40-acre legal subdivisions when possible.
8. An actual measurement taken by a licensed State water rights surveyor or an official or employee of the State Engineer's office of the water diverted for such use.
9. The capacity of the works of diversion.
10. If for power, the dimensions and capacity of the flume, pipe, ditch, or other conduit.
11. The average grade and difference in elevation between the termini of such conduit.
12. The number of months, naming them, in which water has been beneficially used.
13. The amount of water beneficially used, taken from actual measurements, together with such other data as the State Engineer may require to acquaint himself with the amount of appropriation for which the proof is filed.

The Proof of Beneficial Use deposition is submitted to the State Engineer with a one (\$1.00) dollar statutory fee and accompanied by a map on tracing linen prepared by a licensed State water right surveyor.

The map must show with substantial accuracy the following:

- (a) The point of diversion by legal subdivision or by metes and bounds from some corner, when possible, from the source of supply.
- (b) The traverse of the ditch or other conduit, together with cross-sections of the same.
- (c) The legal subdivisions of land embraced in the application for the permit and the outline by metes and bounds of the irrigated area with the amount thereof.
- (d) The average grade and the difference in elevation of the termini of the conduit, and the carrying capacity of the same.
- (e) The actual quantity of water flowing in the canal or conduit during the time the survey was being made.
- (f) The map must bear the affidavit of the surveyor or engineer making such survey and map.

After satisfactory proof has been made to the State Engineer that water has been placed to beneficial use under any application to appropriate water or any application to change the point of diversion, manner or place of use, the State Engineer shall issue to the holder of the permit, his assign or assigns a certificate setting forth:

- (a) The name and post office address of the appropriator, his assign or assigns.
- (b) The date, source, purpose and amount of appropriation.
- (c) If for irrigation, a description of the irrigated lands by legal subdivisions, when possible, to which the water is appurtenant.
- (d) The number of the permit under which the certificate is issued.

The certificate is then recorded in the county in which the water is diverted from its source at the expense of the owner of record within thirty (30) days after issuance.

#### Eminent Domain

NRS 533.050. The beneficial use of water is hereby declared a public use, and any person may exercise the right of eminent domain to condemn

all lands and other property or rights required for the construction, use and maintenance of any works for the lawful diversion, conveyance and storage of waters.

#### Prescriptive Rights Prohibited

NRS 533.060, Section 3. No prescriptive right to the use of such water or any of the public water appropriated or unappropriated can be acquired by adverse user or adverse possession for any period of time whatsoever, but any such right to appropriate any of such water shall be initiated by first making application to the State Engineer for a permit to appropriate the same as provided in this Chapter and not otherwise.

#### State Water Right Surveyors

NRS 533.080 provides for the appointment of State Water Right Surveyors to prepare all maps, surveys and measurements of water required under the provisions of this Chapter. Appointment as a State Water Right Surveyor is made upon application to the State Engineer by any registered engineer or land surveyor, qualified and registered in the State of Nevada. The State of Nevada is not liable for the compensation of any State Water Right Surveyor, but shall be paid by the person employing him.

#### Assignment of Water Rights

NRS 533.385 provides the authority to assign any application to appropriate water or permit issued by the State Engineer to another person only if he is authorized under statute to acquire the same in the first instance. No such assignment is binding, except between the parties thereto, unless filed for record in the office of the State Engineer.

#### Loss of Water Right

Surface waters. NRS 533.060, Section 2 provides that in case the owner of any such ditch, canal, reservoir, or any other means of diverting any of the public water shall fail to use the water therefrom or thereby for beneficial purposes for which the right of use exists during any 5 successive years, the right to so use shall be deemed as having been abandoned, and any such owner or owners shall thereupon forfeit all water rights, easements and privileges appurtenant thereto theretofore acquired, and all the water so formerly appropriated by such owner or owners and their predecessors in interest may be again appropriated for beneficial use the same as if such ditch, canal, reservoir or other means of diversion had never been constructed, any qualified person may appropriate any such water for beneficial use.

Ground water. NRS 534.090, Section 1 provides that failure for 5 successive years on the part of the holder of any right, whether it be

an adjudicated right, an unadjudicated right, or permitted right, and further whether such right be initiated after or before March 25, 1939, to use beneficially all or any part of the underground water for the purpose for which such right shall be acquired or claimed, shall work a forfeiture of both undetermined rights and determined rights of the right to the use of such water to the extent of such nonuse. Upon the forfeiture of a right to the use of ground water, such water shall revert to the public and shall be available for further appropriation, subject to existing rights.

NRS 534.090, Section 2 provides that a right to use underground water whether it be vested or otherwise may be lost by abandonment. If the State Engineer, in investigating a ground water source, upon which there has been prior right, for the purpose of acting upon an application to appropriate water from the same source, is of the belief from his examination that an abandonment has taken place, he shall so state in his ruling approving the application.

#### Appeals

NRS 533.450 provides that any person aggrieved by any order or decision of the State Engineer may have the same reviewed by a proceeding for that purpose initiated in the proper court within thirty (30) days following the rendition of the order or decision.

#### GROUND WATER

NRS 534.010 through 534.230, inclusive, provides for the conservation and distribution of underground waters within the boundaries of the State of Nevada. The Act of 1939 approved March 25, 1939, as amended became Chapter 534 under the Nevada Revised Statutes of 1957, and was the first legislation specifically designed for the regulation and administration of underground waters. This Chapter authorizes the State Engineer to designate ground water basins, to establish preferred uses of water within such basins, and to limit withdrawals and to issue temporary permits to appropriate ground water which may be revoked when water can be served by a municipality or water district.

#### License Well Drillers

Chapter 534 further provides for the annual licensing of well drillers upon application to the State Engineer who are also licensed as a well driller by the State Contractor's Board.

#### Domestic Wells Excepted

NRS 534.180 provides that no section under Chapter 534 shall apply in the matter of obtaining permits for the developing and use of underground water from a well for domestic purposes where the draught does not exceed a daily maximum of 1,440 gallons.

### DAMS AND OTHER OBSTRUCTIONS

NRS 535.010 through 535.120, inclusive, provides for the construction, reconstruction and alteration of dams upon application and approval of plans and specifications by the State Engineer. Dams and other obstructions may be inspected by the State Engineer with authority to safeguard life and property.

### DITCHES AND CANALS

NRS 536.010 through 536.120, inclusive, provides for the regulation and maintenance of ditches, canals, flumes and other conduits by the State Engineer.

### NAVIGABLE BODIES OF WATER

NRS 537.010 through 537.030, inclusive, declared the Nevada portion of the Colorado River, the Virgin River and Winnemucca Lake navigable and title to lands below the high water mark of both the Colorado River and the Virgin River and title to the bed of Winnemucca Lake to be held by the State.

### INTERSTATE COMPACTS

NRS 538.010 through 538.570, inclusive, provides authority for compacts and commissions of interstate waters.

#### Colorado River

NRS 538.010 provides for Nevada's ratification of the Colorado River Compact in compliance with the terms of the Boulder Canyon Project Act.

NRS 538.040 to 538.260, inclusive, establish and delineate the duties of the Colorado River Commission, which is thereby required to represent and act for Nevada in all matters concerning the Colorado River. The Commission holds and administers, for the state, all rights and benefits pertaining to distribution of power and water originating from the Colorado.

Persons desiring to use Colorado River water are required by NRS 538.170 to obtain a permit from the State Engineer in compliance with Chapter 533 NRS. Such prospective appropriators must also obtain the contracts required by the Colorado River Decree, Arizona v. California, 376 U. S. 340 (1964), through the Colorado River Commission.

### IRRIGATION DISTRICTS

NRS 539.010 through 539.783, inclusive, provides the authority to establish Irrigation Districts within the State of Nevada with broad powers of eminent domain, acquire property, distribute water within the district, to call for

bids for proposed works and issue funding or refunding bonds and to generate, transmit or sell electricity.

#### DRAINAGE DISTRICTS

NRS 540.010 through 540.790, inclusive, provides for the organization of Drainage Districts within the State of Nevada with authority to plan a system of canal or canals, drains, drain ditches, and works where petitioned in accordance with this section.

#### WATER CONSERVANCY DISTRICTS

NRS 541.010 through 541.420, inclusive, provides for establishing Water Conservancy Districts within the State of Nevada for the conservation and development of the water and land resources and for the greatest beneficial use of water within the State.

#### WATERSHED PROTECTION DISTRICTS

NRS 542.010 through 542.090, inclusive, provides the authority to establish Watershed Protection and Flood Prevention Districts within the State of Nevada with powers of public, quasi-municipal corporation.

#### FLOOD CONTROL DISTRICTS

NRS 543.010 through 543.840, inclusive, provides for Flood Control and Flood Control Districts by participation by the State of Nevada, Counties, Cities and Public Districts with the United States in flood control projects. This Chapter provides the authority to establish Flood Control Districts and defines the powers and duties of a board of directors to tax and bond and with the right of eminent domain within the district.

#### WEATHER MODIFICATION RESEARCH

NRS 544.010 through 544.240, inclusive, provides for Weather Modification Research and Regulation of Weather Modification Operations.

#### WATER POLLUTION

NRS 445.050 designates the Department of Health and Welfare as the State Water Pollution Agency for all purposes of the Water Quality Act of 1965, Public Law 89-234. NRS 445.060 grants the powers and outlines the duties of the State Water Pollution Agency to cooperate with all agencies of the Federal Government in all matters relating to water pollution.

The State of Nevada through the Department of Health and Welfare has prepared and submitted "Interstate Water Quality Standards and a Plan of

Implementation" to the Federal Water Pollution Control Administration, Department of the Interior prior to the July 1, 1967, date as required under the Water Quality Act of 1965, Public Law 89-234.

#### FEDERAL AGENCIES

##### Bureau of Land Management

A total of approximately 87.1 percent of the land in the State of Nevada is public domain with title resting with the United States Government, the majority of which is managed by the Department of the Interior, Bureau of Land Management.

##### U. S. Forest Service

Federally owned lands under the jurisdiction of the U. S. Forest Service totals 7.7 percent of the total lands in the State of Nevada and approximately 9.0 percent of the total land held by the United States Government.

#### STATE AGENCIES

##### Department of Conservation and Natural Resources

This Department was created in 1957 by Nevada Revised Statutes 232.010 to 232.158, inclusive. The divisions of the Department of Conservation and Natural Resources consist of:

1. Division of Water Resources  
Administered by the State Engineer  
appointed by the Director.
2. Division of State Lands  
Administered by the Director as ex officio  
state land register.
3. Division of Forestry  
Administered by the State Forester  
Firewarden appointed by the Director.
4. Division of Oil and Gas Conservation  
Administered by the Director in cooperation  
with the Nevada Oil and Gas Conservation  
Commission.

5. Division of State parks  
Administrated by an administrator appointed  
by the Director.
6. State committee on federal land law with the  
Director to serve as chairman and the appoint-  
ment of the assistant director to act as secretary.

The Director of the Department of Conservation and Natural Resources is the executive head of the Department and directs and supervises all administrative and technical activities of the Department. The Director is responsible to formulate the policy and direct the activities of the Department and the various divisions. The Director may adopt, amend and rescind rules and regulations, plan studies and investigations of the Department and Divisions. The Director also coordinates all studies in the State of Nevada concerned with the supply, development, use and conservation of water.

#### Department of Health and Welfare

Pursuant to the Water Quality Act of 1965, Public Law 89-234, the Division of Health has prepared and submitted "Interstate Water Quality Standards and a Plan of Implementation" to the Federal Water Pollution Control Administration prior to July 1, 1967.

Nevada Revised Statutes 445.050 designates the Department of Health and Welfare as the State Water Pollution Agency for all purposes of the Water Quality Act of 1965. NRS 445.060 grants the powers and outlines the duties of the State Water Pollution Agency to cooperate with all agencies of the Federal Government in all matters relating to water pollution.

#### Public Service Commission

The Division of Water Resources consults and reviews all applications for permission to appropriate water for public sale and distribution with the Public Service Commission. The applicant must submit evidence to the Division of Water Resources of having filed an application for a Certificate of Public Convenience and Necessity with the Public Service Commission before a permit to appropriate water will be granted.

#### State Board of Registered Professional Engineers

NRS 533.080, Section 2 provides that any registered professional engineer or land surveyor, qualified and registered in the State of Nevada, who has a practical knowledge of surveying or engineering and who is familiar with land surveying and mapping and the measurement of water, and who is of good moral standing, shall be considered for appointment as a State Water Right Surveyor upon application to the State Engineer.

The application shall be in form prescribed by the State Engineer and shall be accompanied by a fee of \$25.

#### State Board of Contractors

NRS 534.140, Section 1 provides that every well driller, before engaging in the physical drilling of a well in the State of Nevada for the development of water, shall annually make application to the State Engineer for a license to drill. NRS 534.140, Section 7 requires every well driller, before engaging in the physical drilling of a well in this State for the development of water, who is the owner of a well-drilling rig, or who has a well-drilling rig under lease or rental, or who has a contract to purchase a well-drilling rig, shall obtain a license as a well driller from the State Board of Contractors.

#### LOCAL AGENCIES

##### Irrigation Districts

Nevada Revised Statutes, Chapter 539 provides the authority for the formation of an irrigation district by petition of a majority of land owners within the proposed district without regard to county boundaries. Irrigation Districts are granted broad powers under authority of Chapter 539 as follows:

1. Right of eminent domain.
2. Acquire property by purchase.
3. Distribute, sell or lease water.
4. Reject bids or award contract for proposed work.
5. Issue and sell funding bonds.
6. Generate, transmit or sell electricity.
7. Levy assessments.
8. Form improvement districts.
9. Make agreements with districts of adjoining states.

##### Drainage Districts

Nevada Revised Statutes Chapter 540 provides the authority to organize a drainage district by petition of a majority of the land

owners within the proposed district without regard to county boundaries. A drainage district is administered by a Board of Supervisors appointed by the County Commissioners of the county having the largest land area of the district located within the county. Under the authority of Chapter 540 the Board of Supervisors of a drainage district have the following powers:

1. Condemn property.
2. Acquire property by purchase.
3. Plan a system of canals, drains or drain ditches on lands proposed to be drained.
4. Reject bids or award contracts for proposed works.
5. Issue and sell funding bonds.
6. Submit assessments to County Commissioners.
7. Merge or consolidate with an irrigation district.

#### Water Conservancy Districts

Nevada Revised Statutes Chapter 541 vests the district courts with jurisdiction to establish water conservancy districts. Chapter 541 does not grant the district courts jurisdiction to settle questions of priority of appropriation of water for irrigation purposes from the same stream or its tributaries.

A water conservancy district may be formed by petition of at least 20 percent of the owners of land within the proposed district to be filed with the clerk of the district court. District court appoints a board of directors with broad powers for the conservation and development of the water and land resources and for the greatest beneficial use of water. Under the authority granted by Chapter 541 the board of directors have the following powers on behalf of the district:

1. Perpetual succession.
2. Acquire all water, waterworks, water rights and sources of water supply and real and personal property.
3. Exercise power of eminent domain.
4. Construct and maintain works across any stream or watercourse in accordance with State Law.

5. Construct with United States or any agency to construct, preserve, operate and maintain tunnels, drains, pipelines, reservoirs, basins, diversion canals and works, dams and powerplants. Also to acquire and sell or dispose of perpetual rights to the use of water and electrical energy from such works.
6. Distribute water on basis of beneficial use and levy assessments.
7. Fix rates for equitable sale or lease of water not allotted to lands in the district.
8. Enter contracts for personal services.
9. Adopt plans and specifications for construction and operation of works.
10. To appropriate and acquire water and water rights to develop, store and transport water; subscribe for, purchase and acquire stock in canal companies, water companies, and water users associations; to provide, sell, lease and deliver water for municipal and domestic purposes, irrigation, power milling, manufacturing, mining, metallurgical and any and all other beneficial uses and to derive revenue and benefits therefrom; fix terms and rates thereof.
11. Generate electrical energy and contract for the generation, distribution and sale of such energy.
12. Invest surplus money in the district treasury.
13. Borrow money and incur indebtedness.
14. Adopt laws not in conflict with constitution and laws of the state.

NRS 541.410 provides for a liberal construction of Chapter 541 to secure and preserve public health, safety, convenience and welfare.

#### Watershed Protection and Flood Prevention Districts

Nevada Revised Statutes Chapter 542 provides the authority to create a watershed protection and flood prevention district not to exceed 750,000 acres by a petition to the county commissioners by 10 percent of the owners of property within the proposed district.

A watershed protection and flood prevention district established under Chapter 542 has powers of public, quasi-municipal corporation to:

1. Cooperate with the State of Nevada and any agencies of the United States or any public or private corporations in the investigations or construction of any works of improvement for controlling flood or storm waters or for protection of life or property, or for conservation of water to beneficial use within the district.
2. Prevent damage to watersheds and to further conservation, development, utilization and disposal of water.
3. Acquire property necessary to exercise power granted to district by purchase or condemnation.
4. Borrow money from flood control revolving fund in state treasury.

#### Flood Control Districts

Nevada Revised Statutes Chapter 543 provides the authority to establish flood control districts by county commissioners in any county having a population of 100,000 or more. The board of county commissioners are vested with the jurisdiction, power, and authority to organize a district by adoption of an ordinance.

NRS 543.020. Declaration of policy of State of Nevada to cooperate with agencies of United States and with the counties, cities and public districts of the state in preventing loss of life and property, disruption of commerce, interruption of transportation and communication and waste of water resulting from floods, and in furthering the conservation, development, utilization and disposal of water.

Board of directors appointed by the county commissioners govern the district and have power to:

1. Acquire, construct, maintain and operate projects, improvements and facilities to control flood and storm waters.
2. Conserve such waters for beneficial and useful purposes.
3. Prevent waste of water or diminution of the water supply.
4. Exercise right of eminent domain.
5. Borrow money and issue bonds.
6. Levy and collect taxes.

NRS 543.220 provides for a liberal construction of Chapter 543 to secure public health, safety, convenience and welfare.

#### Weather Modification Research

Nevada Revised Statutes Chapter 544 provides the authority for the State Department of Conservation and Natural Resources to conduct weather modification research programs. The director of the state department of conservation and natural resources is authorized to:

1. Establish advisory committees concerning legislation, policies, administration and research.
2. Establish by regulation or order a standard to govern extent of research project.
3. Conduct such studies and investigations deemed necessary.
4. Appoint and fix compensation of personnel including specialists and consultants.
5. Cooperate with public or private agencies.
6. Represent the state at any and all plans, procedures or negotiations for interstate compacts relating to weather modification and control.
7. Act for and represent the state, counties, cities and private or public agencies in contracting for performance of weather modification or cloud seeding operations.

#### Advisory Boards

Nevada Revised Statutes Chapter 534 provides for appointment of two advisory boards which are unique in ground water basin management.

1. Within a designated ground water basin the governing body or water board shall furnish advice or assistance to the State Engineer upon request. An example is the Las Vegas Valley Ground Water Board who makes recommendations to the State Engineer for approval or denial of applications to appropriate ground water within the Las Vegas Valley ground water basin.
2. Well drillers' advisory board appointed by the State Engineer to examine applications for well drillers' license and submit findings to the State Engineer.

## Other Entities

Other intra-state private or quasi-public entities directly related to the distribution of water in the State of Nevada are:

1. Public utilities operating under the regulations and control of the Public Service Commission.
2. Non-profit mutual water companies serving users in a subdivision or an area where the property was purchased with water service included in the sale. Title to the water right may rest with the land developer or be transferred to the mutual water company.
3. Non-profit water users association serving a subdivision or an area where the users acquire a water right in the name of the association by purchase or by application to appropriate to serve themselves by payment of only those costs to maintain the distribution system.

## STATE WATER POLICY

The bitter struggle for control of a limited supply of water in this arid State is reflected in the water policy adopted by the State Legislature extending over a period of more than 100 years of litigation and use. The application of the common law doctrine of riparian rights was adopted in the arid West from practice brought from the water abundant East coast. Western water law of water rights embraces two diametrically opposite principles--the common law doctrine of riparian rights and the statutory doctrine of prior appropriation. Under the riparian doctrine, the owner of land contiguous to a stream has certain rights to the flow of the water, by virtue of such land ownership. Under the appropriation doctrine, the first user of the water acquired a priority right to continue the use.

### Doctrine of Appropriation

The basic philosophy of the right to the use of water in Nevada was changed in 1885 by a Supreme Court decision reversing its stand with respect to the riparian right doctrine and has since applied the doctrine of prior appropriation. The Court concluded that the riparian doctrine did not serve the wants and necessities of the people of the State for either mining or agriculture. Water could then be appropriated for use on mining claims or agriculture lands under the Homestead Act of 1866, that were located miles from a stream on public domain lands where title was still vested with the United States until patent.

The basic provisions of the Nevada water policy are generally expressed under Nevada Revised Statutes, Chapter 533, Section 10 through 85, inclusive. Chapter 533 provides the statutory procedure for the four prime functions of the Division of Water Resources administered by the State Engineer.

- (a) Adjudication of claims of vested water rights.
- (b) Appropriation of public water to acquire a water right.
- (c) Distribution of water in accordance to a court decree.
- (d) Develop a comprehensive water resource plan for the State and review and evaluate proposals by Federal, State, and local agencies for flood control and water development projects to insure compatibility with the State Water Plan and compliance with Nevada Water Laws.

The fundamental elements of the Nevada water policy are contained in the general provisions, Chapter 533, and are briefly summarized here.

- 1. The water from all sources of supply within the boundaries of the State, whether above or beneath the surface of the ground, belongs to the public.
- 2. Water may be appropriated to beneficial use subject to existing rights at the source.
- 3. Beneficial use shall be the basis, the measure, and the limit of the right to use water.
- 4. All water used for beneficial purposes shall remain appurtenant to the place of use.
  - (a) Chapter 533 contains provisions to change the point of diversion and place and manner of use by application to the State Engineer without loss of priority.
- 5. The right to divert water ceases when the necessity for the use of the water does not exist.
- 6. The beneficial use of water is declared a public use and any person may exercise the right of eminent domain for the lawful diversion, conveyance, and storage of waters.

A unique feature permitted in Chapter 533 of the Nevada Water Law is the principle of rotation in the use of water to bring about a more economical use of the available water supply. Rotation is permitted when agreed to between the users on a stream when the natural flow has reached a minimum and cannot serve all users during the irrigation season. The practice of rotating the use of water can give larger heads for shorter periods of time, with the resultant increases in irrigation efficiency and lower operating costs.

#### Reciprocal Agreements

Sections 515 and 520 of Chapter 533 of the Nevada Water Law authorize permits to be granted to divert water outside of the State to be used

in Nevada or water diverted in Nevada to be used in another State when such State authorizes such diversion or use. However, water appropriated and beneficially used in Nevada cannot be changed or transferred beyond the borders of the State of Nevada.

#### Ground Water

Chapter 534 of the Nevada Revised Statutes was the first legislation specifically designed for the regulation and administration of underground water. This Chapter provides statutory procedure to appropriate underground water upon application to the State Engineer. In addition, this Chapter authorizes the State Engineer to designate ground water basins, to establish preferred uses of water within such basins and establish priorities, to limit withdrawals of ground water from such basin and to issue temporary permits to appropriate ground water which may be revoked when water can be served by a public utility or water district.

Within the Lower Colorado River Basin of Nevada only the Las Vegas Artesian Basin has been designated to date. The temporary permits discussed above have been utilized only in the Las Vegas Artesian Basin. Since 1955 temporary permits have been issued where other service was not available. Present plans indicate that revocation will begin when completion of the Southern Nevada Water Supply Project makes additional Colorado River Water available to the Las Vegas Valley.

#### Appropriation of Effluent

Permits to appropriate water as effluent from sewage treatment plants have been granted by the State Engineer in the following manner. Section 440 of Chapter 533 of the Nevada Revised Statutes provides for primary and secondary permits to store water for irrigation purposes. The person holding the primary permit may store water in a reservoir and is not required to show a beneficial use. The person applying for a secondary-permit must show an agreement has been entered into with the holder of the primary permit for the use of the stored water. The holder of the secondary permit is required to show beneficial use and receive a certificate of appropriation.

The policy of issuing a primary and a secondary permit under the above section of Chapter 533 has been adopted to applications to appropriate water as effluent from sewage treatment plants throughout the State. Usually the municipality erecting the treatment plant will make application and receive the primary permit. The municipality will then sell or distribute the effluent to one or more applicants for a secondary permit by issuance of an agreement as evidence to the State Engineer.

#### ADJUDICATION

Waters of the adjudicated stream systems of Nevada are distributed in accordance with a civil, State or Federal decree.

Civil decrees are the result of court decisions brought about by disputes between water users before the Water Law was passed.

State decrees are the decisions that begin with and follow the adjudication procedure set up by the statutes.

Federal decrees are the result of cases brought in Federal Court because water users of more than one state are involved.

The decreed stream systems within the Lower Colorado River portion of Nevada are: Muddy River, State Decree 1926; Pahranaagat Lake, State Decree 1929; Virgin River, State Decree 1927; and White River, State Decree 1922.

Meadow Valley Wash and tributaries, Clover Valley Creek and Panaca Big Springs, is the only other system of any magnitude in the area. Adjudication proceedings began on this system in 1919 and 1928, but have been held in abeyance since then, at the request of the parties.

#### DISTRIBUTION

Distribution of water on a stream system is the responsibility of the State Engineer. When necessary, the State Engineer nominates a Water Commissioner for appointment by the District Court that issued the decree on the system requiring distribution.

If a water district has been formed by the users, or a portion of the users of a stream system, the distribution within the district's boundaries is done by district personnel in accordance with the decree and subject to overall supervision by the State Engineer should disputes arise.

#### WATER RESOURCES PLANNING

A water resource planning section has recently been established within the Division of Water Resources. The responsibilities of the new section will be to provide and coordinate comprehensive planning for the State of Nevada for water, land, recreation, parks, forestry and other related natural resources.

#### STATE WATER PLAN

The State Water Planning Program was authorized by the 1969 State Legislature to develop a Comprehensive Water Resource Plan for the State of Nevada. The need for the program stems from the fact that future developments of the economy of Nevada and the well being of her people is inextricably related to the extent and manner of development of: (1) The water resources presently available to the State; and (2) The water resources which may be available in the future as a result of technological advances and importation of water.

The development of the State Water Plan will be based upon more than one basic objective or objective function. Although a wide range of objectives exist that could be used in water resources planning, practical limitations require the selection of those objectives which are, in Nevada, ones that are significantly affected by water resources development. The objectives are defined as follow:

A. Environmental Quality

The Environmental Quality Objective is the maintenance or improvement of the quality of the States' environment. Emphasis will be given to the consideration of the enhancement of the water and related land resources of the State. The Economic Efficiency and Area Development Objectives will include evaluation of needs for environmental factors such as water quality, recreation and fish and wildlife. Therefore, the Environmental Quality Objective may be met by satisfying certain needs included in the two other objectives. In some instances, however, the State's resources may not be adequate to meet both the Environmental Quality Objective and the Development Objectives.

B. Economic Efficiency

The Economic Efficiency Objective is the maximization of economic return to the State resources per unit of investment in water and related land resources. Estimates of Nevada's future growth in certain major economic and/or water use sectors will be made and associated water needs derived. Using these projections, an evaluation will be made of the future water demands for the projected activities and the amount of resources available to meet these demands. Then an analysis of alternative water and related land resource allocations for each of the sectors will be made to determine which investment in resources will yield the maximum economic returns.

C. Area Development

The Area Development Objective is the accomplishment of specified patterns of development in an area through water and related land resource investments. In some cases, meeting the Economic Efficiency Objective will satisfy the Area Development Objective. Deviations from the economic efficiency plan intended to stimulate area development shall be clearly identified. Improvement of an area's economic integrity, increased employment and increased income in an area are examples of area development objectives.

Plans for the use of our water and related land resources will be based on an evaluation of the ability of these resources to furnish different levels of contributions to the Planning Objectives. Alternative plans to meet the different Objectives will be prepared where conflicts occur in order that comparisons between alternative plans can be examined.

The order in which the Objectives are presented in this report does not imply their relative priorities. No one objective has any greater right to the State's water and related land resources than any other.

The following five procedural steps are being followed to establish a framework within which the "State Water Plan" is to be developed and implemented:

A. Resource Availability

1. An inventory of the water resources presently available to the State including a determination of their present use and a summation of existing water rights.
2. An appraisal of present land use and suitability including soil analysis and classification in certain areas of the State which have potential for development in the near future.

B. Projected Needs

Projection of future water and related land resource needs for the following categories of use:

1. Agriculture
2. Electric Power
3. Fish and Wildlife
4. Mining
5. Municipal and Industrial
6. Recreation

The order in which the different categories of use are presented does not imply their relative priorities.

Based on the knowledge that the opportunity may exist to participate in Regional and/or Interregional water transfers and that, geographically, Nevada lies across the path of any such transfers, an appraisal will also be made of the potential level of development the State could attain limited by available land and other physical resources, except water.

C. Residual Needs

Residual or net needs for the specified target dates (1980, 2000, 2020) will be determined by comparing resource availability (A) with projected needs (B).

D. Alternative Plans

The formulation of alternative plans will be limited to consideration of significant alternative uses of water and related land resources required to meet the three objective functions. We know, for example, that there will be instances where resources are inadequate to meet all components of all three objectives and that more expensive alternatives may be required to satisfy one objective than another. In these cases, alternative plans for meeting the different objectives will be prepared to identify the difference among alternative courses of action so that a reasoned choice or blending of alternatives can be made.

E. Selection of Plan

The goal of the State Water Planning effort is to prepare and recommend a general Plan which will provide the best basis for meeting the existing and projected water and related land resource needs of the State.

The State Water Plan is a plan for the people of Nevada, therefore, the selection of a Plan will reflect Nevada's preferences for attainment of different levels of contribution to the three Planning Objectives.

Publications

See "Water for Nevada - Water Planning Report No. 1 - Guidelines for Nevada Water Planning" State Engineer's Office - January 1971.

See "Water for Nevada - Water Planning Report No. 2 - Estimated Water Use in Nevada" State Engineer's Office - January 1971.

See "Water for Nevada - Special Planning Report - Water Supply for the future in Southern Nevada" State Egnineer's Office - January 1971.

## NEW MEXICO WATER LAW AND INSTITUTIONS

The roots of New Mexico water law are venerable, and tap the cultural, institutional and legal wellsprings of Mexico, Spain, and ancient Rome. By reason of the direct governmental control exercised by Spain and Mexico over the land now encompassed by the State of New Mexico, the law of those jurisdictions is of interest both as a historical matter and as a matter of legal precedent. This state is generally aligned with other western states in the application of the doctrine of prior appropriation. However, that doctrine in New Mexico is underlain by and permeated with elements of Spanish law, custom, and methods of administration.

### Legal History

It cannot properly be said that the doctrine of prior appropriation as we now know it existed under the law of Mexico and Spain prior to the attachment of American sovereignty in this region. However, there were elements of the ancestral law which were carried forward into what is now the statutory and common law of water in New Mexico. Perhaps the chief incident of this continuing legal tradition is that of common ownership: the principle that the waters were owned by the King, the sovereign or the people, and were available for use by all people in common, with the consent of the sovereign. This principle is embodied in the Recopilacion de las Leves de las Indias, which was adopted in its final form in the year 1680. The Law of the Indies was a compilation of laws and regulations issued by the Spanish crown for application in the American provinces. Law 5, Title 17 of Book IV thereof declared: "We have ordered that the pastures, forests and waters be common in the Indies. . .We order that the use of all the pastures, forests and waters of the provinces of the Indies be common to all the inhabitants of them who are now and later may be, so that they may be freely enjoyed, and anyone may keep his flock next to any hut."

The antecedent of the above law is found in Las Siete Partidas, a legal code compiled on the order of King Alfonso X of Castile, and completed in the middle of the thirteenth century. Among the principal provisions of that code with respect to water was Law 6, which states in part: "The rivers, and the ports, and the public roads belong to all men communally. . ."

The principle of common ownership of water was also incorporated in the earlier Roman law, and particularly in the codification of early Roman laws contained in the Institutes of Justinian, compiled in the sixth century.

In addition to the legal antecedents already mentioned, the laws, customs and traditions of the Moors were probably also influential in the development of Spanish Colonial water concepts. In fact, the community ditch or acequia, an institution virtually unique to New Mexico in contemporary times, may trace its origin to the Moorish influence. Many of

these ancient community water distribution systems have been in continuous operation since the seventeenth-century Spanish colonization of New Mexico. In fact, recent archaeological evidence indicates that the same ditches still in use in the small communities of northern New Mexico today were developed and used by the Pueblo Indians during prehistoric times.

American sovereignty over what is now New Mexico was accompanied by the promulgation of the Kearny Code in 1846. Included in this legal code, promulgated by the occupying American General S. W. Kearny, was a provision continuing in force the law of water as it existed in the region prior to that time. The Territory of New Mexico was established in 1850. One of the earliest acts of the Territorial legislature was a law passed in 1852, providing that: "All rivers and streams of water in this territory, formerly known as public ditches or acequias, are hereby established and declared to be public ditches or acequias." This statute, slightly amended, is still in effect, as Section 75-14-9, New Mexico Statutes Annotated, 1953 Compilation.

The recognition of the continuity of legal tradition under the flags of Spain, Mexico, and the United States can perhaps best be indicated by a quote from a Territorial Supreme Court case: "The cultivation of the Rio Grande valley by acequias from the river is mentioned by the earliest of Spanish priests and explorers, and is established by authentic historical memorials, extending back more than two centuries. The law of prior appropriation existed under the Mexican republic at the time of the acquisition of New Mexico, and one of the first acts of this government was to declare that 'the laws heretofore in force concerning water courses. . . shall continue in force.' /Kearny Code/. . . The doctrine of prior appropriation has been the settled law of this territory by legislation, custom and judicial decision." United States v. Rio Grande Dam & Irrigation Co., et al., 9 M.M. 292, 51 Pac. 674 (1898).

While there were numerous isolated statutory enactments prior to 1907, it was in that year, four years before the adoption of the State Constitution, that the fundamental statutory water law of New Mexico was adopted (Laws 1907, Chapter 49). The water provision of our Constitution are similar to those of many western states. New Mexico's Constitution, Article XVI, confirms the doctrine of prior appropriation and declares that the unappropriated waters of the State belong to the public. It also establishes that beneficial use shall be the basis, the measure and the limit of the right to the use of water. The New Mexico Supreme Court has recognized that our Constitution is merely declaratory of what had been prior existing law (State ex rel. State Game Comm. v Red River Valley Co., 51 N.M. 207, 182 P.2d 421).

## Current Administration

The literature of water law contains several sources of detailed analysis of New Mexico water law, and the many decisions of the New Mexico Supreme Court interpreting that law. (See Hutchins, "The New Mexico Law of Water Rights," Technical Report No. 4, New Mexico State Engineer (1955); Hutchins, "Selected Problems in the Law of Water Rights in the West," U.S. Dept. of Ag. Misc. Publ. No. 418 (1942); Clark, "New Mexico Water Law Since 1955," 2 Nat. Res. Journal 484). This commentator will not attempt to provide a comprehensive review of the law. Instead, it will be the purpose of this report to give only the most summary overview of water administration in New Mexico.

All of the underground and surface waters of the State of New Mexico belong to the public, and are subject to appropriation in accordance with law, under the supervision of the State Engineer. See, generally, New Mexico Statutes Annotated, Chapter 75 (1953). The New Mexico surface-water code, enacted in essentially its present form in 1907, gives the State Engineer general supervision of the measurement and apportionment of the surface waters of the State. The law makes it illegal to initiate the construction of works for the diversion or storage of water, or to change the point of diversion or place or purpose of use of a water rights, without the permit of the State Engineer. The law requires the publication of notice of application to the State Engineer, gives opportunity to protest the granting of an application, and provides for a hearing before the State Engineer. Decisions of the State Engineer are subject to appeal to the District Court.

The New Mexico groundwater code, enacted in substantially its present form in 1931, closely parallels the surface-water code in its essentials. However, the State Engineer has jurisdiction over the appropriation of only those groundwater sources which he has included within declared underground water basins. The State Engineer defines and proclaims or declares underground water basins when it becomes apparent that regulation is necessary to protect prior appropriations, to insure beneficial use of water, and to insure the orderly development of the water resource. Thus far, the State Engineer has declared twenty-two (22) underground water basins. Roughly one-fifth of the State's area is included within such basins.

Since 1907 with respect to surface water, and since 1931 with respect to underground water (within declared underground water basins), New Mexico has been operating under a permit system for the initiation of new appropriations. One of the problems inherent in the late establishment of administrative control over groundwater and surface-water usage is the fact that substantial water development had occurred prior to the enactment of the governing statutes. This problem could impose serious legal and practical impediments to the uniform administration of the public waters.

In recognition of the difficulty of administering permitted and unpermitted water rights together, the New Mexico Legislature incorporated into our water code provisions authorizing the State Engineer to accomplish hydro-graphic surveys and secure general adjudications of stream system within the State, including the related underground waters. Pursuant to this statute, Sections 75-4-2 et seq., N.M.S.A., 1953 Comp., the State Engineer has undertaken a large-scale program of water-rights adjudication.

New Mexico water law and administration have recognized what hydrologists have long known: that is, groundwater and surface water are interrelated. The law and the method of administration have had to be developed to permit the joint administration of the interrelated sources of water. In addition to the more clearly stream-related groundwater uses, there are substantial amounts of groundwater usage in New Mexico that can best be described as "water mining." In fact, most of the approximately 1.6 million acre-feet of groundwater being pumped annually in New Mexico at present is being mined. For a more detailed consideration of non-tributary groundwater, see "Groundwater Law and Administration: A New Mexico Viewpoint," 14 Rocky Mountain Mineral Law Institute 545 (1968).

In New Mexico, the State's water program reflects the recognition of the need for the development of water for agricultural, municipal and industrial uses, with attention to the growing demands of water-related recreation. In many areas of the State, growing municipal and industrial needs can be met only by acquiring water rights presently being exercised for irrigation. Our statutes, recognizing an intrinsic property of a water right held under the doctrine of prior appropriation, permit the change of point of diversion and the change of place and purpose of use of water rights, if such changes can be accomplished without impairment of other existing rights.

Programs for the collection of basic data and other information needed for the administration of water resources account for a substantial portion of the total expenditures of the State Engineer Office. For example, in the current year \$191,080, or about one-fifth of the total budget will be spent for this purpose in cooperation with the U.S. Geological Survey. Of this amount, \$131,500 is allocated to groundwater studies, \$54,330 to surface-water studies, and \$2,750 to quality-of-water studies. Equal amounts will be contributed to the program by the U.S. Geological Survey.

In addition to the general measurement and investigative programs carried out in cooperation with the Geological Survey, personnel of the State Engineer Office collect basic data and investigate water supply as necessary in connection with specific water rights problems.

#### Interstate Stream Commission

The New Mexico Interstate Stream Commission was created by act of the

Legislature in 1935 (Sections 75-34-1 et seq. N.M.S.A. 1953 Comp.). This Commission was created principally for the negotiation of interstate water compacts and the conduct of litigation involving interstate waters. It also has considerable authority and responsibility in investigation and planning for water resources. The Interstate Stream Commission consists of nine members. Eight of the members are unsalaried, and each is appointed by the Governor to represent a different major irrigation district or section of the State. The State Engineer is by law the ninth member and secretary of the Commission.

Under its statutory responsibility and authority, the Commission plays an important role in the allocation of water within New Mexico. The eight compacts to which New Mexico is a party and the Decree of the United States Supreme Court in Arizona v. California, 376 U.S. 340, determine the amount of water of our interstate streams that is available for use in New Mexico. Five of the eight compacts were negotiated under the authority of the Interstate Stream Commission (the Costilla Creek, the Upper Colorado River, the Pecos River, the Canadian River, and the Animas-La Plata Project Compacts). The Commission had a strong voice in the final terms and ratification of the Rio Grande Compact. The Colorado River and La Plata River Compacts were negotiated and ratified prior to the creation of the Commission.

The Commission is also the agency charged with instituting litigation and negotiation respecting New Mexico's interstate interests in water. The Commission's conduct of litigation over interstate streams is designed to protect New Mexico's share of the waters of such streams and the allocations made to New Mexico water users from that share.

An additional major function of the Interstate Stream Commission is its work with the Federal agencies in the planning of projects for the development, control and use of our water resources. The Commission formulates recommendations for the State's position on proposed water projects, and supports legislation for authorization and appropriations for them.

Under some circumstances, the Commission can itself undertake the construction of major works affecting the allocation of water in New Mexico. The Legislature in 1959 authorized the Interstate Stream Commission to issue bonds in the amount of \$5,000,000 to finance construction and operation of Ute Dam and Reservoir on the Canadian River near Logan, New Mexico. Repayment of these bonds is guaranteed by severance tax revenues. The project was completed in 1963, including a reservoir with a capacity of 108,000 acre-feet.

The proper administration of our interstate compacts, the evaluation of proposed Federal water resources projects, and the conduct of interstate litigation require a large amount of basic data concerning our water resources. To acquire such information, the Interstate Stream Commission

spends substantial sums of money in cooperation with the U.S. Geological Survey.

A significant portion of the amount contributed by the Interstate Stream Commission to the various interstate compact commissions will also be spent in basic-data collection programs in cooperation with the U.S. Geological Survey.

The basic-data collection programs of the State Engineer Office, the Interstate Stream Commission, and the several interstate compact commissions are carefully reviewed and coordinated each year, to insure that the maximum amount of useful data is obtained.

Under the Ferguson Act of June 21, 1898 (30 Stat. 484), Federal lands were granted in trust to New Mexico for the improvement of irrigation and increasing the flow of the Rio Grande. The funds provided by this trust are utilized by the Interstate Stream Commission for a variety of purposes including: (1) water salvage; (2) basic data collection and water measurement; (3) water supply investigations; (4) loans and grants to conservancy districts, irrigation districts and other entities for construction of water-conserving works; (5) project investigations; and (6) state participation under the Water Resources Planning Act (P.L. 89-80).

#### Other Water-Related Agencies

##### State Soil and Water Conservation Committee

Under its authorizing legislation (Sections 45-5-45 through 45-5-47, N.M.S.A. 1953 Comp.), this organization operates to protect the soil and water resources of the State, particularly through the control of erosion and flooding. The Committee, while concentrating in the area of agriculture, has played a role in the development of water resources for recreational purposes and municipal and industrial purposes.

##### State Parks & Recreation Commission

The water-related functions of this agency are fairly well suggested by its name. It has significant responsibilities in the area of water-related recreation. See Sections 4-9-1 et seq., N.M.S.A. 1953 Comp.

##### New Mexico Department of Game and Fish

This department carried out the role of game and fish propagation. In addition to its more obvious functions, the agency also has participated in the financing and construction of numerous recreation pools. The statutory role of the agency is described in Chapter 53 of the 1953 Compilation, New Mexico Statutes Annotated.

### Water Quality Control Commission

This agency was created by the Legislature in 1967 to establish and enforce water quality standards and regulations as required by the Federal Water Pollution Control Act of 1965. See Sections 75-39-1 et seq., N.M.S.A. 1953 Comp.

### Department of Health & Social Services

This agency performs a large part of the staff functions for the new Water Quality Control Commission, and has responsibility in the area of regulating water supply, sewage and water disposal insofar as they relate to the public health. See Chapter 12, N.M.S.A. 1953 Comp.

### Water Resources Research Institute

This agency was created under the auspices of the Water Resources Research Act of 1964 (P.L. 88-379). In addition to its other functions, the Institute conducts an annual water conference at the New Mexico State University campus in Las Cruces. Without setting them forth specifically, it should be noted that there are other water-related functions performed by state-supported institutions of higher learning.

### Local Water Agencies

There are numerous local associations, agencies and districts with water responsibilities. We will attempt nothing beyond a listing of the various types of agencies, with a reference to the statutory provisions governing their establishment and operation.

1. Community ditches (acequias) - Sections 75-14-1 et seq. & 75-15-1 et seq., N.M.S.A. 1953 Comp.
2. Water users' associations - Sections 75-17-1 et seq., N.M.S.A. 1953 Comp.
3. Irrigation districts (there are several varieties of irrigation districts authorized by the statutes of New Mexico) - Chapter 75, Articles 22, 23, 24, 25, 26, & 27, N.M.S.A. 1953 Comp.
4. Drainage districts - Chapter 75, Articles 19, 20 & 21, N.M.S.A. 1953 Comp.
5. Conservancy districts (there are several types of conservancy districts authorized under New Mexico law) - Chapter 75, Articles 12, 27, 28, 29, 30, 31 & 32, N.M.S.A. 1953 Comp.
6. Soil & water conservation districts & watershed districts - Sections 45-5-19 et seq., N.M.S.A. 1953 Comp.

In addition to the various agencies described above, it should be pointed out that municipalities have some water-related authority and responsibility. For example, municipalities have the power to zone and to condemn, including the right to condemn water rights. They also have flood control responsibilities. Counties also have the power to establish flood-control authorities, and in some instances may develop county water-supply systems. New Mexico statutes also grant authority for a variety of water and sanitation districts and waterworks companies.

LEGAL AND ADMINISTRATIVE ASPECTS OF  
UTAH WATER LAW

This report deals primarily with the Utah law relating to water rights, Utah's water development and conservation programs and the overall administration of the state's water resources. In addition to summarizing the law and administration practices relating to these subject some of the problems and constraints of the present system will also be noted.

The portion of this material which deals with the law of water rights is essentially a digest of information contained in the publication, "The Utah Law of Water Rights" by Wells A. Hutchins and Dallin W. Jensen. This publication contains a more detailed discussion on this subject as well as citations to statutes and case law.

Historical

The Utah law of water rights had its genesis in the settlement of the valley of the Great Salt Lake by pioneers of the Mormon Church. When these pioneers arrived in Utah in the summer of 1847 they found a desert terrain which was generally unproductive without irrigation. In order to sustain themselves in this arid country it was necessary to develop an extensive irrigation program as part of this settlement. The irrigation practices initiated in the Salt Lake Valley spread to other portions of the state with the settlement of new areas.

The diversion and beneficial use of water to produce crops made the adoption of the appropriation doctrine a necessity to accomplish this settlement. The traditional riparian concept of water rights which existed in the East would have made the development of this area impossible since it would have prevented the full and complete utilization of Utah's limited water supply. Consequently the riparian concept of water rights was rejected in favor of the appropriation doctrine.

Water Right Administration

The Legislature has delegated to the State Engineer the responsibility for water right administration in Utah. The State Engineer's Office was created in 1897, but initially the State Engineer was given only limited responsibility in the water rights field. However, his duties have been considerably expanded in subsequent years by the Legislature. Under present statutes the State Engineer has general administrative supervision of the waters of the state including the measurement, appropriation, apportionment and distribution thereof.

### Early Appropriation Procedures

The early Territorial Legislatures in Utah recognized rights acquired by the application of water to a beneficial use and during the ensuing years various statutes were enacted to provide procedures for the acquisition of water rights. These early procedures included grants of water by county courts and a subsequent method which required the posting of notice with the county recorder of the intended appropriation. However, the principal manner by which water rights were acquired during this early period was by the diversion of the water from its natural channel and applying it to a recognized beneficial use. These early water rights have come to be known in Utah as "diligence rights."

In 1903 the Legislature enacted a detailed water code which provided that rights to the use of surface water could only be acquired by the filing of an application to appropriate in the Office of the State Engineer. However, the owner of a diligence right, not otherwise of record, may file a diligence claim in the State Engineer's office. Once such a claim has been filed the statute provides that it constitutes prima facie evidence of the water right.

Although the present procedure for acquiring rights to water apply equally to both surface and groundwater, this has not always been the case in Utah. Groundwater has had a somewhat different history. Groundwater, flowing in what the Utah court has characterized as definite underground streams and the underflow of surface streams have consistently been held to be subject to the appropriation doctrine. However, this was not the rule with respect to percolating waters. Until the early 1920's percolating groundwater was considered to belong to the owner of the soil as part of his ownership of the land. This concept was abandoned in favor of the doctrine of correlative rights which allowed each land owner to beneficially use percolating groundwater in proportion to his surface ownership of land.

In 1935 the Utah Supreme Court abandoned the correlative rights doctrine when it ruled that percolating groundwater was subject to the appropriation doctrine. That same year the Utah Legislature provided that rights to groundwater could only be acquired by filing an application to appropriate in the office of the State Engineer. The only source of groundwater which is still considered exempt from the appropriation doctrine is that groundwater diffused and percolating through the soil near the surface which sustains beneficial plant life on the owner's land without artificial diversion and has no course traceable onto the lands of others. This water is considered part of the soil and not public property subject to appropriation. In effect, this is only diffused water in the soil and as a practical matter does not constitute a source of water which presents any significant problem in water right administration.

### Current Appropriation Procedure

The basis of Utah's present day procedure for appropriating water was the act of 1903 which was subsequently revised and re-enacted into what is today a broad and comprehensive water code.

The Utah Supreme Court has upheld the constitutionality of Utah's present water right law, and declared that the State has the right to control the appropriation and distribution of the public waters within its boundaries.

The current Utah statutes provide that all waters in this state, whether above or under the ground, are public property and that rights to use the unappropriated waters can only be acquired by filing an application to appropriate. This statutory procedure is now the exclusive method of appropriating water in this state. Applications to appropriate are filed in the office of the State Engineer and unappropriated water may be acquired for any recognized beneficial use.

Upon receipt of an application, notice is published in the county where the point of diversion is located and protests against the application may be submitted within 30 days following the last publication date. If a protest is filed the State Engineer conducts an informal hearing with the applicant and the protestant and receives whatever relevant evidence the parties desire to submit.

Before approving an application the State Engineer must find that there is unappropriated water in the source that can be diverted without interfering with existing rights. He must also conclude that the application is engineeringly and economically feasible and that the application is not contrary to the general public welfare and is not filed for purposes of speculation and monopoly. As will be discussed in more detail later, the decision of the State Engineer is subject to appeal to the district court.

Once an application is approved the applicant is given a specific time within which to place the water to beneficial use and submit a written proof of appropriation. An applicant may be granted additional time for completing construction of the works and applying the water to beneficial use upon a showing of diligence or a reasonable cause for delay. This statute allows the State Engineer to grant up to 50 years to accomplish this work. The Utah Supreme Court has ruled that in order for an applicant to be entitled to a further extension of time he must make a constant effort to accomplish his undertaking as is usual with men engaged in a like enterprise who desire a speedy accomplishment of their designs.

The question of due diligence has been one of great concern in the State of Utah in recent years because an applicant with an approved application who fails to place the water to beneficial use is tying up

the water supply and precluding the full and complete utilization of this limited resource by others. Therefore, in recent years the State Engineer's office has required applicants with relatively small projects to complete construction of their works and place the water to beneficial use within a period of a few years. If this is not done, further extensions of time are denied and the application is lapsed. This program has resulted in clearing the State Engineer's records of many applications under which no development had taken place. However, as demands for water increase in the future it will undoubtedly become necessary to adopt an even more rigid policy on extension requests.

Once the water is placed to beneficial use the applicant submits proof of his appropriation and is issued a certificate of appropriation which is recorded in the County Recorder's Office. Thereafter the only requirement is that there be a continued beneficial use of water in the manner provided for in the certificate.

#### Court Review of State Engineer's Decision

Any person aggrieved by a decision of the State Engineer may, within 60 days after notice of the decision, bring a civil action in the district court for a plenary review thereof. The practice and procedure in these actions is the same as in other equity cases. The hearing proceeds as a trial de novo with the district court reviewing the same issues which were ruled on by the State Engineer in the first instance. The decision of the district court is appealable to the Utah Supreme Court.

Those decisions of the State Engineer which are most often appealed are the result of the action either approving or rejecting a controversial application, however, on occasion appeals are also taken from his decision regulating water distribution matters. His decisions in water right adjudications are governed by a separate section of the code and are discussed in a subsequent section of this report.

#### Change in the Exercise of a Water Right

The point of diversion, place and nature of use of a water right may be changed under Utah statutory procedure. Such changes may be made either on a permanent basis or a temporary basis, the latter being limited to a period not to exceed one year. The approval or rejection of a change application depends on whether or not the proposed change will impair other vested rights. If the State Engineer determines that there will be an impairment, the change cannot be approved without the applicant compensating the owner of the right being affected. This applies to rights which have a priority junior to the right being changed as well as rights which have an earlier priority. However, if the change is approved, priority of the water right which is being moved is not affected by the change, the right retains its original priority date.

In a state such as Utah, where most of the water is appropriated, it is generally believed that a realistic and liberal policy on change applications is needed to allow continued development of the state. For example, in many areas of the state new industrial needs can only be met by purchasing existing agricultural rights and changing these old rights to satisfy the new uses. Therefore, a liberal change policy, consistent with protection to other existing rights, is required to meet these new demands. Also such a program will allow for the transfer of less efficient uses to more efficient uses of water. While Utah decisional law on this subject has generally been consistent with this philosophy, there are some decisions which seem to narrow the scope of change applications.

#### Exchanges of Water

The Utah water code also provides that upon application in writing and approval by the State Engineer a water user may turn his water into any existing natural channel, reservoir or lake and take a like quantity of water above or below where this water was turned in, less the quantity lost by seepage and evaporation. Exchanges have proved to be a very useful tool in developing large water conservation projects which involve interbasin transfers of water.

#### Distribution of Water

The State Engineer has general administrative supervision of the distribution of the waters of the state. He may, after consultation with the water users on a given source, appoint a commissioner who makes the actual distribution of the water to the various users. The salary and expenses of the commissioner are paid by the individual water users on a pro rata basis. To assist the commissioner in the distribution of water, the State Engineer may require users to install proper measuring devices and control structures. With certain exceptions, the State Engineer has supervision over the construction, maintenance, repair and operation of dams to insure the safety of persons and to protect property.

The Engineer may determine whether an existing underground water supply is adequate for existing claims. If after proper notice and hearing he determines that there is an inadequate supply for all claims, he may distribute the water in accordance with the priority of the claims.

#### Adjudication of Water Rights

Utah has an integrated administrative-judicial proceedings for the determination of the rights to the use of any stream or water source in the state. Such an action can be initiated by the State Engineer upon petition of water users or the court can, in litigation involving water rights, order a general adjudication. Once a general adjudication

proceedings has been initiated, the State Engineer undertakes a hydro-graphic survey of the source involved, and receives water users claims from the various users. These claims stand in the place of pleadings, and issues may be framed thereon.

From these sources and other information gathered by him during his investigation, the State Engineer prepares a proposed determination of water rights. This document is mailed to the individual users and they have an opportunity to submit written protests to the district court if they disagree with the Engineer's proposals. Any protests which are submitted are tried before the district court with all of the interested parties present. The district court's ruling may be appealed to the Utah Supreme Court. If no protests are filed the district court enters judgment in accordance with the proposed determination of water rights as submitted by the State Engineer. The Utah Supreme Court, in some relatively early cases, upheld the constitutionality of various aspects of this act.

#### The Nature of a Right Acquired

Under Utah law a water right is treated as a species of real property and is protected in the same manner as other real property within the state. However, the holder of a water right does not have the same unconditional ownership of the water as is the case with land. Rather it is the right to divert the corpus of the water, but the right is subject to the owner continuing his beneficial use of the water. Of course, the water user is also limited to the quantity of water provided for in his right and cannot exceed the period of use specified in the right. While a user under the appropriation doctrine is allowed to receive his entire supply before a junior appropriator is entitled to any water. Utah does have a statute which somewhat modifies this concept. In times of scarcity domestic use shall have priority over all other uses and agricultural use shall have preference over all uses except domestic. However, this statute has not ever really been implemented in Utah. This is so because of uncertainties concerning the definition of times of scarcity and also the question of whether a junior user would be required to compensate the holder of the prior right.

A water right in Utah is considered to be appurtenant to the land but it may be sold and transferred independently of the land itself. However, if a deed transferring the real property is silent concerning water right, it is deemed that the water passes as an appurtenance with the property. This rule does not apply to water which is represented by shares of stock in an irrigation company. This water is transferred by transferring the shares of stock and these shares are not deemed to be appurtenant to the land.

One aspect of certain groundwater rights that has been of concern in Utah is the protection that is afforded to the means of diversion to

users from artesian basins. Historically, under Utah law an appropriator receiving water by artesian flow has been entitled to have this hydrostatic pressure maintained as a part of the water right. Any subsequent appropriator who interferes with this means of diversion has been required to make a replacement of the water. It is generally believed by most of those associated with water development that this rule has undoubtedly restricted the full and complete development of Utah's artesian groundwater basins. However, in a very recent decision the Utah Supreme Court has modified the rule stated above. The case involved a change of existing rights from several old wells into a single new well for more efficient use. In allowing this change the court concluded that a user from a groundwater basin does not have an absolute guarantee to hydrostatic pressure but must suffer some reasonable reduction in pressure in the interest of efficiency and beneficial use of this resource. It is believed that the so-called "rule of reason" will be a significant step forward in the development of Utah's groundwater law.

#### Loss of Water Rights

Perfected water rights in the state of Utah may be lost through either abandonment or statutory forfeiture. There are two separate and distinct legal concepts. A water right may be abandoned by failing to use the water coupled with an intent to forsake or give up the right. Abandonment can occur without any particular lapse of time.

Statutory forfeiture is distinguished from abandonment in that the intent to give up the water right is immaterial. If a water user fails to use the right for a period of five years and does not request an extension of time within which to resume use of the water, the right is forfeited and reverts to the public. With the competition for water becoming more and more accelerated, this provision of the code will undoubtedly be of more and more concern in Utah.

Prior to 1939, a water right could also be lost by the adverse use of another party. This use had to be a continuous, uninterrupted, hostile and adverse enjoyment of the water for a period of seven years. However, the Utah Legislature in 1939 amended the water appropriation statute to prevent the acquisition of a water right by adverse use and this provision is still in effect in Utah today.

#### Preservation of Unappropriated Waters

For the purpose of preserving the surplus and unappropriated waters of any stream or other source of water supply for use by irrigation districts and organized agriculture users or for any use whatsoever, the Governor may suspend the right of the public to appropriate such surplus and unappropriated waters. This provision was invoked in the 1940's to preserve certain waters for the Central Utah Project. These waters were not restored until this project was authorized and moving ahead in 1964.

Waters which have been withdrawn may be restored to appropriation by proclamation of the Governor on recommendation of the State Engineer. Such proclamation is not effective until notice thereof has been published. After the first publication of notice in a newspaper of general circulation within the boundaries of the river system which has been withdrawn, applications may be deposited with the State Engineer. The State Engineer holds hearings on the applications which have been filed during the period of publication. The State Engineer fixes the order of the priority of such applications based on his determination of which applications are most conducive to the public good.

#### Division of Water Resources

The above discussion summarizes the Utah law of water rights and water right administration by the State Engineer. However, another important facet of Utah's water resource program relates to water conservation and development. At the state level this function is carried out by the Utah Division of Water Resources. The functions of this division include a program to finance the construction of water conservation and development projects selected by the Board of Water Resources. The Board of Water Resources is the policy-making group within the Division of Water Resources. Under the provisions of this act, funds are made available to local sponsoring groups, usually a mutual irrigation company, who enter into a contract with the State and agree to repay the funds advanced from a revolving construction fund. During the period of the agreement the State takes and retains title to the project. This includes title to the water rights and the distribution system.

The Board of Water Resources also participates in any compact negotiation which involves Utah's interstate waters, and appoints individuals to represent the State on compact commissions where compacts have been signed and ratified. This is done in cooperation with the Governor and the Department of Natural Resources.

Perhaps one of the most significant assignments presently being carried out by this division is the formulation of the state-wide water plan. This responsibility was assigned to this agency approximately six years ago and a number of reports of a technical nature have been published by the division. However, the division is now in the process of formulating a plan which will discuss the possible alternative uses for Utah's remaining unappropriated water, and will also deal with the question as to how the State of Utah can meet its future water needs.

#### Water Pollution Control Committee

With the increasing need for water pollution control and abatement, it has been imperative that the states have strong legislation in this area. In Utah the Water Pollution Control Committee has been delegated broad and comprehensive powers by the Utah Legislature to develop programs and institute actions for the prevention, control and abatement of new or existing

pollution of waters of the state. This committee has authority to adopt standards of purity and quality for streams and to classify waters consistent with their most reasonable present and future uses. In order to abate water pollution, the committee is empowered to conduct hearings and issue orders to violators requiring the abatement of existing pollution. The act provides that the Committee may seek an injunction against violators, and criminal sanctions are also provided for.

#### Department of Natural Resources

While this department does not directly administer any of Utah's water resource programs, the authority delegated to the department is briefly reviewed in this report because it does exercise certain administrative control of the water resource agencies within the department.

In 1967 the Utah Legislature created a Department of Natural Resources. Created within the Department of Natural Resources are the following boards: Board of Water Resources, Board of State Lands, Board of Oil and Gas Conservation, Board of Parks and Recreation, Board of Fish and Game, and Board of Big Game Control. Also within this department are the following divisions: Division of Water Resources, Division of Water Rights (State Engineer), Division of State Lands, Division of Oil and Gas Conservation, Division of Parks and Recreation, and Division of Fish and Game.

While it appears from the above listing that there is a large group of agencies within the Department of Natural Resources, this is not actually the case. Under this act, the division is given specific powers which are carried out and administered by the division director. The respective boards within these various divisions have been granted certain policy making powers which are independent of the authority granted the division director, but nevertheless the board constitutes a part of the division. For example, the Board of Water Resources is a part of the Division of Water Resources and is not a separate agency of State Government.

The chief administrative officer of the Department of Natural Resources is the executive director who is appointed by the Governor with the advice and consent of the Senate. The executive director is responsible for the administration and supervision of the Department of Natural Resources and the effecting of coordination and cooperation among the boards and divisions, and approving the budget for each board and division.

#### Water Districts

The Legislature of Utah has provided for the organization of irrigation districts, metropolitan districts, and water conservancy districts. These are three separate and distinct public agencies, each with defined powers and duties which are set forth in separate acts but all have common purpose of water development and utilization. Space does not permit a detailed review of the powers and duties of each of these organizations; however, a few general observations are pertinent.

### Irrigation Districts

The primary purpose of an irrigation district is to provide a water supply for the irrigation of the lands located within the district. While some districts have been organized under this act there has been no concerted effort to use this type of organization to solve water supply problems. One of the principal reasons for this appears to be that most of the organization of water users at the local level for irrigation purposes has been accomplished through mutual irrigation companies or water conservancy districts.

### Water Conservancy Districts

Water conservancy districts are created to construct facilities for the general purpose of supplying water to the inhabitants of the district. Water can be developed and supplied for agricultural, industrial, municipal, and other recognized beneficial uses. Conservancy districts are usually the type of local organization created in Utah to enter into contracts with the Federal Government for the construction and repayment of costs on United States Bureau of Reclamation Projects.

### Metropolitan Districts

Metropolitan water districts, as the name implies, are primarily for the purpose of obtaining a water supply to meet the present and future demands of the municipality creating the district. This type of district has been effectively used by some of the larger cities in the state to secure water for future needs.

### Flood Control

At the present time the responsibility for flood control measures is vested with the county commissioners of the various counties in the state of Utah. The statute grants the county commissioners authority to adopt and implement certain protective measures for flood control purposes.

SUMMARY APPRAISAL

General Summary Appraisal  
of  
Water Law Situation and Environmental Conflicts

An appraisal of water law, institutional arrangements and environmental conflicts and restraints which are so relevant in comprehensive framework planning should be made. This appraisal, however, will be confined to the legal and institutional arrangements, and to possible conflicts which have arisen within the Type I Framework Study of the Lower Colorado Region.

It should also be acknowledged that although challenges and conflicts have arisen and do exist in the Lower Colorado River Basin water development, Federal and State laws have been largely complementary as they apply to the planning, development, operation and management of water resource projects. Congress often has required State and local review and support as conditions precedent to executive action. States have also enacted institutional laws to accommodate Federal developments. One cannot over emphasize the value of such reciprocal cooperation. The future poses added problems and need for adjustments, and should engender more comprehensive legislation and action programs.

It follows logically that tensions have developed in water resources law in the western part of the United States between the States and the Federal Government because of the dual system of sovereignties.

The general operation of a water law system for the administration of water rights in the West historically has been left to the States for development. The Federal Government, in the past, has been reluctant to create such a Federal system of water rights administration. Thus, State and Federal institutions have developed within this existing framework.

Federal-State Water Problems

There has been a steady expansion of Federal activity in the development and management of water resources since the turn of the century. These increased Federal uses have resulted in conflicts

between the Federal supremacy theory and State control and State created water rights. These conflicts have been the sharpest in the arid and semi-arid States in the West where the doctrine of prior appropriation of water rights exists. This encompasses all of the Lower Colorado Region area and the entire economy of these States has been developed and is based on the prior appropriation doctrine which requires beneficial use of water to establish and maintain the right.

Federal administrative officials have suggested that there are problems in lack of uniformity and areas of void in State water law. This lack manifests itself in (1) varying definitions and methodologies of determining beneficial consumptive use, (2) differences of priorities in types of stated use preference, (3) the variance of the quantity of water allowed per acre under irrigation appropriations, (4) the diversity of procedures for acquisition and adjudication of water rights, and (5) the problems revolving about the concepts of "abandonment" and "forfeiture" of water rights.

From the States' position, the prime argument has been that the Federal interpretations are creating uncertainty in the field of water uses. The States have claimed that the Federal Government has no experience or expertise in the practical administration of water rights, and thus does not understand the uncertainties which the Federal claims cause. The Federal Government claims water rights called "reserved water rights," on the theory that whenever the Federal Government created a land reservation such as Indian reservations, national forests, national parks, and others, in the arid west, it reserves such amounts of water as might be necessary to make the land reservation operable for those purposes for which the reservation was created. These reserved water rights by and large have been of the consumptive use type of water uses.

One virtue of the "appropriation system" as developed in the West, was its certainty as to right of use. In the field of "reserved rights" means should be developed to quantify, or measure, the water use requirements, particularly where these uses may be changing with time, so that other water rights can be safely and firmly established. To impose the undefined Federal claim into short water supply situation has created a cloud on State authorized water titles and uses. When such "reserved rights"

are not quantified, they infringe upon water titles and uses and interfere with projections of dependable yields on a river system as a whole. This situation, until resolved, has and undoubtedly will deter present and future non-Federal development. Until these Federal reserved water rights are defined and inventoried, the States are unable to recognize them within the gambit of the State water laws, and there is no basis to integrate water allocations between Federal and private users.

One solution which has beneficial potential would be to provide a forum in which the water uses administered under State law and the Federal uses, including the "reserved water rights" could be synchronized into a priority system. This, of course, would require a quantification of all Federal claims.

Another solution to this problem would be that the Federal Government would compensate any recognized State water user for any loss suffered when the Federal Government exercises its claims for water under any of its constitutional powers. This, of course, would require legislation on the part of Congress.

After a careful examination of the problems arising out of the implied reservation doctrine, the Public Land Law Review Commission generally recommended as follows:

"We recommend legislative action to dispel the uncertainty which the implied reservation doctrine has produced and to provide the basis for cooperative water resources development planning between the Federal Government and the public land States."

Their specific recommendations are somewhat ambiguous as to the specific mechanics of solving reservation doctrine problems; however, it is hoped that the legislation enacted by Congress pursuant to these recommendations will effectively settle the problem.

Other Federal claims which have been asserted with respect to water resources development and which have advanced positions that have increased Federal-State tension are under the provisions of the following Federal constitutional powers:

- a. Treaty power, Article II, Section 2, Sanitary District v. United States 266 U.S. 405 (1926).
- b. War power, Article I, Section 8, Ashwander v. TVA, 297 U.S. 282 (1936).
- c. The general welfare clause, Article I, Section 8, Ivanhoe Irrigation District v. McCracken, 357 U.S. 275 (1958),
- d. Commerce Clause, Article I, Section 8, Clause 3, U.S. v. Appalachian Power Company, 311 U.S. 377 (1940), U.S. v. Grand River Dam Authority, 363 U.S. 229 (1960).
- e. Power over public property, Article IV, Section 3, U.S. v. Rio Grande Dam and Irrigation Company, 174 U.S. 690 (1899), Federal Power Commission v. Oregon, 349 U.S. 435 (1955).

Under the above set forth constitutional provisions, State administration of water rights has been put in jeopardy because Federal action has been taken which ignored or bypassed State law.

#### State Institutions

States have some problems which are peculiar to their institutional arrangements. One in particular is the multiplicity of organizations dealing with water resources. These are overlapping and often unrelated. Reorganization of these municipal types would be extremely beneficial. This would prove to be a difficult task for the reason that each of the types has built up a vested interest group which will struggle to continue its existence. In some instances there has developed a Federal counterpart to which the municipal organization turns for aid and comfort. This has to some extent fragmented State control. It serves no useful purpose to seek the source of the cause for these problems. Corrective measures seem to be in order.

## Land Use Planning and Zoning

Land use policy formulation and coordinated planning at the State and Federal level has been recommended by the Public Land Law Review Commission and pending legislation in both Houses of Congress during the course of this Type I Study. These proposals recognize the interdependence of Federal and State action in planning land use and set forth several methods of securing comprehensive plans. This procedure offers a tool which could be used extensively. For example, it would be possible to zone for recreation uses. This could involve some constitutional problems which might require compensation to property owners (C.F. Westwood Forest Estates, Inc. v. Village of South Nyach, N.Y., 23 N.Y. 2d 700). Zoning could be and should be used in flood plain control. One such method of involvement would be the use of zoning laws to provide for land use with flood control as an element in the zoning consideration.

## Need for Uniform Water Law

In the western States, the right to use water is generally acquired by appropriation. State law prescribes the steps to be taken to perfect a water right appropriation. These steps usually include (1) a notice of the intent to appropriate, or the submission to a State agency of an application to appropriate water; (2) the building of works necessary to divert or impound water; and (3) the application of the water to a beneficial use. The priority of the State water right is then based on the rule of "First in time is first in right."

The various State laws differ as to (1) what may be defined as a beneficial use; (2) what priority or preference may be applied to different uses; (3) the amount of water per acre that may be allowed under an irrigation appropriation; and (4) procedures for acquisition, adjudication, and readjudication of rights.

Work in the field of uniform laws on water rights administration might serve a very useful purpose. On the other hand, it should be noted that progress in this area will be very slow. There is a complex of institutions built up on the basis of water rights administration in each State, and the inertia of these will resist any change. There may also be doubt as to the virtue of uniformity.

Diversity in western State water law does not of itself preclude meaningful Federal and State activity in the field of resources development.

Interstate compacts might also continue to be used to apportion the waters of interstate streams so that the investment of an early appropriator downstream might not be destroyed by a later appropriation in another State upstream. Use of a compact commission or congress might also be helpful in resolving potential water use problems as between States, or as between a State and the Federal Government.

### Water Law Appraisal

Until very recent times, the water resources field has been orientated toward resources development. Both Federal and State legal institutional arrangements are geared toward the development of resources. Development in this context has been geared to the economic market place. All the present "tools" used in this field can be classed as "market place" instruments. Even the so-called national goals have been defined in terms which can be distilled to mean nothing more than the enhancement of the "gross national product." The whole legal system, both Federal and State, which controls the area of water development, has in the past formulated the ground rules for this development period. The friction which has developed between the Federal and the State systems, particularly in the West, has been really a debate of which law is to be first in the field.

Of course no one would deny that there are serious conflicts in the field. However, there has evolved in the resources field a new spectrum which may make the present Federal-State water law dichotomy irrelevant. The new entry is surely difficult to classify under one term. For our purposes we will use "environmental concerns" to represent this new field.

The environmental concerns are perhaps a natural evolution from the activities in the field of water pollution control. Water pollution control under the Federal laws was still orientated to "market place" development concept. Perhaps the provisions of P.L. 91-190 (National Environmental Policy Act of 1969) are actually directed more toward development than some environmentalists would like. There are elements in this new law, particularly Sec. 102, which will have an impact on the water resources development programs on the part of the Federal Government. Programs will have to account for their environmental impact. Very likely new methods of evaluation will have to be developed which can properly account for these new environmental concepts.

Legal remedies will have to be developed to provide for the ground rules within which these new concepts can secure protection and expression. The strain on our environment has become so great that it appears courts are allowing class actions to test developments. Scenic Hudson Preservation Corporation v. Federal Power Commission, 354 F2d 608. In Federal Courts the concept of "standing to sue" is being expanded, Flast v. Cohen, 392 U.S.83. This is only an indication that there is a need to provide new or revised remedies in the environmental field.

Present legal institutional water concepts will be hard put to continue as a repetition of the past in the face of the new environmental value demands. Without doubt there will be future State and Federal legislation covering the environmental field. Surely water law will be included as part of the change which is occurring in the resource development field because of the interest in environmental quality.

At this point it would be impossible to outline in any definitive way the course that legal institutional arrangements will take. Very likely the institutional changes will be wrought by legislation. The only purpose of this explanation is to point out this new area of consideration which seems to loom ever important in the resources field.

## Legal and Institutional Recommendations

Developed in the

Type I Comprehensive Framework Study

The following attachments are those comments, suggestions, and recommendations that were developed in the various Type I Study appendices relating to legal and institutional changes needed to satisfy each particular functional interest and were submitted by the several work group chairmen.

It should be noted, however, that these recommendations were not considered for endorsement by the Legal and Institutional Work Group because of possible conflicts in expression of needs and priorities.

The Type I studies are generally unrestrained with respect to water supply conditions and assume that water would be available to meet all projected requirements. This assumption eliminated the involvement of many "priority of use" problems that are otherwise most evident.

APPENDICES VI AND VIII

LAND RESOURCES AND USE and WATERSHED MANAGEMENT

1. Additional Federal and State financing and assistance for installation of land treatment measures.
2. Additional Federal and State Financing for all watershed management practices, to meet the objectives of improvement of quantity, quality, and timing of water yields, in harmony with need and anticipated values, as well as maintaining environmental quality.
3. Authority for local sponsoring organizations to use funds under Federal programs, where appropriate, for acquiring land, easements, and rights-of-way for small watershed program purposes.
4. Increase State participation, and coordination, in the management of watershed lands where State ownership is intermixed with other public and private lands.
5. Federal cost-sharing for additional water storage in floodwater retarding structures to provide low flow augmentation to reduce water pollution.
6. Improved taxing procedures to reduce economic pressure on farmers to sell out to developers, thereby slowing the trend toward "urban sprawl." Land capability should be one of the primary criteria to be considered.
7. Improved methods to accelerate land use planning for areas which are expected to be developed for urban use and implement effective and equitable taxing and zoning ordinances in order to direct this development in an orderly and aesthetically pleasing fashion.
8. Regulations whereby flood prone sections of cities and towns can be zoned for parks and green belt areas.
9. Adequate provisions to provide for development of efficient facilities for animal and human waste disposal, giving full consideration to soil characteristics, to reduce water and air pollution.
10. Adequate regulations to reduce sediment produced during construction of roads, housing developments, pipelines, power lines, etc., thereby reducing water pollution.

11. To provide incentives for private landowners to make their land available for public recreation and more beneficial to wildlife.
12. Develop and implement a coordinated and equitable procedure for land transfers and exchanges for maximum benefit to Federal, State, and private landowners.
13. The System whereby grazing privileges on public lands are tied to certain private land holdings should be reviewed to assure that the best multiple use land and resource management will be provided for.
14. More stringent zoning to control use of areas adjacent to urbanized areas.
15. Additional Federal and State financing for the investigation and salvage of archeological resources that are endangered by program activities.

#### APPENDIX IX

##### FLOOD CONTROL

States should provide enabling legislation to control the use and proper development of the flood plains in the Lower Colorado Region. Such legislation should include (but not limited to following) recognition by States of the overall responsibility of flood plain regulations as a part of flood damage reduction for the health, safety, and welfare of its citizens, adoption of statewide minimum standards for flood plain regulations, State assistance in providing technical information, State aid for acquisition of land for future projects or for preservation of open space, and State adoption of flood plain regulations based on its minimum standards for those areas where local units of government have not adopted State approved regulations within a reasonable time.

#### APPENDIX X

##### IRRIGATION AND DRAINAGE

Two legal considerations emerged in this work group study activity that were not included in the appendix because it was not a part of the study outline.

The "160-acre limitation" Reclamation law has long been recognized as uneconomic in many areas and is becoming increasingly questionable under the price cost pressures facing agriculture in recent years. It would appear that consideration should be given to substituting this "160-acre limitation" provision in Reclamation law with an "acre-limitation" based on a productivity classification of project lands or some other provision that would enable irrigated agriculture to continue under the price-cost challenge it now faces.

Other problems facing agriculture are the changes in water law which recognize "priorities of use." Since over 90 percent of the water is currently being used in the Lower Colorado Region by irrigation, it is assumed that future changes without supplementing the water supply would consider the conversion of irrigation water to other uses. This situation would create many problems for the irrigation interests.

The Type I studies assumed that water would be available to meet all projected requirements. This assumption eliminated the involvement of many legal problems that are otherwise most evident.

## APPENDIX XII

### RECREATION

#### RECREATION AND LAND USE

1. There should be Federal legislation establishing national land use policies and goals. Federal assistance should be rendered to the States to undertake statewide land use plans.
2. A statewide land use policy should be formulated under State law, which considers, among other matters, the following.
  - a. Establishment of a single State agency having zoning authority and the responsibility for preparing an official statewide land use plan. Local zoning and general plans should be in conformance with this plan.
  - b. Designation and protection by law of permanent open space zones.
  - c. Authority for the State to underwrite liability and comprehensive insurance for those private landowners making their land available for public recreation use.
3. Arizona seriously needs adequate enabling legislation for municipal planning and subdivision regulation together with a strengthening of zoning statutes.

#### RECREATION IN URBAN AREAS

1. About 36 Federal agencies and bureau have grant programs relating to recreation, beautification, and open space. In view of the overlapping functions of many of these Federal grant programs, they should be thoroughly reviewed to determine the feasibility of combining them under one administering authority. Such consolidation appears necessary to provide proper continuity, coordination, and efficiency in administration. If such consolidation should prove impractical, then a single agency should at least be authorized to coordinate the granting of all Federal financial assistance to State and local governments for recreation purposes.
2. The Land and Water Conservation Fund will continue to be the primary source of Federal financial assistance to State and local governments. Projected recreation costs will be almost five times present costs. It is, therefore, recommended that the Land and Water Conservation Fund be greatly expanded to enable State and local governments to meet their recreation commitments.

3. A separate division specifically dealing with the problems of urban recreation should be authorized within the Bureau of Outdoor Recreation.
4. The States should concentrate on providing financial and technical assistance to cities for the creation of new and continuing recreation programs.
5. Budgetary penalties, now imposed on agencies relinquishing land and moving elsewhere, should be removed. This would help to foster relocation of Federal installations that now occupy sites that could best be used for recreation.
6. Since local governments often do not have adequate financial resources nor the capability to raise the required capital to meet recreation needs, it is recommended that the States substantially ease present constitutional limitations restricting bonded indebtedness and property tax rates. Relief from these restrictions is especially critical in Arizona and Nevada.

#### RECREATION OUTSIDE URBAN AREAS

1. Under provisions of the Recreation and Public Purposes Act, a State, its political subdivisions or a non-profit association may lease at 25¢ per acre per year or buy at \$2.50 per acre Public Domain for recreation purposes. The major deficiency of the Act is the 640-acre annual purchase limitation placed on entities other than the States. This limitation is unrealistic and inappropriate and should be altered to reflect the scale and character of present day recreation needs.
2. In Arizona, a major shortcoming of the enabling legislation authorizing the acquisition of park land is the 160-acre limitation placed on the size of State recreation sites. The requirement to obtain special authorization from the legislature for sites in excess of 160 acres unduly restricts the Parks Board in carrying out its responsibilities and should be eliminated.
3. Under existing law, the Arizona State Land Department is directed to seek a maximum dollar return on the sale and lease of State lands. It is imperative that the legislature seek a better policy for the transfer of State lands with recreation value, particularly where they may serve urban needs, to State agencies and local governments at minimal cost.
4. Additional recreation opportunities could be made available if the Arizona State Land Department would require grazing lessees of State land to permit public access for hunting, fishing, riding, and similar recreational activities.

5. Bond act borrowing is an essential means of financing recreation programs and developments. However, the State of Arizona has a \$350,000 bonded indebtedness limitation. This constitutional provision, limiting general obligation bonds, would require that any State bond issue be self-liquidating revenue bonds. In order to use bond financing for other than self-sustaining projects (marinas, ski tows, etc.), the present bonded indebtedness ceiling must be raised significantly.

#### WATER-BASED RECREATION

1. There should be legislation authorizing Federal agencies to undertake on their own motion and share in the construction of single-purpose recreation reservoirs where the need for such water bodies is evident from surveys and studies conducted by the States in cooperation with responsible Federal agencies. Construction of such reservoirs quite close to some urban areas might be a feasible alternative to developing access and recreation opportunities around large and more remote multipurpose reservoirs. (See Appendix XII, Recreation, for supporting statements.)
2. The Federal Water Project Recreation Act (P.L. 89-72) would be strengthened by amendment to include the following.
  - a. Implementation of a sliding scale of Federal participation from 0 - 100 percent based on environmental considerations or degree of recreation needs in project area.
  - b. Provision for the 10-year time limit on land retention to be extended to the life of the project so that the recreation resource will be available in future years when needs may be more pressing.
  - c. Increasing the \$100,000 Federal facility cost-sharing limitation on USDI-Bureau of Reclamation projects constructed before passage of the Act.

#### ENVIRONMENTAL QUALITY

##### Federal Legislation and Flood Control Problems

Federal, State, and local guidelines should be developed and coordinated to establish environmental values associated with the development or preservation of streams near urban areas and flood plains. At present, the selection between development alternatives is limited because of existing institutional and funding arrangements. The following questions require study and, hopefully, resolution.

1. To what extent and for what purposes should the Federal Government purchase land and/or development rights, especially along flood plains for the purpose of preserving open space?
2. To what extent should enhancement of environmental values be included as a project purpose?
3. To what extent should the costs involved with such environmental measures be shared between Federal and non-Federal interests?
4. Should mitigation of damages to recreation and environmental values be considered as a project cost, as is now the case for fish and wildlife resources?

#### Other Federal Legislation

1. In order to at least alleviate the problem on Federal lands, there should be legislation that would extend coverage of the Historic Sites Act of June 27, 1960, to provide for exploration and salvage of archeological data and relics to all Federal and federally-assisted or licensed programs. Further, there should be provision for the transfer of funds, in an amount not to exceed 1 percent of the total cost of agency programs to the Secretary of the Interior for scientific, prehistorical, historical, or archeological surveys, investigations, and salvage.
2. In view of our increasing need for ecological information and the necessity for understanding natural processes, there should be Federal legislation establishing a system of nature preserves maintained as areas of scientific education and aesthetic value.
3. There are possibilities for including other areas within the Wilderness System, particularly portions of the Public Domain. Public Law 88-577, however, does not provide for this. It is recommended, therefore, that the Wilderness Act be amended to allow for designation of wilderness areas on the Public Domain under the management and jurisdiction of the Bureau of Land Management.
4. The National Trails System Act (Public Law 90-543) should be amended to provide for funding of acquisition, development, and maintenance of National Recreation Trails. Further, the Act should be amended to include the right of eminent domain.
5. In view of the social benefits involved, legislation pertaining to grants covering costs of sewage treatment facilities should be expanded to cover the costs of transporting reclaimed water to parks and open spaces where the water can be used for irrigation. Such a program would be consistent with meeting recreation needs in the city where they are most urgent.

6. Water-based recreation, as well as other recreation needs, should be satisfied close to the cities whenever possible. In this regard, the extensive system of municipal water supply reservoirs offers exceptional potential for meeting water-based recreation needs. Because of pollution problems, however, these reservoirs, together with adjoining watershed lands, are usually closed to public recreation use. Foremost among the reasons for this is the cost of water quality control, including the construction of filtration plants. Local governments are simply not able to financially underwrite such programs. Legislation should, therefore, be enacted, setting up a Federal fund to provide financial assistance in the construction of filtration systems necessary to allow public recreation use of closed municipal reservoirs and watersheds.

#### State Legislation

1. Legislation should be enacted to establish and permanently protect scenic easements adjoining designated parkways and other stretches of scenic highways.
2. Legislation should be enacted that would prohibit all off-premise outdoor advertising, meant to be viewed from the highway, from all State highways eligible for designation as official State parkways.
3. Legislation should be enacted requiring utility companies to coordinate with local planning commissions on the location of all utility placements that would be within view of parkways and scenic highways.

## APPENDIX XIII

### FISH AND WILDLIFE

State programs that benefit the general public and include the preservation of wildlife resources for all people must have a broader base for financing than the sportsman's dollar. Other programs that benefit the general public and need general funds are those not directly related to fishing and hunting, such as conservation education, management and research for nongame species, and participation in programs for endangered species.

Federal legislative and administrative changes should provide Federal agencies with adequate funds to accelerate programs and develop facilities to meet public demands for the use of the fish and wildlife resources. Suggested legislative and administrative changes at both the State and Federal levels are as follow:

- (1) Determine by State legislative study, the need and appropriate means of providing funds to help support fish and wildlife programs which clearly benefit the general public.
- (2) Legislative action is needed at the State level to establish procedures, responsibilities, and funding to coordinate State water resources planning and management with the planning and management for fish and wildlife and other natural resources.
- (3) Legislative action is needed to provide funds and authority to the Directors of the respective State fish and game departments to control and promote commercial fisheries through regulation of seasons, species, size, gear, and licensing.
- (4) There is a need for State lands with recognized fish and wildlife values and associated uses to be administered accordingly and any transfer of such lands should be based on the fish and wildlife values rather than maximum dollar returns.
- (5) Legislative action should provide for the updating of State and Federal mining laws for the protection of the environment, and the fish and wildlife resources.

- (6) There is a need at both the State and Federal levels to determine environmental standards in relation to human population numbers and distribution and to reassess accordingly the priorities of beneficial uses of land and water. Also, there is an associated need to provide for more comprehensive and complementing land use plans, including land use zoning authorities.
- (7) There is a need at State and Federal levels for review and removal of policy restraints which preclude full recognition of fish and wildlife values and the importance of public access in the administration of public lands.
- (8) State and Federal land administering agencies which lack adequate restriction and enforcement powers relating to off-road vehicular use should seek the appropriate authorities.
- (9) Administrative and legislative considerations of alternatives deserve more emphasis on water development projects in the interest of preservation and enhancement of fish and wildlife and environmental values. There is a particular need for such additional authority as may be necessary to implement nonstructural methods of flood damage reduction, including the purchase of lands and development rights along floodplains for the preservation of fish and wildlife habitat, as an alternative to the construction of structural measures.
- (10) Legislative action should be initiated which would amend the Wilderness Act and the Land and Water Conservation Act to allow participation by the Bureau of Land Management.
- (11) Legislation should be provided to reestablish an organic act for the Bureau of Land Management to assure continuance of existing multiple-use policies, including provisions for fish and wildlife as established under the Classification and Multiple Use Act of 1964 that expired December 1970.

## APPENDIX XV

### WATER QUALITY, POLLUTION CONTROL, AND HEALTH FACTORS

1. Legal and institutional aspects of water quality management. (The following general statement appears in both the Water Quality, Pollution Control and Health Factors and Legal and Institutional Appendixes (I&I page 87)).

The environment of the Colorado River Basin has historically dictated the establishment of unique legal systems and institutional arrangements to manage a scarce water resource. These legal systems and institutional arrangements remain fundamentally unchanged although significant revisions have been necessitated by the changing nature of society and its effects on the environment of the Colorado River Basin. The changes which have been effectuated have been primarily concerned with water quantity.

There is an increasing awareness in the Colorado River Basin that the problems of water quantity cannot be divorced from the problems of water quality. Certainly any future water management program for the Basin must incorporate a consideration of the impact which water quality problems will have upon Basin development.

Water quality problems of the Basin are currently being defined by the cooperative efforts of local, State, and Federal participants in the abatement conference proceedings on the Colorado River Basin under the authority of the Water Quality Act of 1965. The search for solutions to the water quality problems so defined must necessarily extend to an examination of existing legal systems and institutional arrangements to determine their efficacy in implementing any proposed plan for the management of water quantity and quality. The changing environment of the Colorado River Basin will again demand unique solutions.

2. Conflict between water quality standards and water rights laws. The maintenance of minimum flows for water quality control purposes is not recognized as a beneficial use of water in the water rights laws of any State in the Region. Availability of water in streams to maintain water quality and meet criteria established by the State water quality standards depends exclusively on flows released to meet other downstream uses. Under present water laws there is no assurance that the entire flow of a stream could not be removed leaving the stream dry, regardless of designated in-stream uses or water quality criteria. Water quality control needs to be legally recognized as a beneficial in-stream water use if water quality standards are to be met at all times.

3. Legal and institutional constraints to development of salinity standards. Early in the process of establishing water quality standards, the lack of information on salinity management and control in conjunction with legal and institutional constraints became readily apparent. In a letter to the Chairman of the Technical Water Quality Standards Committee for the Colorado River Basin States, dated February 12, 1968, the Assistant Secretary for Water Pollution Control, Department of the Interior, made the following comments concerning the Secretary's viewpoint on salinity standards for the Colorado River:

"It is the intention of the Secretary that the Department of the Interior and the States pursue active programs to lay the foundation for setting numerical criteria at some future time. These programs should focus on devising and demonstrating salinity control measures and finding ways to revise the legal and institutional constraints that could impede the implementation and enforcement of salinity standards."

4. Fragmentation of authority and responsibility among Federal, State, and local government. The fragmentation of authority and responsibility among the numerous Federal, State and local governmental entities involved in water resources management and pollution control impedes the development of effective and efficient water quality management programs.