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A STUDY OF THE EFFECTS OF WATER INSTITUTIONS
ON PLANNING AND MANAGEMENT OF WATER
RESOURCES IN UTAH

by

Donald H. McLean

A dissertation submitted in partial fulfillment
of the requirements for the degree

of

DOCTOR OF PHILOSOPHY

in

Civil Engineering

Approved:

UTAH STATE UNIVERSITY
Logan, Utah

1971

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Donald H. McLean

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ABSTRACT

A Study of the Effects of Water Institutions on Planning and Management of Water Resources in Utah

by

Donald H. McLean, Doctor of Philosophy

Utah State University, 1971

Major Professor: Dr. J. Paul Riley
Department: Civil Engineering

One area of research that has been somewhat neglected in water planning programs and water development is that pertaining to water law and water institutions. Over the years each state has developed a complex system of water law and organizations for the allocation and distribution of water. The usual role of these institutions is one of orderly development and the efficient use of the water resource. However, in many cases water law and institutions have imposed serious constraints upon the planning and the most efficient use of a valuable resource.

This study, through historic research, has attempted to define these water institutions in the state of Utah. In order to fully identify these agencies an in-depth study was made of the active water institutions in Weber County. This was accomplished through personal interviews, review of articles of incorporation, court records, annual reports and similar documents.

The study has revealed that all of these institutions as established by legislation have the opportunity to overlap in areas of jurisdiction, sources of water and potential customers. This possibility of overlapping or duplication of services exists but may not necessarily be practiced.

The most serious legislative omission is the lack of vertical coordination between the state and local agencies and horizontal cooperation among institutions operating in the same area. This lack of coordination and cooperation has precluded the most efficient use and development of the water resources of the state.

(301 pages)

CHAPTER I

INTRODUCTION

One area of research that requires increased investigation is that of water institutions and their effects on the planning and management functions of water.

Orderly water developments and the stable, effective, and efficient management of the available supplies requires institutional arrangements for seeing that the prescribed services are performed and interests are protected. Water has generally been considered as dedicated to the public good and made available to the individual user in a manner which protects the public interest while securing the individual's right to reasonable use. Thus over the years there has evolved a complex system of water laws and water institutions for the allocation and distribution of water. Each of these institutions has a legitimate purpose and responsibility for supplying a particular water need. In many cases these laws and institutions are the product of an era in which water problems were quite different from those of today.

Statement of problem

In general, these water organizations have not coordinated activities horizontally to provide institutional unity compatible with the fixed pattern of hydrologic unity that exists in large scale water developments, such as river basins. It is very necessary to narrow this institutional-hydrologic

disparity in order to achieve certain physical economical efficiencies. Unless the framework of existing water organizations and institutions can be changed to permit management of water quantity and quality from a river-basin perspective, available supplies will satisfy far fewer purposes and at a much greater cost than otherwise would be possible. These numerous institutions also represent a problem to water planning in that there is not any vertical relationship to the state planning agency. Consequently these organizations may make independent and unrelated plans for their own purposes with little regard for or knowledge of integration into an optimum plan of water development. This has led to conflicting objectives, duplications of services, waste of the water resource, and increased costs.

This multitude of organizations is apparent in the state of Utah where there are approximately 14 state agencies, directly or indirectly involved in water activity. In addition there are 13 water conservancy districts, several water improvement districts, six metropolitan water districts, over 200 municipal water companies, and over 1000 mutual irrigation companies. Much research is required to determine how the activities and plans of these institutions relate to and mesh with the overall state planning and administrative functions. From this research should evolve suggested modifications to make these organizations more effective in the development and management of the water resource.

Objectives

The objectives of this study will be to analyze the existing water laws and institutions in order to determine what constraints, if any, they impose on water planning and water management. The study will be confined to a particular hydrologic region, Weber County, and will attempt to answer the following questions:

1. What is the existing pattern of the organizations having water-related functions?
2. How can these institutions be made more responsive to changing needs?
3. Can efficiencies be obtained through combining or merging these institutions?
4. Can the institutional pattern be changed to relate back to the state planning agency?
5. Can the existing institutional complexity be molded into a more monolithic arrangement to better harmonize or adapt to total water quantity-quality management from a regional perspective?

The research will be directed toward the understanding of existing water laws and institutions and their impact on planning and management functions. This should also include an effort to identify the best features of each of the institutions and if necessary to formulate recommendations for improving the institutional structure for the future.

Procedure

This study will be confined to the practices and experiences of the water institutions in the state of Utah, in particular to Weber County where a majority of these institutions exist.

Each type of institution will be analyzed to determine:

1. Why and how these institutions came to be established.
2. How the institutions have been influenced by natural physical conditions.
3. How the institutions have been influenced by social restraints and local customs.
4. How legislation, including water laws, has affected the institution.
5. How institutions have adjusted to changes in use and to technological advancements.
6. If the existing institutions are compatible with the objectives of state and regional planning and development programs.
7. How the institutions have been affected by methods of financing.
8. The relationship between local institutions and the federal government regulations.

Much of this information will have to be obtained through historical discovery (reading of records, minutes, and other documents), interviews with present officers and users, and observation of institutional activities. The physical features pertinent to each institution will

be studied through proper organization of maps, drawings, profiles and graphs obtained from the institutions or observed in the field. Hydrological, meteorological, climatological, and physiographical information is already available in most areas and will be supplemented when necessary. State and federal agencies involved with any of the institutions will be contacted and interviewed for data and advice.

All data collected will be analyzed to determine how coordination between institutions may be improved and to what extent these institutions impose constraints on the planning process which may prevent the preparation of optimum plans. Where necessary, the study should suggest modifications to existing institutions to make them more efficient and effective in future water developments.

CHAPTER II

REVIEW OF LITERATURE

Since the arrival of the Mormons into Salt Lake Valley in 1847 there has developed a system of water law and water organizations governing the development and allocation of water in Utah. These laws and organizations, while playing an important role in the distribution of water have, in some instances, imposed constraints that may hamper optimum use of the water. These constraints may be due to the diversion of authority among institutions, lack of vertical and horizontal coordination between institutions, water rights and the restrictions on sale or transfer of these rights. In addition the absence of suitable local institutions or laws to facilitate the development of water may be detrimental to the optimum use of the available water.

The Federal Council for Science and Technology (1966) has stated:

Research in this area should be directed to understanding existing water laws and institutions and their social, economic and engineering implications. It should endeavor to identify the best features of the current situation with a view towards formulating model laws and institutional frameworks for the future.

In the area of institutions the research is directed primarily at special district functions with emphasis on land and water resource management. Future research is expected to deal with water law relating to the private as opposed to public rights and to problems resulting from the alteration of natural streams by the development and to the questions involved in modifying water rights systems. It is expected that the research on institutions will be extended to all types of districts and to various associations, compact authorities and mutual companies. (The Federal Council for Science and Technology, 1966, p. 63)

This need for research into a study of water institutions has been advocated by a number of authors. Kneese and Smith (1966) had this to say:

An outstanding development of the past few years is the increased research focus upon institutions through which water resources are developed and allocated and their quality managed. As time has passed more complex difficulties have arisen such as those associated with flood control, recreation and many other alternative modes for controlling water quality in entire regions. Evident in the West were institutional obstacles to water transfer from irrigation to municipal, industrial, recreational and other uses contributed strongly towards propelling the nation towards vast and costly engineering solutions. (Kneese and Smith, 1966, p. 7)

Caulfield (1968) has also urged a reviews of these water institutions:

No assessment of the national water picture is complete without some discussion of the institutional processes by or through which water management functions. These institutional considerations include such diverse matters as federal, state and local laws, the form and power of water organizations, financial arrangements, public attitudes and political tradition.

The study, evaluation and development of institutional arrangements has not kept pace with our national progress in understanding the technical aspects of water development. (Caulfield, 1968, p.23)

The laws and institutions affecting the distribution and allocation of water in Utah may be found in the early history of the church, Utah laws and court decision. Many authors such as Wiel (1911), Chandler (1918), Thomas (1920), Hutchins (1927), Mead (1903), Harding (1963), Israelson, Maughan and South (1946), and Watson (1948) have written about the development of water law and institutions in Utah. Hutchins and Jensen (1965) have given a very concise and interesting account of the development of water rights law in Utah.

In the past few years many authors have written about the flaws in the appropriation doctrine and the inefficiency of the water institutions. Hutchins (1955) stated:

The principle of strict priority of appropriations even in states that recognize no other doctrine has been subject to criticism for decades. It is true that the value of the appropriation doctrine in the pioneer stage of western agriculture is recognized, as well as the ever-present importance of assuring to a water project the continuing right to use economically, reasonably and efficiently the quantity of water upon which its development is predicated. Also recognized however are its weaknesses in operation such as perpetuation of rights to specific quantities of water regardless of subsequent economic changes, decreeing of excessive quantities of water in early adjudication; and the reluctance of courts to order prior appropriators to make changes in long used methods of diverting, conveying and applying water in order that thereby more water may be made available for junior appropriators. In such respects the rigid principle not only is harsh, but it is not furthering the best utilization of limited water resources. (Hutchins, 1955, p. 870)

This criticism may also be applied, in part, to Utah. The early pioneers were dependent upon agriculture for their survival and thus upon irrigation. As Hall (1965) pointed out these early irrigation projects took place without any competing uses. However, as Utah changes from an agricultural to an urban and industrial state the competition for water is increasing (Criddle, 1958). This shifting of emphasis has caught the attention of many authors. Regan (1958), Schad (1960) and Fisher (1965) said that these shifting water uses are institutional problems and require analysis of existing water laws and organizations that control the development and use of water. Trelease (1964), Ellis (1966) and Kelso (1967) emphasized that laws used for allocation of water in earlier times

would not be satisfactory in the future. They contended that these laws and institutions tend to protect existing allocations of water against competition for other uses and often impede plans for future developments. Smith (1964) argued that appropriative water rights are not conducive to transfer of water from rural to urban uses. Piper and Thomas (1958) contended that:

Existing legal rules may impede the development of water resources and may result in water not being used for the most beneficial purposes. Water rights tend to be fixed in perpetuity so that less economic uses may be continued even where obviously more beneficial uses could be obtained, absent these rights. (Piper and Thomas, 1963, p. 7)

Huffman (1953) called for a review of water institutions because of their importance as well as their being one of the most difficult aspects of water policies. Gardner and Fullerton (1967) contended that certain types of water uses and classes of users have been restricted by legal and institutional rules and policies. Stamm (1963) urged consideration of institutional or organizational factors that cause diseconomies of water distribution due to the historical development of the organization. These are caused by the duplication and overlapping not only of organizations but of distribution facilities. A case in point is Utah where there are more than 700 irrigation organizations, about 200 of them serving less than 300 acres of land each. Some farm units less than 100 acres in size receive water from as many as three ditches, each managed by a different organization. Saville (1958) contended that planning of comprehensive water projects by a state agency is almost impossible because of conflicts of jurisdiction with existing state

agencies. Bain (1965) drew the same conclusion that any present federal or state agency that attempts multi-purpose development encounters many legal and physical problems because of previous developments. Consequently the opportunities for water development have lessened and a suboptimal plan is prepared.

Fox (1966) has stated that the existing water law in many states fosters or permits the wasteful use of water supplies by individuals and organization. This is due to the water policies that govern the organization which fail to encourage the efficient use of water, and also to the fact that the pattern of organization has not kept abreast of the technical advances of water management. There is a need to improve institutions, laws, policies and agencies so that they operate more efficiently due to this technology. Stamm (1963) contended that the greatest obstacle to the efficient use of existing water supplies is the reluctance to change on the part of the legal and institutional organizations. Bagley (1965) said that institutional mechanisms can greatly affect the efficient use of water. These mechanisms consist of statutes, decrees, administrative rules, court decisions, ordinances and district regulations. Fox (1965) stated that in addition to the role of economic analysis in water resources administration the institutional factors influencing the conduct of those engaged in management and use of water were diverse and complex. He suggests that reshaping of the pattern of policy agency, authority, and responsibility at all three levels of government is needed to resolve policy issues and coordinate conduct of related agencies.

In addition to the effect water rights and the multitude of agencies have on the efficient use of a water resource there must be added coordination and hydrologic unity. Piper and Thomas (1958) said that:

The realities of applied hydrology probably will tend towards compromise among individual users in water or in the use of water, over wider and wider areas but the evolution of water law seems more likely to restrict than widen the scope within which compromise will be possible. Many districts formed primarily for water development and control-including irrigation districts, drainage districts, reclamation projects, groundwater districts-have areal boundaries unrelated to hydrologic reality. Many instances could be cited where the regulation of water has been ineffective because part of the water was beyond the jurisdiction of the responsible agency. (Piper and Thomas, 1958, p. 8)

Bagley (1965) stated:

Many legal and institutional structures, which were set up to allocate, manage, and administer water uses, have not given sufficient weight to the hydrologic unity and the "mobile" and "renewable" peculiarities of the water resource. (Bagley, 1965, p. 71)

Ackerman (1959) claimed that there is no complete integration of water resource development in the United States. Also a problem of horizontal integration has been created by the divided geographical jurisdiction of agencies. Hatfield (1965) called attention to the vast multiplicity of water agencies and predicted inefficiency and disaster unless coordination is achieved. Udall(1962) mentioned a two-fold problem: determination of the quantity and quality of water and management of the water in accord with the principles of hydrology. Fisher (1965) stated that water resources do not respect political boundaries and if water resources are to be used efficiently the users must be prepared to accept regional management, coordination and cooperation.

American Water Works Association (1969) asked that each water resource be developed and managed with particular attention to the hydrologic and ecological systems of which the particular source is a part. Political boundaries should not become barriers to the most effective utilization for public supply.

CHAPTER III

HISTORY OF WATER INSTITUTIONS IN UTAH

The history of water development in Utah began in 1847 with the arrival of the Mormons in Salt Lake Valley. Within two hours the pioneers had begun digging ditches and building small dams to irrigate and soften the earth so that they could begin plowing. (Brough, 1898) From these modest beginnings there developed a system of water law and numerous other institutions for the allocation and distribution of water.

These early pioneers were absolutely dependent upon agriculture, and thus upon irrigation, for their survival. The first lands to be irrigated were adjacent to the streams. As the need for agriculture increased it was necessary to provide water to lands not contiguous to the streams. At the same time it was established that those who first made beneficial use of the water had priority over those who came later. (Kinney, 1912) Thus the appropriative doctrine of "First in time, first in right" was established in Utah because of necessity and custom. This principle has been firmly established by legislation and the courts.

Legislation

The first territorial legislature in 1852 recognized the need for water rights when it gave control of water privileges to county courts and authorized them to serve the best interests of the settlements in the distribution of water for irrigation and other purposes. (Terr. Utah Laws, 1852)

Only Salt Lake County acted upon this statute in granting water rights, settling disputes, and appointing water masters to distribute water according to decrees. (Chandler, 1918) The neglect of the other counties to enforce the laws of 1852 led to the adoption of further legislation, to protect water rights, in 1880 and 1897. The statute of 1880 provided for the settlement of disputes over water rights and the issuing and recording of rights to water by appropriation, but did not contain specific authorization to appropriate water. (Utah Laws, 1880) The 1880 law recognized accrued rights to water acquired by appropriation and provided for their determination and recordation.

The 1897 law was the first statutory procedure for the future appropriation of water. Provision was made for the posting and recording of notices, and completing the work with reasonable diligence. Upon completion of his project the appropriator received a priority related back to the date of posting notice. The 1897 law also created the office of the state engineer for the purpose of measuring streams, approving plans for dams and supervising state irrigation works. It was not until 1901 that the state engineer was given the authority to supervise the distribution of water. (Utah Laws, 1901) The first comprehensive water law for Utah was enacted in 1903. (Utah Laws, 1903) This statute required the state engineer to approve all future appropriations of water except where they interfered with existing rights or where he decided that the application was not for the most beneficial use of the water. The 1903 statute has been revised and reenacted several times, and as

amended is the law presently in force. (Utah Code Ann., 1953) During this time the appropriation was amended to provide that no appropriation of water could be made and no right to the use thereof initiated otherwise than in the manner provided in the statute. (Utah Laws, 1953)

In the beginning irrigation projects were small and local in character. As these projects expanded, water organizations to take care of the increased costs were required. This led to the establishment of mutual water companies of two types, one being the mutual irrigation company organized on a non-profit basis to provide water for its members. The other was the commercial irrigation company which was organized to provide profits. These commercial companies never were popular in Utah and are of only minor importance. The mutual irrigation company is still one of the most important water organizations in Utah. The need for institutions having a broader tax base led to the development of larger institutions. The first irrigation district in the United States was enacted by the Territory of Utah in 1865. This legislation provided for irrigation districts within counties but made no provision for issuing of bonds. (Hutchins, 1931) The Utah Legislature of 1909 enacted the original irrigation law which has been reenacted from time to time with the latest codification in chapter 7 of title 73, Utah Code Annotated, 1953. The irrigation district is not too common in Utah and has been organized in only a few cases.

The 1935 Legislature passed the Metropolitan Water District Act which provided for the creation of a district within the corporate

boundaries of one or more municipalities. The 1939 Legislature amended the appropriation statute to prevent the acquisition of a right to the use of water, already appropriated by another, solely by adverse use.

(Utah Laws, 1939)

The Water Conservancy Act was passed by the Utah Legislature in 1943. This act provided for the organization of districts with authority to enter into contracts with the United States for the conservation and beneficial use of water. The advantage here was to tax not only those who benefited directly but others within the area who were indirectly benefited. (Utah Laws, 1943)

The 1947 Legislature created the Utah Water and Power Board to make studies, investigations and plans for the full development and utilization of the water and power resources of the state. (Utah Laws, 1947) In 1963 the legislature emphasized the planning role of the board when it appropriated specific funds for the preparation of a state water plan. (Utah Laws, 1963)

In 1949 the state legislature enacted a law requiring water users having old rights to file with the state engineer claims, in affidavit form, giving such information as might be required in substantiation of such claims. (Utah Laws, 1949) A record on file of these claims will facilitate future adjudications on the various streams of the state.

The 1953 Legislature created the Water Pollution Control Board to develop programs for prevention, control and abatement of water pollution and placed it in the State Department of Health. (Utah Laws, 1953)

In 1967 the legislature established the Department of Natural Resources. The purpose of this act was to coordinate and consolidate in a single department the water-related state agencies. One of the six boards created with the Department of Natural Resources is the Board of Water Resources and one of the six divisions created within the Department of Natural Resources is the Division of Water Resources. The Board of Water Resources was given all the previous duties of the Utah Water and Power Board.

Court decisions

From the beginning the courts of Utah have been involved with the water of Utah. In 1852 the legislature authorized the county courts to make grants of water. This act was repeated in 1880 and the granting of water rights was placed in the hands of county water commissioners. In 1891 the Supreme Court of the Territory of Utah repudiated the riparian doctrine and recognized only the doctrine of prior appropriation. (Stowell v. Johnson, 1891) Again in 1940 the court declared that "the doctrine of riparian rights was entirely unsuited to the conditions found in the arid portions of the country." (Spanish Fork Westfield Irr. Co. v. District Court, 1940) The common law doctrine of riparian rights does not exist in Utah as a fundamental principle of water jurisprudence which has been stated in so many decisions of the Utah Supreme Court.

The earliest decisions of the Utah Supreme Court recognized the principle of prior appropriation. (Crane v. Windsor, 1878 and Munroe v. Ivie, 1880) In 1918 the court declared "In Utah the doctrine of

prior appropriation for beneficial use is, and always has been, the basis of acquisition of water rights." (Gunnison Irr. Co. v. Gunnison Highland Canal Co., 1918)

The courts recognized that the right to the use of water was independent of the land. (Sowards v. Meagher, 1910) The transferability of a water right has been recognized by the courts. The Utah Supreme Court remarked that unappropriated water could be appropriated and used or sold for any useful purpose (Manning v. Fife, 1898) and a later decision the court ruled that an appropriator may lease or sell the right to use water under his control. (Lasson v. Seely, 1951)

The 1939 Legislature amended the water appropriation statute so that a water right could not be obtained by adverse use. This enactment has been noted and accepted by the Utah Supreme Court in many of its decisions. (Smith v. Sanders, 1948)

The Constitution of the State of Utah states that an appropriator must put the water to "some useful and beneficial purpose." (Utah Code Annotated, 1953) This statement of essential beneficial use has appeared many times in the decisions of the court. (Hague v. Nephi Irr. Co., 1898) The court has not only said that the appropriator must use the water beneficially on his own land but it must be reasonable in relation to future appropriators. (Water rights of Esclante Valley Drainage Area, 1960) As far as what constitutes the most beneficial use, the water appropriation statute provides:

In times of scarcity, while priority of appropriation shall give the better right as between those using water for the same purpose, the use for domestic purposes, without unnecessary waste, shall have preference over use for all other purposes, and use for agricultural purposes shall have preference over use for any other purpose except domestic use. (Utah Code Ann., 1953)

The supreme court in many of its decisions has held these two purposes to be the most beneficial uses. (Tanner v. Bacon, 1943)

The validity of the state's right to control the diversion and distribution of public waters within its boundaries has been upheld by the Utah Supreme Court. (Spanish Fork Westfield Irr. Co. v. District Court, 1940) This decision verified the authority of the state engineer to allocate public waters. The court also decided that the state, through the office of the state engineer, had the duty to control appropriation of public waters for the public good. (Tanner v. Bacon, 1943) The 1935 Legislature had amended the water appropriation statute to provide that no appropriation of water could be made except in the manner provided in the statute. (Utah Laws, 1935) The Utah Supreme Court upheld this amendment in several decisions. (Hanson v. Salt Lake City, 1949)

The right of an appropriator to make changes in place of diversion, place of use and purpose of use without injury to others has long been recognized by the Utah Supreme Court. (Spring Creek Irr. Co. v. Zollinger, 1921; Hague v. Nephi Irr. Co., 1898; Manning v. Fife, 1898)

In order to bring groundwater under the appropriation doctrine, the legislature declared "all waters in the state whether above or under the ground to be public property, subject to all existing rights to the use

thereof." (Utah Code Ann., 1953) This statutory method of appropriating water had been upheld by several decisions of the Utah Supreme Court. (Riordan v. Westwood, 1949; Little Cottonwood Water Company v. Sandy City 1935; Hanson v. Salt Lake City, 1949) In 1935 the court applied the appropriation doctrine to the waters of an artesian basin. (Wrathall v. Johnson, 1935) Prior to this decision these waters were not considered subject to appropriation. This decision caused the legislature to amend the appropriation statute to include all water whether above or under the ground. (Utah Laws, 1935)

This brief review of the legislative action and court decisions has shown the gradual evolvement of the Utah Water Law. The doctrine of appropriation, having been applied by necessity by the early settlers under the direction of the Church, has been adopted and strengthened by legislative action and court decisions.

CHAPTER IV

WATER INSTITUTIONS HAVING STATEWIDE FUNCTIONS

The early water developments in Utah consisted mainly of an individual diverting directly from a flowing stream. Later, as water was required at places removed from the source of supply, neighbors found it advantageous to combine their efforts in order to reduce the cost of water. This led to the development of ditch and canal companies. As the need for the development of new water increased, it was found that these ditch companies were physically and financially unable to provide this water. Thus, to provide a more uniform distribution of costs and to extend the irrigation boundaries, irrigation districts were established. Later in an attempt to broaden the tax base the water conservancy and metropolitan water districts were created. Therefore it is apparent that as the need for water was increased new water organizations were created to manage the allocation and distribution of water. Consequently a multitude of these institutions has been created that are directly or indirectly concerned with the development, use, management and control of the water resources of the state. This concern has been shared by federal, state and local agencies. These agencies generally function within the framework of the state law. The state may influence the direction of water development by legislative action, court decisions, and, more often than not, custom and tradition. In Utah, the legislature has established the statutory procedure for

acquiring unappropriated water and the rules for settling disputes over appropriated waters. However, the state provides for no vertical integration of these water organizations and , until lately, very little horizontal coordination at the state level.

The purpose of this chapter will be to analyze those agencies directly charged with water-related activities and to determine if their functions are clearly defined and if they are currently performing their duties. Agencies may either have assumed a role or as a necessity to their principal function involved themselves in a number of water activities. Legislative acts do not always specify exactly the duties and responsibilities and consequently there may be a duplication of service or else a vacuum in performance of necessary services. A study of these water institutions should reveal any areas of duplication or omission with relation to procedures and practices. It is not the intent of this study to be critical of any agency but to bring into focus any normal governmental deficiencies in this area.

The initial procedure for the compilation of information contained herein was to review the Utah statutes for the origin and authority of each agency and a description of its duties and functions. Reference to annual reports, special publications, newspapers and personal interviews was made for each agency to identify the water-related activities of the organization. The following is a listing of the various institutions directly or indirectly involved with the water activities

of Utah. Such involvement runs from organizations with statewide functions to functions of local citizens' committees and associations concerned only with local planning and promotion.

The dates in parentheses indicate the year that the original agency was created. The use of the word Code in the text refers to the Utah Code Annotated, (1953), and the use of Laws refers to the laws of Utah of specific years.

Water Law

Origin and authority. (Code, Title 73) The creation of the first water law in Utah was by the Mormon settlers in 1847. In 1851 the laws and ordinances of the State of Deseret first established the principle that those who made first beneficial use of the water were entitled to continued use in preference to those who came after. (Hutchins and Jensen, 1965)

Purpose. To provide a legal framework for the orderly allocation and distribution of the waters of the state.

Administration. The administration of the water law was granted by the legislature to the state engineer. However the supreme court found, in cases on appeal from the state engineer's decisions, that the judiciary was the sole ultimate arbiter of law and fact in water cases. (American Fork Irr. Co., v. Linke, 1951)

Powers. The one insitution in Utah that more or less influences all the other agencies directly or indirectly involved in water activities is the State Water Law. In the United States today there exist two

separate doctrines of water law--the riparian doctrine and the appropriative doctrine. Every state in the union operates under one system or the other, although some states, such as California, operate under both doctrines.

The riparian doctrine, based upon the English Common Law, holds that the owner of any land contiguous to a body of water has the right to the use of the water. This, in earlier times, meant that the owner of the land was entitled to use of water undiminished in quantity and unimpaired in quality. As this was impractical to the use of water for industrial development the courts permitted that the owner may make reasonable use of the water. The riparian doctrine has been repudiated by the legislature and courts of Utah.

The doctrine of prior appropriation developed by custom in Utah and has been molded and improved by legislative action and court decisions. The Water Law of Utah (Code, Title 73) leaves no doubt when it declares "all waters in this state, whether above or under the ground are hereby declared to be the property of the public subject to all existing rights to the use thereof;" (Code, 73-1-1) "Beneficial use shall be the basis, the measure and the limit of all rights to the use of water in this state;" (Code, 73-1-3) and "Rights to the use of unappropriated public waters in this state may be acquired only as provided in this title." (Code, 73-3-1)

A permit to appropriate any unappropriated water may be acquired by any qualified person or organization upon application to the state engineer. This initial application must contain the quantity and source

of water to be appropriated, the intent to apply it to some beneficial use, means and place of diversion, and the financial means to complete the project. Upon receipt of the application the state engineer will determine if there is unappropriated water available, existing rights will not be impaired, proposed project is physically and economically feasible, and the financial ability of the applicant to complete the proposed works. Notice of the application must be published and any protests to the proposed use must be filed with the state engineer. These protests, if any, must be considered before he accepts or rejects the application.

If approved, the state engineer must set a time limit for the completion of the project and for the water to be applied to beneficial use. Upon proof of the completion of the works and application of the water to beneficial use, the applicant receives a certificate of appropriation, which is evidence of his right to appropriate water subject to prior rights. The date of his appropriative right relates back to the date of his original application. The certificate of appropriation also contains the quantity of water appropriated, purpose and time of use, place of use and diversion.

The issuance of the certificate of appropriation confirms that water has been appropriated and ceases to be public water and is no longer subject to appropriation. The water right may be lost only by statutory forfeiture, abandonment or condemnation. Forfeiture is based upon the failure to use the right for a period of five years; abandonment of a water right may be caused by failure to use it for the statutory period

plus an intent on part of the user to desert, forsake, or abandon the right. In both these cases the water is returned to the public and is again subject to appropriation. The power of eminent domain may be exercised by most governmental institutions to acquire a part or all of a water source or connected property if it is necessary for the public good.

Compensation must be paid for any rights taken by condemnation. The amount of compensation must be determined by a court, jury or referee based upon (1) the value of the property and improvements; (2) damages to the remaining property if only a portion is condemned; (3) damages resulting to construction, even if no part is taken. (Code 73-1-14)

Prior to 1939 a water right could be acquired to the use of water already appropriated by another, by adverse use. This was known as a prescriptive right and could be obtained when an individual used any or all of the water appropriated by another. This adverse use had to be over a number of years and with the full knowledge of the owner. In 1939 the Utah Legislature amended the water appropriation statute to include "No right to the use of water, either appropriated or unappropriated, can be acquired by adverse use or adverse possession." (Code 73-3-1)

The appropriative water right is an usufructuary right that allows the user to divert water necessary for the purpose of appropriation but for no other use. If a change in use or place of diversion is desired

the appropriator must make application to the state engineer in the same manner as in applying for a permit to appropriate water. (Code 73-3-3) The change will be approved if it does not impair the existing rights of others. In order to soften this restriction the application may be approved, if otherwise satisfactory, as to part of the water involved or stipulated that the applicant acquire the conflicting rights. (Code 73-3-3)

The basis of the appropriation doctrine is that those who made first use of the water would have a prior right over future appropriators. Consequently a priority date is assigned all approved water rights, the date being the date of the original application filed with the state engineer. This establishes a priority among appropriators according to the date on their certificate of appropriation. The Utah Water Law provides that the senior appropriator must receive his whole supply before any future appropriators have received their allotted supply or until the water source has been exhausted. The arrangement assures the prior appropriator his share of the water source only as long as water is available. If the supply is scarce, the priority dates will apply only to those rights having the same use; the use for domestic purposes has preference over all other uses and agricultural use has preference over all other uses except domestic. (Code 73-3-20)

Another distinction of the appropriative law is that the ownership of land is not necessary to use water on the land. It has long been the practice in Utah that water may be lawfully appropriated for use by

individuals or organizations other than the original appropriator. This originated in custom and practices of the early communities, municipalities and water organizations that diverted and distributed water for the use of individuals within their area. This appropriation of water for the use of other than the original appropriator was long practiced before the fine points of appropriation were established in court. (Hutchins and Jensen, 1965)

The Utah Water Law and the courts have stipulated that the right to use water may be transferred by deed in the same manner as real estate and may be conveyed separately from the land. (Code 73-3-18) The supreme court has ruled that even an unapproved, unappropriated water right may be assigned. (McGarry v. Thompson, 1948) The law requires that any change in use or place of use must be approved by the state engineer, which may hinder such transfers. In general the conveyance of a deed to land, without reservation of water, also conveys the water rights appurtenant to the land. Where water rights are represented by shares of stock in a corporation they shall not be deemed appurtenant to the land. (Code 73-1-10)

Comments. The rules and regulations provided by the Utah Water Law have undergone considerable revision since inception in 1851. The earliest legislation placed the granting of water privileges in the county courts and it was not until the statute of 1880 that any water rights by appropriation were recognized and recorded. The 1897 law established the procedure for appropriation of water and repealed all existing legislation. This law was not all exclusive as a valid right could still

be obtained simply by diverting water and applying it to some beneficial use. In 1903 the legislature, in recognition of the demand for public control of adequately defining existing water rights and administrative responsibility for the acquisition of new rights, enacted Utah's first administrative water law. The 1903 law and its successive amendments specify the procedures for the acquisition of water rights and for the control and distribution of the waters of the state. During this period the courts endorsed the constitutionality of the water rights law. The legislation and the courts have often complemented each other in the development of the water law; court decisions illuminating weaknesses or voids in the water law have been quickly rectified by subsequent legislation. For example, the Utah Supreme Court in 1935 observed that the law of 1897 constituted the first law to provide for the appropriation of unappropriated water. The 1935 Legislature quickly amended the appropriation statute so that no right could be obtained otherwise than in the manner provided in the statute. The 1939 Legislature stiffened the appropriation law regarding abandonment and forfeiture and stated that a water right could not be obtained by adverse use.

The close relationship between legislature and courts has also been exhibited with regard to groundwater. In the case of *Wrathall v. Johnson* (1935) the court announced that the appropriation doctrine applied to artesian waters. One week later in the case of *Justesen v. Olsen* (1935), the court held by inference that the appropriation doctrine would be applied to all groundwaters. Consequently the 1935 Legislature, taking

note of these court decisions, amended the appropriation statute to apply to all water, whether above or below the ground.

The water appropriation statute holds that a prior appropriator of surface water is entitled to protection of his means of diversion. This statute has been applied by the courts in reaching its decisions in groundwater cases. In the case of *Hanson v. Salt Lake City* (1949) the court contended that the prior right:

Includes his means of diversion as long as such means are reasonably efficient and do not unreasonably waste water. It follows that where a subsequent appropriator draws a sufficient quantity of water out of an artesian basin to lower the static head pressure of a prior appropriator's well so that additional costs are required to lift sufficient water from his well to satisfy his previously established beneficial use of such waters the subsequent appropriator must bear the additional expense.

In the case of *Current Creek Irrigation Company v. Andrews* (1959) the court took almost the same position as above but referred to the statute granting right of replacement to junior appropriators. This concept gives the junior appropriator the right to replace the water that his use diminishes the quantity or quality of a prior appropriator's right. The court also stated that it wished to avoid any conflict with the above concept even though it showed the present system was inadequate for the full development of the water resources of the state. One justice objected to this opinion on the grounds that it did not serve the fundamental purpose of development and conservation of water. To date no action has been taken by the state legislature to relax the apparent deficiencies in the statute regarding the right to hydrostatic pressure. However, the Utah Supreme Court in 1969 in the case of *Wayman, et. al., v. Murray*

City Corporation, et. al., rendered a decision that could lead to proper management of groundwater basins:

... Inasmuch as such rights are so assured and protected only by the authority of the State, it is both logical and necessary that the rights of each individual should be to some degree subordinate to and correlated with reasonable conditions and limitations, thereon which are established by law for the general good. We believe that reflection will demonstrate that if this principle is applied with wisdom and restraint, in due consideration for the rights of all concerned, it will be seen that the result will much better serve the group (all users and society) by putting to beneficial use the greatest amount of available water, and ultimately also for each individual therein, than would any ruthless insistence upon individual rights which simply results in competitive digging of deeper and deeper wells.

... From the considerations relating to underground water law herein above discussed there has come to be recognized what may be referred to as the "rule of reasonableness" in the allocation of rights in the use of underground water. This involves an analysis of the total situation; the quantity of water available, the average annual recharge in the basin, the existing rights and their priorities. All users are required where necessary to employ reasonable and efficient means in taking their own waters in relation to others to the end that wastage of water is avoided and that the greatest amount of available water is put to beneficial use.

It is hoped that in the light of these court decisions the legislature will modify the statutes and allow more efficient use of the state's groundwater resources.

The efficiency of the Utah Water Law will be severely tested in the future as the state changes from an agricultural economy to an industrial economy. The challenge of this shifting water use will be eased if the water laws remain flexible. So far the Utah Water Law has proved amenable to public pressure and change. The law itself defines water rights as property rights and they may be sold or

transferred the same as real property. Hence the tools are available for the transfer of water rights to higher uses. The transferability and flexibility are inherent in the law. The provision that any change in use must not impair existing rights is an obstacle to such change. However, the law does state that these rights may be acquired by compensation.

Since appropriative rights are clearly defined as to quantity and priority the owner would seem to have the necessary security and certainty in his right to make it a marketable piece of goods; as the right is clearly defined there should be less question about adequate compensation. However, there is also the problem that if there is no water available the right has no value.

It would appear that the Utah Water Law has most of the elements required to efficiently allocate the waters of the state. A prior user has the knowledge of security (except in times of scarcity), his right is rigidly defined with regards to quantity, place of use, date of priority, etc. Once he has obtained the right there is no condemnation. Even in this case the law provides the rules for obtaining adequate compensation. In addition, the law stipulates that the water right cannot be taken for any other use that, in the court's opinion, is not of greater benefit to the public. The law is flexible enough to provide for future development of water as it does provide that a water right is real property and may be purchased or sold as such. In addition the law also provides for exchange and importation of water. As water

rights are not appurtenant to land it makes it easy to transfer water from one place of use to another; water stock may be transferred within a water company and from a lower to a higher use. It would appear that the law does establish ground rules within which development may take place. It permits changes in use that may result in greater social benefit and avoids freezing of the water to a particular piece of land. The allowance of exchanges is important in that it gives some security to junior appropriators.

Although the water law does provide the framework for the orderly development and management of water in Utah the acceptance and application of the law may be another story. In the past water rights have proved difficult to purchase and there is little indication of many transfers among water uses. This may be due to the respect that a water user attaches to this right. The exclusive right to a certain quantity of water is something he has developed or inherited and is to be guarded against all comers. Any plan that may involve him in a common distribution system, exchange, or participation in a water organization is viewed with suspicion. This attitude on the part of water users has led to duplication of efforts and waste of water. The inability to secure rights by purchase or transfer has generally led to the development of new sources of water. Also, the attitude of the courts has been to render decisions based upon the order of priority among vested water rights regardless of use.

In the past, before flow records were available and when measuring devices were rather crude, many appropriators claimed more water than was required for their purpose. Courts have been reluctant to adjust these discrepancies or to order changes in out-moded methods of diverting and distributing water. This has led to extreme waste of water as the appropriator, assured a set quantity of water, has had no incentive to improve his facilities. The adjudication or determination of water rights on some streams by the state engineer has tended to correct some of these deficiencies.

Some critics of the appropriative doctrine have contended that agriculture has been given a favored legal position that may block other uses. However, as residential areas swallow up agricultural areas and as industry replaces agriculture, the historical pattern of water use will be broken. The water law providing for purchase of water rights and condemnation should facilitate the shifting of water use from rural to urban.

The water law in some states has failed to take cognizance of the hydrologic unity of the water resource system. These states have attempted to make a distinction between surface and groundwater, flowing water, percolating water, etc. These definitions have led to long and costly court decisions and have prohibited water developments. Fortunately Utah has avoided this mistake by classifying all waters, above or under the ground, subject to appropriation.

The efficient allocation of the water resources of a state demands that the authority for the control of these resources be placed in one agency. The Utah Water Law has accomplished this by investing the state engineer with the authority to control the diversion and distribution of the public waters of the state, subject to judicial review. The state engineer, on petition of water users, may take action to determine water rights on a stream. He will then file with the courts the findings of his survey, the proposed determination of rights and the basis of his determination. The court will hear all contestants and adjudicate the water rights; this adjudication of water rights can reveal waste and improper use of water and provide for more efficient utilization of the stream. A possible conflict in the water law allowing for a change in use or place of diversion is that these changes must be approved by the state engineer. Whether or not this may be a restriction for future development depends on the policy of the state engineer as well as the interpretation of the courts.

In conclusion it would seem that the Utah Water Law has most of the necessary elements needed to facilitate the planning and management of water. The legislature and the courts, interpreting each other's action, have developed a statutory system to allocate the waters of the state. Possible conflicts may exist among water users that are primarily of self interest and not due to deficiencies in the law. Another facet of the water law has been the development of water organizations having similar rights and powers and particular interests. This has led to

considerable overlap of functions without any vertical or horizontal coordination among such agencies.

Recommendations. Suggestions for strengthening the Water Law should include:

1. Changes in law to allow a reasonable lowering of the pressures and static head to permit greater development of groundwater resources.
2. Requirement that meters be installed on all large wells to permit close control and provide valuable data with regards to groundwater.
3. Provision of rights determination on all streams to eliminate waste and add security to users.
4. Charge to water-users who let their systems of diversion and distribution deteriorate and who fail to make use of technological advances.
5. Provision for water courts to hasten judicial decisions.
6. Provision for overall control and development of water on river-basin level instead of local areas.

Department of Natural Resources (1967)

Origin and authority. Code, Chapter 34, Sections 63-34-1 through 63-34-7.

Purpose. To consolidate and coordinate into a single department the duties and functions of the several agencies involved with the natural resources of the state. This created 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

Board of Big Game Control

And the following divisions:

Division of Water Resources

Division of Water Rights

Division of State Lands

Division of Oil and Gas Conservation

Division of Parks and Recreation

Division of Fish and Game

Figure 1 shows the organization of the Department of Natural Resources.

Administration. The Executive Director of Natural Resources is the chief administrative officer of the Department of Natural Resources. He shall be appointed by the governor with the advise and consent of the senate.

Powers. The Executive Director is responsible for the administration and supervision of the department and for effecting coordination and consolidation among the boards and divisions within it. He is responsible for the budget of each division and the general supervision of the division directors. He is also responsible for all federal programs which are assigned to the department or

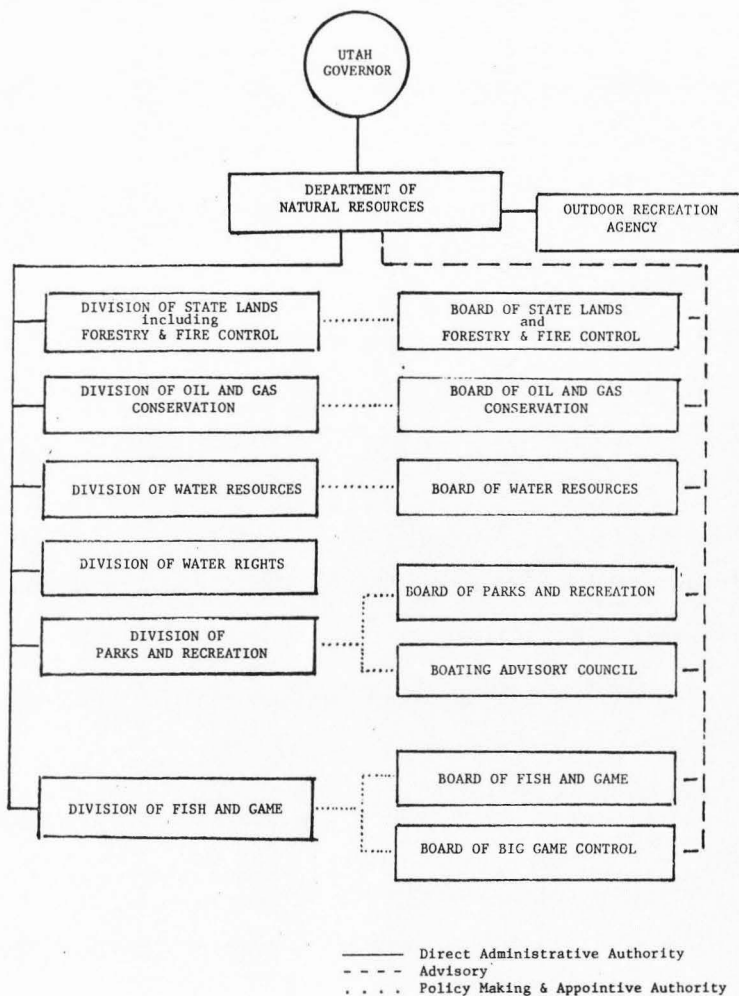


Figure 1. Department of Natural Resources.

division. The Executive Director is responsible for the execution of the policy established by the legislature and the policy making boards within the department. He must meet and work with division directors and review and act on all contracts.

Comments. The creation of the Department of Natural Resources was a move towards the implementation of the recommendations of the Little Hoover Commission. This Commission in 1965 found that there was no single state agency directly responsible for planning and developing the water resources of the state. The Commission proposed a new agency to be known as the Department of Water Resources and to include the functions of the Water and Power Boards, the state engineer and other agencies with water-related activities, and to be headed by a single administrator. In addition, to provide for public participation in the formulation of water policy, the Commission recommended the establishment of an advisory council to assist the director of the new department. These recommendations amounted to the consolidation of several related functions and a change from the board-form of organization to a line-type administration with boards being used in an advisory or quasi-judicial capacity. The 1967 Legislature enacted legislation establishing the Department of Natural Resources in line with these recommendations, but did not eliminate the boards. This consolidation of natural resource agencies was to be administered under a board rather than a single director. However, this board was eliminated by the 1969 Legislature which placed the administration of the department under the Executive Director.

The functions of the Department of Natural Resources cover a wide range of activities affecting the water spectrum of the state. The consolidation of those departments having water-related activities should facilitate future water planning due to improved communications and cooperation. In the past it was quite customary for the separate agencies to pursue their own goals and policies without consideration of the effects of their decisions on the whole water sector. This should serve to avoid duplication of effort and irrevocable actions of these agencies. However, there are other agencies having water-related activities dealing directly or indirectly with the state's water resources that should have representation. These would include the Water Pollution Control Board, Soil Conservation Commission, State Planning Co-ordinator, Division of Health and the Department of Highways. Water Users' Associations could also make a contribution to the state's water planning program. However, it is the duty of the Water Resources Board to consult with and advise these organizations and this may be sufficient to obtain their views. In addition, all state agencies are directed by legislation to cooperate with the Division of Water Resources in the formulation of a state water plan. It is hoped that upon completion of the plan this cooperation will be continued.

The consolidation of the natural resource agencies did not follow the recommendations of the Commission to eliminate boards. However, the retention of boards seems to be popular as far as the divisions are concerned. The feeling is that so far the boards have been composed

of competent and able men who are quite knowledgeable in their respective areas. Their experience has been quite helpful in establishing the policy of the various divisions. It was felt that the public membership and geographic representation of the boards provided for public participation in the work of the divisions. The Water Resources Board has done much in this area by conducting open meetings. Another area of public participation is the defined duty of the Water Resources Board to consult and advise with the Utah Water Users' Association and other organized water users' associations in the state.

The amendments of 1969 legislation to the Natural Resources Act of 1967 have done much to strengthen the functions of this department. The elimination of the Coordinating Council has strengthened the responsibility of the Executive Director. The Executive Director is now administratively responsible to the governor and has direct administrative jurisdiction and supervision of the division directors. This will do much to determine the accountability of administration.

Recommendations. It is still too early to determine the efficiency of this young organization and its impact on the development and management of the state's water. The main function of the department is to consolidate and coordinate the various natural resource agencies of the state, to establish lines of administrative responsibility, to effect administrative efficiency, and to decrease the cost of government. This it seems quite capable of doing. As far as its water resource activities are concerned, there appears to be a need to involve several

other state agencies in advisory capacities. These agencies would include the Water Pollution Control Board, Soil Conservation Commission, State Planning Co-ordinator, Division of Health and the Department of Highways. To be very complete it should involve representatives of some federal agencies involved with water development.

Board of Water Resources (1967)

Origin and Authority. Code, Chapter 10, Sections 73-10-1 through 73-10-13.

It should be noted that this board is to assume all the policy-making functions, powers, duties, rights and responsibilities of the Utah Water and Power Board (1947) plus other duties granted by this act.

Purpose. The Board of Water Resources is the policy-making body of the Division of Water Resources and acts as an extension of the legislature's authority. It is delegated the responsibility to develop the policy of the division within its authority.

Administration. The Board is composed of eight members selected from specified geographic areas of the state. These members are appointed by the governor with the advise and consent of the senate to serve for four years. No more than four members shall be from the same political party.

Powers. The Board appoints the Director of the Division of Water Resources with the approval of the executive directors and has the following powers and duties:

1. To authorize studies, investigations, and plans for the full development, utilization and promotion of the water and power resources of the state, including preliminary surveys, stream gauging, examinations, tests, and other estimates either separately or in consultation with federal, state and other agencies.
2. To enter in contracts subject to the provisions of this act for the construction of conservation projects which in the opinion of the board will conserve and utilize for the best advantage of the people of this state the water and power resources of the state, including projects beyond the boundaries of the state of Utah located on interstate waters when the benefit of such projects accrues to the citizens of the state.
3. To sue and be sued in accordance with applicable law.
4. To supervise in cooperation with the governor and the Executive Director of Natural Resources all matters affecting interstate compact negotiations and the administration of such compacts affecting the waters of interstate rivers, lakes and other sources of supply.
5. To contract with federal and other agencies and with the National Reclamation Association and to make studies, investigations and recommendations and do all other things on behalf of the state for any purpose which relates to the development, conservation, protection and control of the water and power resources of the state.

6. To consider and make recommendations on behalf of the state of Utah for reclamation projects or other water development projects for construction by any agency of the state or United States and in so doing recommend the order in which projects shall be undertaken.
7. Nothing contained herein shall be construed to impair or otherwise interfere with the authority of the state engineer granted by title 73, except as herein specifically otherwise provided.

Comments. The Utah Water and Power Board was created in 1947 with the objective of developing plans for the greater utilization and development of the water and power resources of the state. This objective was to be attained through the administration of a revolving construction fund that would lend interest-free water money to the smaller water conservation or improvement projects that could not obtain other sources of financing. Although the Act of 1947 seemed to imply that this board has the authority to develop a state water plan it was not until 1963 that the legislature provided funds for the development of a State Water Plan. The board was also given the responsibility to supervise all compact negotiations and administration of such compacts affecting the waters of interstate rivers, lakes and other sources of supply. In addition the board was given the authority to contract with federal and other agencies for water development conservation, protection and control of the water and power resources of the state.

The Natural Resources Act of 1967 created the Board of Water Resources and the Division of Water Resources which would take over the duties and responsibilities of the Utah Water and Power Board except as directed by the new law. The Board of Water Resources became the policy-making body of the Division of Water Resources. One important function of the Board is to administer the revolving construction fund. A project may be initiated by application from a water user or a potential water project may be initiated by the Division of Water Resources as a result of previous investigations. Upon application for these funds the Board is empowered to have made detailed studies and investigations of these proposed projects. If the proposed project makes newly developed water available or better utilization of existing supplies and is in the best interests of the state, the Board will advance the necessary construction funds. However, funds will not be made available to any project that has other sources of financing. The policy of the Board is to support all water development projects regardless of sponsoring individuals but group enterprises are given preference when considering projects of equal merit. One exception to this rule is that water conservance or similar organizations having taxing powers may not receive loans until the legislature so directs and provides the money to make the loans. The Division of Water Resources is authorized to make application for appropriation of water to be used by the project and to transfer said application to the Board. The title to all projects constructed with these funds is retained by the state until the loan is repaid. The period of

repayment, from 10 to 25 years, is determined by the Board on the basis of need and circumstances of the sponsors. All moneys advanced by the Board for construction costs and costs incurred by the state for investigation, design and construction supervision are 100 percent reimbursable without interest. This water development program is quite unique among western states as it does provide for the construction of many small projects which otherwise might not be built and it also provides the state the opportunity to approve only those projects based upon sound engineering principles. In addition these smaller projects have shown a greater return per unit of investment than many of the larger federally sponsored projects.

In addition to its duties of policy-making and administration of the construction fund the Board is empowered to supervise, in cooperation with the governor and executive director, all matters affecting interstate compact negotiations and the administration of such compacts affecting interstate streams.

Though the Board of Water Resources (and the Division of Water Resources) are relatively new titles most of the personnel and experience has been retained from the Utah Water and Power Board. Thus it is to be expected that there will be little change in the efficiency and philosophy of this organization. The Board may have its greatest opportunity in planning and management through its control of the construction fund and its involvement with the state water plan. With regard to its policy of granting loans for the development of small water projects it is in the

position to grant loans only to those projects that exhibit the ability to conserve and utilize the water resource to the greatest advantage. The provision that the loan be completely repaid is some insurance that only those projects that are confident of success will apply for a loan. Under the mantle of a strong state water plan the Board could be extremely instrumental in the establishment, enforcement and initiation of programs for the best utilization and control of the state's water resource.

Recommendations. Under its present organization the Board of Water Resources has very little control of the management and planning for water development in the state. It can control the water projects through the construction fund. By careful analysis of proposed projects it can select only those projects that integrate efficiently into an overall program and avoid those projects that duplicate existing facilities or fail to make the best utilization of available water.

The Board of Water Resources will have its greatest impact on the water development in the state through its policy-making function for the Division of Water Resources and in its consideration and recommendation of suggested water projects by other state agencies.

Division of Water Resources (1967)

Origin and Authority. Code, Chapter 10 Sections 73-10-15 through 73-10-19. The division staff is the former staff of the Utah Water and Power Board (1947).

Purpose. To be the water resource authority for the state of Utah and to provide for the full development and utilization of the water and power resources of the state.

Administration. The Director of the Division of Water Resources is the executive and administrative head of the division. He is also under the administration and general supervision of the executive director and under the policy direction of the Board of Water Resources. Figure 2 shows the organization of the Division of Water Resources.

Powers. The director has the power, within the policies established by the Board of Water Resources, to:

1. Make studies, investigations and plans for the full development, utilization, and promotion of the state, including preliminary surveys, stream gauging, examinations, tests and other estimates either separately or in consultation with federal, state and other agencies.
2. Initiate and conduct water resource investigations, surveys and studies; prepare plans and estimates and make reports thereon; and perform necessary work to develop an overall state water plan.
3. File applications in the name of the Division for the appropriation of water. All pending water applications heretofore filed in behalf of the state or any agency thereof for the use and benefit of the state are transferred to the Board, and it is authorized to take such action thereon as it may deem proper.

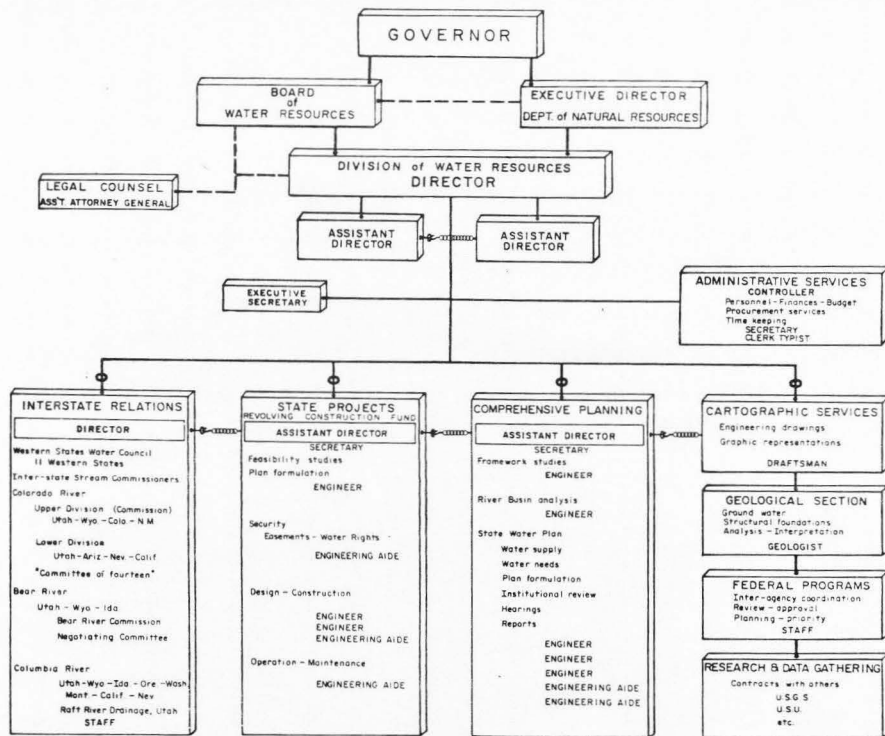


Figure 2. Division of Water Resources.

4. Take all action necessary to acquire or perfect water rights for projects sponsored by the Board.
5. Accept, execute and deliver deeds and all other conveyances.

Comments. Much of what has been said about the Board of Water Resources also applies to the Division of Water Resources. Both the Board and Division are empowered, by law, to obtain the highest beneficial use of the state's water resource. If a proposed project falls within the scope of the Board's work, it may approve an engineering and economic investigation by the Division of Water Resources. The Director is then responsible for the presentation of a feasibility report to the Board that includes all of the physical, engineering, legal, economic, social and security factors which affect the proposed project. He is also responsible for including a statement as to whether or not the project conforms with the policy of the Board and whether or not the proposed project conflicts with or affects the water resource of existing or contemplated projects. If the Board determines that the project has merit, the Board instructs the Director to submit final plans and specifications to the Board of Examiners. Upon approval of the project the Division will provide the professional supervision of the work to be certain that the construction is completed in accordance with the approved plans and specifications and within the stipulated time period.

Through this procedure the Division of Water Resources has the opportunity to influence the efficiency of management and development of a sector of the state's water resource. The condition that the Division

conduct a feasibility study of any proposed project and that the project must not conflict with or affect existing or planned projects prevents the construction of an ill-planned or duplicating project. The construction supervision insures that the project is built to specifications. A possible disadvantage of this fund is that since moneys are provided only for smaller projects this may lead to the development of a number of small independent projects rather than a larger multiple purpose project that would more efficiently develop the water resource for the entire area.

The Division of Water Resources has the responsibility for cooperating with the federal agencies and other state agencies. Some of the detailed studies and investigations conducted by the Division have been accomplished through cooperative agreements with these agencies. The Division is presently involved with the geological survey in the establishment of additional gaging stations, and has requested the Corps of Engineers to initiate a program of flood plain initiation studies. At the state level the Division of Water Resources is cooperating with the Division of Fish and Game to provide water for a bird refuge, and with the Division of Health on studies relating to water quality. In addition, studies involving recreational needs are being planned with the Division of Parks and Recreation. This interagency cooperation leads to a more efficient use of the state's water resource and prevents overlapping and duplication of facilities. Also the division has the responsibility of applying to the state engineer for water rights for any state agency that has need of water. This is an effective manner of managing the water requirements as all the requests go through one agency.

In 1963 the legislature gave the Division of Water Resources the difficult task of preparing a state water plan. An Interim Report on the State Water Plan was presented in March, 1970 to summarize the progress to date and to obtain public recreation. Three important items were suggested to cope with the future water needs of the state:

1. Continuing efforts toward more effective use of locally available water supplies by better regulation and distribution, better utilization of groundwater basins, water salvage, and planned reuse of the water.
2. Developing the concept and the necessary physical works of an integrated water system for the state to permit the redistribution of water from areas of relative sufficiency to areas of relative scarcity.
3. Improving the state's institutional and management structure so as to permit and encourage more effective use of the limited water resources.

The Interim Report contributes several important objectives that directly pertain to this study. These are the awareness of the need to provide a long-range program of water development and management to satisfy future needs; to provide a single state agency to operate appropriate portions of the integrated system; and an evaluation of the existing water institutions to determine their adequacy in efficiently distributing and managing the water supply.

The implementation of such a plan requires a well-informed public and a strong, single administrative agency. To be able to plan and coordinate all water development in the state would have a tremendous impact on the efficient use of the water resource. Much of the trouble with past water developments has been of a local nature with no regard to a comprehensive plan. The coordination of all water institutions involved in the planning process would lead to more efficient economical projects.

Recommendations. The Division of Water Resources has its greatest impact on efficiency of water development through its revolving construction fund. It is recommended that the fund be expanded to include water projects of a non-irrigation method. Also that the selection of projects be placed in the hands of the director and his planning staff as they are familiar with the day-to-day operation of water development and would tend to offset any localism of the board. It is further recommended that the implementation of the State Water Plan be placed in the Division of Water Resources and that the planning staff be expanded and be composed of all disciplines.

Division of Water Rights (1967)

Origin and Authority. Code, Chapter 2, Sections 73-2-1 through 73-2-21. The office of the state engineer was created in 1897 by the Legislature of the State of Utah. The 1903 statute greatly extended his duties when a complete water code was adopted. This code, as amended,

is presently in force today, and contains explicit details for acquisition of water rights, administration for control and distribution of water.

The Utah Water Resources Act of 1967 does nothing to change the duties of the state engineer as stated in Title 73 of the Utah Code Annotated (1953).

Purpose. To vest in a single agency the authority to administer and supervise appropriation of the waters of the state. The state engineer serves as the water rights authority of the state.

Administration. The chief administrative officer of the Division is the state engineer who acts as director. He is appointed by the governor.

Powers. The doctrine of appropriation requires that some office of agency be responsible for the administration of the unappropriated waters of the state. The state of Utah has vested this authority in the state engineer. The important duties of the state engineer are:

1. To administer and supervise the appropriation of the waters of the state.
2. To establish water districts and define their boundaries.
3. To appoint water commissioners after consulting with water users.
4. To make and publish rules and regulations necessary to carry out the duties of his office and to secure the equitable and fair apportionment and distribution of the water according to the respective rights of appropriators.
5. To bring suits in courts of competent jurisdiction to enjoin the unlawful appropriation, diversion, and use of both surface and

underground water and to prevent waste, loss, or pollution thereof and to otherwise enable him to carry out the duties of his office.

6. To assist the courts in any matter relating to the distribution and use of any of the waters of the state.
7. To cooperate with the state engineer or other proper officers of any adjoining state in the determination, supervision, regulation and control of all water and water rights in interstate streams.
8. To arrest any person violating any provisions of the appropriation statute.
9. To enter into agreements with any federal or state agency, subdivision or institution for cooperation in making snow surveys and investigations of both underground and surface water resources of the state, for the investigation of flood and erosion control and for the adjudication of water rights.
10. To plug, repair or to otherwise control artesian wells which are wasting public waters.

Comments. Three main areas where the state engineer is in position to influence the development of Utah's water resource are (1) approval of petitions to appropriate water, (2) approval of the petition for change in use or place of use, and (3) stream adjudication.

Any individual or organization is entitled to a permit to appropriate water if: (1) there is unappropriated water in the proposed source, (2) the proposed use or diversion will not impair existing rights or interfere with a more beneficial use, (3) the proposed plan is economically and physically feasible, and (4) the applicant has the financial ability to complete the proposed works. If these conditions are met the state engineer has no recourse but to grant the applicant a certificate of appropriation. Under these conditions the state engineer does not know or particularly care whether or not the proposed project can be integrated into an overall plan, it duplicates or overlaps existing facilities, or is being economically distributed. Some control may be exercised by other appropriators in the area protesting the application on the basis of interference or inefficiency. This also may retard the efficient use of water as fellow users may protest on purely selfish motives to keep other users out of the area. However, any applicant aggrieved by the decision of the state engineer is entitled to petition the courts for a judicial review of his application. Due to crowded court calendars this in some cases has led to long delays in applying the water to beneficial use or to the development of costly alternatives. The courts have also taken the position that the public waters of the state should be available for beneficial use so that in doubtful cases the state engineer must approve the application. (*Little Cottonwood Water Co., v. Kimball*, 1930) This implies that the state engineer need not be certain that

unappropriated water is available and may only reject an application when it is evident that the source is fully appropriated.

For change of use or change in place of diversion permission must be obtained from the state engineer. Change of use applications are generally approved as they normally do not interfere with existing rights. However, serious consideration is given to application for change in point of diversion in that they do not seriously impair existing rights. The procedure for obtaining approval to make a change is the same as in applying to appropriate water. The policy of the administrators and the courts is generally one of approving such changes as long as they do not substantially interfere with existing rights. (*American Fork Irrigation Company v. Linke*, 1951) Later the Utah Supreme Court changed this attitude when they ruled that any degree of impairment to existing rights was sufficient to reject an application to change point of diversion. (*Piute Irrigation Company v. West Panguitch Irrigation and Reservoir Company*, 1962) A dissenting opinion in this case contended that it was necessary to allow wide latitude in granting changes in order that water may move to a higher use. Security of tenure demands that water rights be protected in case of changes but also that a degree of flexibility exist to permit reasonable changes. In times of scarcity the water law defines the priorities that will exist. (73-3-21) However, the law does not specify whether compensation should be paid when water

is taken from a lower priority use. Due to this and the difficulty in defining scarcity this law has never been used.

Another function of the state engineer is to determine existing rights to water either on his own initiative or to carry out judgments of the courts. This may be a rather lengthy process but this does provide the necessary data for action by the courts and for determining if the water supply is being efficiently used. To assist him in the distribution of water the state engineer is empowered to appoint water commissioners.

The duties and obligations of the state engineer are defined by the water law of Utah. Any weakness in the law will reflect in the action of the state engineer. In reviewing the water law it was determined that it contained all the elements needed to provide for the efficient development and management of the state's water resource. The state engineer is provided some latitude in the administration of the waters of the state. This is in the area of granting rights to water if unappropriated water exists and approval of applications for change in use or point of diversion. The state engineer may reject an application for appropriation if in his opinion it may restrict a more beneficial use or may not be in the best interests of third parties. (73-3-8) This is an attempt to protect the property rights of these third parties and may lead to a reduction of flexibility. However, the law does provide that this application to change need not be rejected simply because of its effect on others. If the state engineer rejects an application for change strictly on the basis of

allowing no impairment of existing rights, inefficient development could result. Figure 3 shows the organization of water rights.

Recommendations. From an examination of the records it appears that the office of the state engineer has effectively administered the waters of the state. It is recommended that the state engineer and his area engineers take steps to decrease waste and inefficiency wherever it exists. This could be accomplished by speeding up the determination of rights on all streams of the state and in their day-to-day relationship with water users. The state engineer needs to review the groundwater law and promote legislation to change existing laws.

Other Divisions of the Department of Natural Resources

Other divisions of the Department of Natural Resources have only an indirect interest in water development. The functions of these divisions are enumerated briefly.

Division of State Lands. This division manages and controls all lands granted to the state and lands lying below the water's edge of any lake or stream to which the state is entitled. Reservoirs may be constructed to prevent and control floods on state lands, and water and water rights pertaining to these projects may be sold.

Division of Oil and Gas Conservation. This agency regulates activities of the oil and gas industry for the conservation of the oil and gas resources of the state. It has the authority to require the drilling, casing and plugging of wells to prevent the pollution of fresh water supplies by oil, gas or salt water.

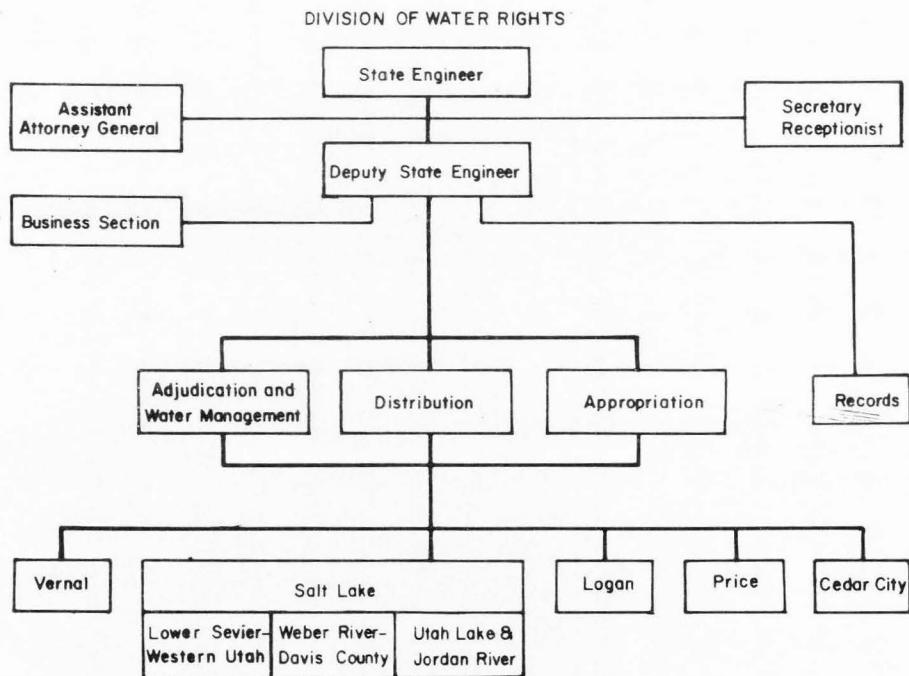


Figure 3. Division of Water Rights.

Division of Parks and Recreation. State parks, historical sites, public recreation areas and lakes are operated by this division.

Division of Fish and Game. Management and enforcement of laws involving game and fish resources and public hunting areas are handled by this division. It also conducts research related to fish and wildlife. It has the power to acquire by purchase, lease, agreement, or gift and to devise waters necessary to accomplish its function.

Water Pollution Control Board (1953)

Origin and Authority. Code, chapter 14, Sections 73-14-1 through 73-14-13.

Purpose. To develop programs for the prevention, control and abatement of new or existing pollution of waters of the state.

Administration. The Board is administered by nine members appointed by the governor for a term of eight years. By law, various areas of the state's economy must be represented on the board, each of which to some degree affects the pollution of waters of the state. These consist of representatives from the mining industry, food processing industries, manufacturing industry, municipalities, agricultural and livestock industries, fish and wildlife, and recreation interests. Also the law requires that the chief sanitary engineering officer of the State Health Department must be the executive secretary of the Board.

Powers. The powers and duties of the board are:

1. To employ whatever persons it deems necessary. However, whenever possible all technical, legal or other services

should be performed by the personnel of the Department of Health or other state departments, agencies and officers.

2. To set water quality standards and work with existing agencies and other interests to effect these standards.
3. To restrict to any degree any action which it believes will increase pollution.
4. To hold any decision of the board as binding upon all parties unless appealed to district court.
5. To work with municipalities, industries and others to construct or improve existing treatment works and other remedial measures to prevent pollution.

Comments. It is difficult to ascertain the influence of this Board on the planning and management of the water resource. At present it has only proprietary interest in the development and distribution of the state's water. However, as interest in the abatement of pollution increases it is to be expected that this item may have great influence upon the planning and management of future water projects. The increase in population, the shifting from rural to urban living and from agricultural to industrial growth will increase the opportunities for pollution. No longer should it be possible for a municipality or industry to pollute the water supply of another or to cause loss and discomfort to others. To date there has been refusal and neglect on the part of polluting parties voluntarily to solve these problems. So far the Board has only urged a voluntary compliance with pollution control measures rather than

strict police enforcement. If this does not work the Board will have to resort to its police powers to secure cooperation among municipalities, industries and others polluting the water resources of the state. It is to be expected that future water developments be predicated on the quality of the water involved as well as quantity. In this case the Water Pollution Control Board or some related agency will assume an important part in the planning and management of the state's water resources.

Recommendations. Due to the increase in pollution and problems of its disposal it is recommended that a full-time division of the board be appointed. This board or division should be given full power, by law, to prevent and control pollution in the waters of the state. It is further recommended that the board have representation in the Department of Natural Resources.

Soil Conservation Districts (1937)

Origin and Authority. Code, chapter 1, Sections 62-1-1 through 62-1-17.

Purpose. To conserve the soil and water resources of the state; to prevent and control soil erosion, floodwater and sediment damages; and to further the conservation, development, utilization and disposal of water.

Administration. The Soil Conservation Commission serves as the agency of the state to administer these districts. The commission consists of five members.. the Director of the State Extension Service, President of the State Association of Soil Conservation Districts, member

of the State Board of Agriculture, the state engineer, and the fifth member to be appointed by the governor.

Powers. The powers and duties of the Soil Conservation Commission are:

1. To employ an administrative officer and such technical personnel and other agents and employees as it may require.
2. To request the assistance of the supervising officer of any state agency to make special reports, surveys and studies.
3. To assist soil conservation districts in carrying out any of their powers and programs.
4. To keep supervisors of each district informed of the activities and experiences of other districts.
5. To coordinate the programs of the soil conservation districts.
6. To secure cooperation and assistance of the United States and any of its agencies, and of the agencies of the state, in the work of such districts.
7. To encourage the formation of soil conservation districts.

Comments.

The State Soil Conservation Commission was established by the legislature to administer the Soil Conservation Districts Law. Due to its water-related activities it does to a certain extent influence the planning and management of the state's water resource.

Any 25 occupiers of land lying within the limits of the territory to be organized into a district may petition the Soil Conservation Commission

requesting the formation of a soil conservation district. If, on the basis of open hearings and a referendum of the land owners in the proposed district, the commission decides that the operation of such a district is administratively practical and feasible it shall organize such a district. The districts so organized under this law are considered to be a local, governmental subdivision of the state and as such may exercise all public powers. In carrying out its function to prevent soil erosion and to prevent floodwater and sediment damage the district is dedicated to the conservation, development, utilization and disposal of water and to the preventive and control measures needed. The assistance for these water projects is provided by the federal government. It provides technical and financial assistance to the district for the planning and developing of small watershed projects. The payment of costs for agricultural water management improvement and other public development is on a local-federal share basis. However, planning and construction costs for watershed development are completely financed by the federal government.

To date 41 districts have been organized in Utah. By law each district is empowered to develop comprehensive plans for the conservation of soil and water resources and for the conservation, development, utilization and disposal of water within the district. Once again we have here a local entity trying to solve local problems in a rather confined hydrologic area. Apparently there is no attempt to mold these plans to be reviewed by a central state agency. Also, the attraction of federal

money to pay all the expenses of flood protection plus sharing the expenses for other improvements may lead districts in an undesirable direction. The financial rewards are certainly greater than those provided by the Water Resources Board.

Recommendations. Due to its involvement in many water-related activities the commission should have representation in the Department of Natural Resources. The soil conservation districts should be required by law to submit future plans to some central planning board. This planning board (which may be in The Division of Water Resources) should have the authority to approve plans for all state agencies if they conform to the future state water plan.

Division of Health

Authority and Origin. Code, Chapter 15, Sections 26-15-1 through 26-15-8.

Purpose. The Division of Health is the single state agency for administering or supervising the administration of the state's health planning functions.

Administration. The director of the Division of Health is the executive and administrative head of the division. He is appointed by the Board of Health with the prior approval of the Co-ordinating Council of Health and Welfare and with the advice and consent of the governor and the senate. The Board of Health is the policy-making body of the Division and is composed of seven members appointed by the governor with the advice and consent of the senate.

Powers. The Board of Health has the following powers and duties:

1. To adopt, amend or rescind regulations and standards that it deems necessary or desirable to enable the Division of Health to administer and enforce the public laws of the state.
2. To determine the general policies to be followed by the Division.
3. To advise the director as to how to establish such organizational units in the Division as he may deem necessary for effective administration and enforcement of the public health laws, rules, regulations and standards, and to abolish, change or extend any organizational units so created or established previously.
4. To evaluate the work of the director at intervals of four years and submit a report thereon to the governor.

The powers and duties of the Division of Health relating to water activities are to establish and enforce minimum sanitary standards for:

1. The collection, treatment and distribution of drinking water including sanitary supervision; regulation and control of the construction, extension, operation and maintenance of public water supply collection; treatment and distribution systems; and approval of plans covering the construction and extension of such systems.
2. The quality of water supplies to the public and the quality of the effluent of sewerage system, sewage treatment plants

and trade wastes discharged upon the land or into the surface or groundwaters.

3. The collection, treatment and disposal of sewage, industrial wastes, garbage and refuse including sanitary supervision; regulation and control of the construction, extension, operation and maintenance of sewage collection; treatment and disposal system of garbage refuse disposal systems; and approval of plans covering the construction and extension of such systems.
4. The protection of watershed used for public water supplies.
5. The prevention of the pollution of any waters.

Comments. The Board of Health has the general supervision and control over all water supplies and water works in the state. The Division of Health is responsible for the control of quality of water supplies and matters pertaining to the pollution of the state's waters. The director has the responsibility to review and approve all plans and specifications for the construction of (a) new public water supply, (b) new treatment works for an existing or new public water supply and (c) any addition to or modification of a public water supply which will or may affect the sanitary quality of the supply.

The Division of Health is organized under several bureaus that perform specific functions. The Bureau of Environmental Health provides sanitation services through several sections. The Water Quality Section supervises the quality of water for domestic and

industrial supplies, approves plans and specifications for construction of treatment works, samples and secures chemical analysis of water.

The Division of Health performs a valuable service to the state in its control of water supplies and systems and in its water pollution control program. The Division is also closely related to the activities of the Water Pollution Control Board as the director of the Division of Health is the executive secretary of that board. Unfortunately the opportunity for cooperation among the other water-related agencies has been lacking. (Sudweeks, 1970)

Recommendations. The Division of Health has only related interest in the planning and management of the state's water supply. Its main influence extends only to physical quality of the water and the control of pollution. However, it is to be expected that as pollution enforcement increases, the Division will have more to contribute to the planning and management of future water projects. It is recommended that the Division of Health have representation on the advisory board of the Department of Natural Resources on Division of Water Resources.

Utah Water Users' Association (1944)

Origin and Authority. Code, Title 16, Chapters 3, 4, 6, and 10 with particular reference to 16-10-142, 17-5-76.

Purpose. To coordinate the conservation, development, and beneficial use of the water in Utah for all lawful purposes and to

provide a forum for the consideration of all problems relating thereto; to serve as an advisor to its members on all such matters; to cooperate with the boards of county commissioners in the conservation and reclamation of lands.

Administration. The association is managed by a board of directors consisting of 23 members, 15 of whom are elected from the eight districts of the state and four of whom are elected at large. The terms of the directors are for three years. The board elects a president, a first and second vice-president, all of whom must be members of the board, a secretary, manager and treasurer who may or may not be members of the board. In addition there is an executive committee consisting of seven members, each of whom is a member of the board, elected by the board. The executive committee is responsible for the preparation of a budget of expenses for the organization, for fixing salaries and for determination of the funds to be requested from the classes of membership and ways and means of collecting the same.

Powers. In addition to the powers listed above the board is authorized to:

1. Adopt by-laws that include setting the conditions and terms of membership and dues to be paid by the various classes of members.
2. Create advisory committees to consult with the board of directors.

3. Borrow money and mortgage the property of the association to secure the indebtedness of the corporation.

Comments. The association is not actively involved in the planning and management functions of water but functions as a promotional organization of an advisory nature. The membership of the association consists of counties, municipalities, district water user groups, irrigation districts, water conservation districts, metropolitan water districts, canal ditch and reservoir companies, corporations, industries and all groups and individuals interested in the purpose of the association. (Anderson, 1971) The organization of the association is essentially composed of three groups, on the state, district and county levels. This gives it the flavor of a "grass roots" organization where ideas may flow from the local level to the state and from the state to the individual water user. This type of organization is primarily interested in the broad aspects of water development and conservation and is created to serve the general interests of its members. This type of organization is invaluable when it can promote or create a favorable climate for new water developments through the promotion of public understanding. (Southwick, 1969) It has the advantages of advising on the feasibility of new projects, coordination of efforts of water districts, consideration and evaluation of proposed water legislation and protecting the interests of its members.

The only sources of revenue available to the association are from membership dues and contributions from individuals, municipalities,

and private corporations. This is one of the weaknesses of the organization in that those who receive the benefits of the policies and actions of the association may not be contributing to its support. For example, many of the counties have contributed until their particular water project was completed. Consequently, after development they felt there was no need to be represented and dropped their contribution. The main contributors are the irrigation companies and individual water users. This in itself is a disadvantage as the association may be protecting the interests of only one group of users having one particular use. To be truly effective the association needs to represent all water users indiscriminately and promote the most beneficial and efficient use of Utah's water resource.

Recommendations. This organization serves a very useful function in the promotion of needed water development and in creating public understanding of the project. Being local in character it is in a good position to know and respect local problems and conditions. It is certainly a force for good in its role of considering and evaluating proposed water legislation. This could have a tremendous impact in thwarting poor water legislation and encouraging desirable legislation. The only question is, "desirable to whom?" and in this regard the association should make every attempt to serve each use impartially; otherwise it has no place in the developing of Utah's water resource.

Public Service Commission (1917)

Origin and Authority. Title 54, Chapters 1 through 6.

Purpose. To supervise and regulate every public utility in the state with the exception of municipal utilities.

Administration. The commission is composed of three members appointed by the governor and with the consent of the senate. These members serve for a term of six years and must be United States citizens, residents of Utah and not less than 30 years of age. No more than two can belong to the same political party. The governor designates one of the members to be chairman of the commission.

Powers. The powers and duties of the commission are:

1. To appoint a secretary and employ such clerks, attorneys, experts and others it deems necessary.
2. To regulate rates and charges for public utilities.
3. To ascertain and fix just and reasonable standards, classifications, regulations, practices, measurements or services to be furnished , imposed, observed and followed by all corporations.
4. To fix adequate and serviceable standards for the measurement of quantity, quality, pressure and other conditions pertaining to supply and service rendered by public utilities.
5. To establish reasonable rules, regulations, specifications and standards to secure accuracy of all meters and appliances for measurement.
6. To determine the just, reasonable or sufficient rates for tolls, rentals and charges.

7. To investigate any rate, toll charge, rental, rule, regulation or contract and to establish new ones.

Comments. The commission as such is not involved directly in the planning and management of the water resource. Its influence could be felt by private water corporations through its power to regulate rates and changes. An unreasonable rate system would prevent the utility from operating at maximum efficiency and thus be damaging to efficient management. All utilities must submit an application for certificate of convenience and necessity to construct, operate and maintain a water distribution system. A thorough review by the commission could ascertain the feasibility of such systems and their probability of success. This is a form of planning that could be beneficial in only approving those applications that had a good chance of success. This should require the use of water experts by the commission, which it has the authority to employ. The objection to such arrangements is that no reference is made to any comprehensive water plan.

Recommendations. The fact that this commission is politically appointed may suggest that it is not truly independent and may be subject to political motivation. However, on the basis of past record, only sound and capable men have been appointed who have successfully accomplished a difficult job. It is suggested that the present form of the commission be retained, not selected by public election. This could lead to unqualified people being elected to the commission. Some thought might be given to the appointment of a permanent, capable

secretary to maintain the continuity of the commission as members are replaced.

It is recommended that the commission be empowered to present all petitions involving water projects to be reviewed by some central state planning agency for possible conflict with the comprehensive water plan. It is also suggested that the commission be authorized to investigate the rates charged by all public and private water utilities so that all water rates are fair and equal.

State Planning Coordinator (1963)

Origin and Authority. Code, Chapter 28, Sections 63-28-1 through 63-28-5.

Purpose. To act as the governor's advisor on all planning matters and to coordinate all facets of state planning.

Administration. The state planning coordinator is the administrative head of this office. He is appointed by the governor and serves at the pleasure of the governor. Within the limits of his budget he may appoint staff members to assist in the business of the office.

Powers. The state planning coordinator has the following duties.

1. To receive and review plans of various state and local agencies and to advise of any conflicts.
2. To act as the governor's planning agent and in this capacity to undertake special studies and investigations, submit reports, and render advice to the governor.

3. To provide information and cooperate with the state legislature or any of its committees concerning planning studies.
4. To cooperate and exchange information with federal, local or regional agencies involving their programs.
5. To make recommendations to the governor as he deems advisable for the proper development and coordination of plans for local state governments.
6. To perform regional and state planning and to assist city, county, metropolitan, regional and state government planning agencies in performing their planning functions.
7. To provide planning assistance to Indian tribes regarding planning for Indian reservations.

Comments. The state planning coordinator is also requested to counsel with all authorized representatives of state agencies concerning all state planning matters. The state planning coordinator, when working with the officers of these agencies when called together by the governor, will constitute the state advisory planning committee. A water sub-committee was organized in 1966 within this committee to provide coordination between agencies involved in water resource planning or development. The committee was composed of representatives from the Division of Parks and Recreation, Fish and Game, Water Rights, Water Resources, and Health.

The original act did not give any specific powers to the state planning coordinator to resolve possible conflicts among the various

planning entities. In 1969 the act was amended so that when conflicts occurred between plans and proposals of state agencies he was authorized to prepare his recommendations for the resolution of such conflicts and to submit these to the governor for his decision. In the case of conflict between state and local governments or between two or more local agencies the coordinator can only advise them of the conflict and present his recommendations for solution.

At the present time this office has not been actively involved in the receiving or reviewing of water plans from those agencies interested in water developments. This may be partly due to being understaffed and not having sufficient operating funds to adequately carry out his specific directives. For effective planning and development of the water resource it is imperative that some state agency have the authority to approve or disapprove all proposed water plans, on both the state and local levels. This will become a major necessity when and if the legislature adopts a state water plan.

Recommendations. It is recommended that the state provide a central planning agency to review, revise or reject all plans pertaining to water development and to formulate plans for future developments within the state. If the sentiment is to retain such a planning agency under the office of the state planning coordinator, then it is also recommended that he be provided with adequate staff and financing to accomplish the objective.

CHAPTER V
WATER INSTITUTIONS HAVING RESTRICTIVE OR
LOCAL FUNCTIONS

Institutions discussed so far exist at the state level and, as provided by legislation, are directly or indirectly concerned with the state-wide management of water resources of the state. At the local level there is also a number of institutions devoted to the allocation, development and distribution of water to a great variety of water users. These institutions also owe their existence to some legislative act.

Mutual Irrigation Companies (1880)

Origin and Authority. Code, Chapter 10 Section 16-10-42 states that:

Water Companies, Water-Users' Associations, Irrigation Companies, Canal Companies, Ditch Companies, Reservoir Companies and other Corporations of like character and purpose may be formed under the Utah Business Corporation Act.

The earliest water developments in Utah were primarily of an individual nature. In this instance, the water user easily obtained water by diversion from a flowing stream. As projects increased in scope and character neighbors found it advantageous to band together to form ditch companies to reduce the cost of water. One of the first, the Provo Canal and Irrigation Company, was incorporated by the Territorial Legislature in 1853. (Thomas, 1920) A few companies were incorporated under the Territorial Legislature, and it was not until the laws of 1880

provided that irrigation companies could be incorporated under the corporate laws of the state that expansive organization occurred. (Hutchins 1927)

Purpose. To provide irrigation water at cost for use primarily by its stockholders or members.

Formation: Mutual irrigation companies may be incorporated or unincorporated depending upon the size of the company and the attitudes of its members. If the company has a large membership with considerable administrative detail or may be subject to litigation it generally incorporates. (Israelsen, 1951) Mutual companies are not public institutions but are private, non-profit organizations owned and operated by water users and organized for the sole purpose of providing water to members at cost.

The unincorporated mutual company is a voluntary association of water users having no formal organization; it does not operate under any specific legislation or have any required organizational procedure. The contracts between members, verbal or written, constitute the organizational and operating procedures. (Hutchins, 1953)

By far the most predominant water institution in Utah has been the incorporated mutual company. (Hutchins, 1942) The general corporate laws of the state govern the organization of this type of company. The law requires that there be at least five incorporators who must enter into a written agreement, called The Articles of Incorporation, specifying (1) name of corporation, (2) names and residences of incorporators, (3) purpose and principal place of business, (4) duration, (5) amount

of stock each incorporator has subscribed, (6) number and kind of officers, (7) their qualifications, terms, and method of election, removal or resignation, (8) number of directors, (9) whether or not the private property of the stockholders is liable for obligation of the corporation, (10) description and value of property subscribed for stock. These articles are then filed with the county clerk of the county in which the principal place of business is located. A copy of these articles and the county clerk's certificate of filing are sent to the Secretary of State who issues the Certificate of Incorporation.

Administration. The management of the company is by a board of directors, elected by the members for one year terms.

Powers. The powers invested in the directors are:

1. To make contracts, acquire mortgages and dispose of real and personal property.
2. To incur indebtedness, issue bonds or other evidences of indebtedness, and mortgage the company's property to secure its repayment.
3. To acquire water rights, water supplies, rights of way and other property.
4. To acquire, construct and operate irrigation works.
5. To divert, impound and deliver water to members' land for irrigation and domestic purposes.
6. To levy assessments against capital stock of the corporation to obtain revenue.

7. To collect tolls or charges for use of water.
8. To sue and be sued.

Comments. The incorporated mutual company has been the most popular form of water institution in Utah. During the early years of irrigation most irrigators soon learned that pooling their efforts in some formal organization led to a reduction in construction and maintenance costs. Also, financing was more readily available through the assessment of its members. The power of the corporation to sell the stock of delinquent members is a strong incentive to pay the assessment. Another reason for its popularity is that the management of the company is local in character and familiar with the problems. This may be a disadvantage as far as efficient development of the water is concerned, as these companies were formed for the single purpose of satisfying their own needs without thought of cooperation with other areas.

In most cases the water rights are owned by the company and the member receives a quantity of water proportionate to the number of shares of stock he owns. The member does not pay for the water received but is assessed only for the management and maintenance costs. The policy of the stockholders determines whether the stock may be bought, sold, rented or exchanged within the company. Most companies do allow transfers of stock within the company. This adds immeasurably to the flexibility of operation and allows those stockholders that can make more productive use of the water to do so. The transfer of water from one company to another is provided by the Utah Law (73-1-13) but to do so depends on the

by-laws of the company. In the past most companies have not allowed these transfers. Even when allowed, the practice has been to charge unreasonably high fees that have effectively prohibited such transfers. (Webb, 1967) This practice has decreased flexibility.

The question of security arises in the operation of a mutual company. Each user is entitled to a proportionate share of available water according to the amount of stock he owns. In times of scarcity this may be less than his original water right. Physical uncertainty can also exist in smaller companies that do not have sufficient financing to make necessary repairs to the existing system. Another disadvantage of mutual companies is their singleness of purpose that has led to the development of many companies in a small area. Consequently this close operation has either meant a restriction of effort on the part of one company so as not to interfere with the operation of another, or an effort that has conflicted with the rights of others. This latter has generally led to law suits that were costly and extended over a number of years. These have prevented an orderly development and use of the water resource.

The reluctance of existing mutual companies to extend themselves in the development of new distribution works to accommodate a greater water demand has led to the organization of new mutual companies. From this has emerged duplication of facilities and even parallel ditches servicing the same field. One landowner may belong to several companies, each providing water to the same tract of land. The answer

to this seems to be the consolidation of these companies. Even though the advantages of consolidation are apparent, there has been extreme reluctance for the small mutual company to take this step. The reason for this has been ably expressed by Crafts (1958) when he stated:

The farmer is interested in the company only as it affects him personally. He is primarily interested in the water delivered to him at his headgate and his actions are governed by that interest. He seldom refers to himself as as stockholder, but rather an owner of a water right within the company. That is why he will join readily with others and put forth an incredible effort to build a reservoir. He knows that the building of the reservoir will increase the quantity or dependability of the water at his headgate, or it might do both. But when it comes to the actual delivery of water at his headgate the more weight his voice carries, the better. For this purpose he tends to favor small organizations. He regards a portion of the water owned by the company as his own personal property and he wants to have as much to do with its management as possible... Most of all the farmer wants to protect his water rights. He feels that this will be best accomplished by someone in his immediate neighborhood.

There is no getting away from the conclusion that generally small mutual irrigation companies are wasteful, expensive, and inefficient, but the farmer sticks by them because he enjoys the feeling that he is managing his own affairs. (Crafts, 1958, p. 28)

As the demand for water increases and the existing mutual companies are inadequate to provide this demand, pressure may be exerted to force consolidation of these companies. Consolidation would do much to increase the efficiency of use of the water resource and to provide for better planning and management of a common resource. This subject of consolidation has been well covered by Israelsen (1951), Crafts (1958), Strong (1958) and Bishop (1959).

Recommendations. The mutual company was the first institution to take advantage of using group enterprise to construct and operate a water project. The ability to levy assessments did provide the necessary funds for the operation of the company.

The advantages of the mutual company are that water is delivered to the members at cost; it is flexible in operation; membership is voluntary; it is a private corporation and not under state supervision except in the manner of incorporation; and it is locally controlled to take care of local problems. However, as projects increased in size financing by assessment became difficult and other water organizations having some type of tax base came into existence.

To increase efficiency and to reduce waste it is recommended that consolidation of mutual companies be accomplished as quickly as possible. Where consolidation is not possible mutual companies should repair existing systems to avoid waste and improve methods of distribution. The adjudication of all sources of water by the state engineer should be helpful in locating inefficient and wasteful practices. It is recommended that these determinations be reviewed periodically, perhaps every five years.

Irrigation (Now called Conservation) Districts (1909)

Origin and Authority. Code, Chapter 7, Sections 73-7-1 through 73-7-67. Irrigation districts were first established in Utah by the Territorial Legislature of 1865. The Utah Irrigation District

Act of that year was an effort to permit local communities to band together to form more ambitious plans for the development and distribution of water for irrigation. The costs of the irrigation works were to be financed by levying taxes on the landowners who benefited from the improvements. However, the 1865 act contained no provisions for the issuing of bonds and very few districts were organized. None of these proved successful, and the act was repealed in 1897. (Hutchins, 1927) In 1909 another irrigation law was passed, modeled after the Wright Act of California. The act provided for the issuance of bonds to provide the necessary financing for the initial construction. This act, having been amended several times, is the one presently in force today.

Purpose. To provide for the acquisition or construction of works for irrigation, drainage and local improvements of lands contained within such districts and to provide for the distribution of water for irrigation.

Formation. The governor, upon recommendation of the state engineer, or 50 or a majority of land owners within the proposed district, may propose the organization of an irrigation district. The petition must be filed with the Board of County Commissioners of the county in which the proposed irrigation district exists. The petition must contain the proposed water supply, name of such district, ownership of lands in district, request for water supply and allotment. After the state engineer's report on the water supply and allotments is prepared and the irrigation district proposal has been published for hearing, the landowners within the proposed district vote to determine whether or not the district will be formed.

Administration. The management of an irrigation district resides in the board of directors. The directors are elected by popular vote of the water users within the district and serve for a period of three years. The board elects its own president and appoints a secretary and whatever other employees it requires to perform the work of the district.

Powers. The powers and duties of the board of directors are:

1. To construct or acquire by contract, purchase, condemnation, or otherwise canals, ditches, reservoirs, reservoir sites, irrigation systems or works, and land necessary or incidental to the work of the district.
2. To acquire water filings, water rights, and rights of way.
3. To purchase stock of irrigation, canal and reservoir companies.
4. To enter any land in the district to make surveys, to locate and construct any canal and laterals.
5. To lease or rent excess water for use within or without the district boundaries.
6. To collect revenue for operation and maintenance by tax levy and assessments against benefited lands within the district.
7. To make rules and regulations for distribution and use of water among land owners in the district.
8. To withhold water from any lands which are delinquent in payment.

9. To enter into contract with the United States and any of its agencies and with other state agencies.
10. To acquire water from outside the district by purchase.
11. To sue and be sued.

Comments. The development of irrigation districts was due to the need for increasing the tax base in order to provide the more elaborate works needed for irrigation. The district provides the means for bringing together all water users within a specified area in a combined effort to develop an irrigation project. Those who do not wish to participate must petition the directors to exclude their land from the district. The decision to accept or reject the petition is usually based on what is good for the district.

All land owners in the district are assessed and the tax levy is collected by the county treasurer along with other taxes. When levied these taxes become a lien against the land and if not paid the land may be sold to pay the taxes. Special assessments may also be collected directly from the landowners to pay any additional expenses. Thus the assurance of adequate financing through the powers of taxation and assessment creates a reasonable distribution of costs and combines the investment resources of the district.

The advantage of the irrigation district lies in the fact that the district occupies a much larger area than was previously possible. Generally the boundaries of the district follow along county lines or a portion thereof, and include a common water source for the area

involved. Consequently it is possible to avoid or reduce duplication or overlapping of facilities that exist with individual appropriators and mutual companies. The concept of enabling all lands in an area to develop an irrigation project under a single entity and to require all the benefited lands to share the costs is the strongest feature of the irrigation district. (Baker and Conkling, 1930) The irrigation district does provide for a certain amount of flexibility in that a water user may allot all or a portion of his assigned water to other users, and that excess water may be sold within or without the district. Another feature of the irrigation district is that each landowner has a voting right in the affairs of the district equal to the amount of his water right.

The disadvantage of the irrigation district is that the district is confined to the boundaries of the county and is not able to take advantage of a water source across the county line. Consequently an adjoining county may have to establish its own district even though they both would be using a common source of supply. (Hall, 1965) The amount of money required to operate and maintain the district, retire debts and pay interest is decided by the board. The amount each water user is required to pay is based upon his water allotment. This is an added disadvantage in that each landowner is assessed an equal amount regardless of type, use, or amount of water required. (Kelly, 1958)

Flexibility may be impaired in that the board of directors must approve all transfers of water. As the water users of the district control

the operation of the district through their election of the directors this requirement need not hinder the flexibility. Security of a water right may be in doubt as the directors control the amount of water allotted to each user. However, it is not evident that this could happen except in times of scarcity. Another disadvantage is that anyone who leases water from the district has no security beyond a five-year contract and is not entitled to compensation if the lease is not renewed. This does not provide for efficient use of water as the renter is reluctant to invest in proper facilities under these terms.

Recommendations. Though the irrigation district did attempt to improve the development of water projects by providing sufficient funds to insure success even these were not adequate to keep the costs low. The districts were not able to take advantage of overall basin development due to their restriction to the county boundaries. Very few projects have developed in Utah under provisions of this act, possibly due to the success of more popular institutions and the reluctance of individual appropriators to relinquish their rights to a board of directors; however, the irrigation districts do increase the chances of success in that the planning and management is over a larger area, reducing the need for duplication of efforts and the overlapping of facilities within the district. If the law were revised to permit irrigation districts to cross county lines this institution would have greater chance of success.

Water Conservancy Districts (1943)

Origin and Authority. Code, Chapter 7, Sections 73-9-1 through 73-9-42.

Purpose. To provide for the conservation and development of water and land resources of the state and for the greatest beneficial use of water within the state.

Formation. The district court has the authority to establish water conservancy districts upon completion of specified conditions. These conditions include a petition to be filed with the clerk of the court signed by a required number of land owners within the proposed area of the district. Any protests to the establishment of the new district must be filed with the court and be considered at the hearing to consider the original petition. When all statutory requirements have been met and all protests rejected, the court shall declare the district organized. The district becomes a political subdivision of the state of Utah with all the powers of a public or municipal corporation.

Administration. The management of the district resides in a board of directors appointed by the court. The directors are appointed to serve three years.

Powers. The board selects its own chairman, appoints a secretary and may employ a chief engineer, attorneys and other employees that may be needed to conduct the business of the district. In addition the board has the power:

1. To have perpetual succession.
2. To take by appropriation, purchase, request, grant, devise, or lease and to hold and enjoy water, waterworks, water rights and sources of water supply within and without the district necessary to its needs.
3. To have and to exercise the power of eminent domain.
4. To construct and maintain works and facilities across any public street, highway, vacant public lands, streams or watercourses.
5. To enter into contract with the government of the United States or any agency thereof.
6. To allot water to lands susceptible to irrigation and to levy assessments against such lands.
7. To fix rates at which water not allotted to land may be sold, leased or otherwise disposed of. Rates shall be equitable although not necessarily equal or uniform for like classes of service throughout the district.
8. To study, investigate and promote water development within the district; to appropriate and otherwise acquire water rights within or without the state; to develop, store and transport water; to 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, industrial and other beneficial purposes.

9. To borrow money and incur indebtedness and to issue bonds.
10. To acquire, construct or operate and maintain works for the irrigation of land as well as for the other specific purposes set forth herein.
11. To sell water and water service to individual customers (domestic, culinary, agricultural, industrial or otherwise.)
12. To adopt plans and specifications for the works for which the district was organized.
13. To levy taxes and assessments and if not paid to have real property sold at tax sale for payment of taxes and assessments.

Subdistricts may be organized within or partly within or without the district in substantially the same manner as the districts. A subdistrict shall be a separate entity within the district and shall have the authority to contract with the district for the furnishing of water and for other purposes. The board of directors of the subdistrict has the rights, privileges and powers granted to the district board.

Comments. The Water Conservancy Act of 1953 was created to obtain the most beneficial use of all unappropriated waters of the state. Unlike previous institutions that were established to serve only one function, the water conservancy district operates as a multiple purpose project. Its boundaries are such that it may extend over several counties and serve all uses and users of water. The tax base is broad enough to construct and operate a water supply system for a whole hydrologic

basin. The large area covered by the district allows comprehensive planning for complete integration of the system and effective management. The Water Conservancy Act does not provide for any priority system, consequently water should be expected to seek its highest use if one is willing to pay the price. The low taxing power of the district may also force the district to dispose of its water at the maximum price it can obtain.

The Water Conservancy Act was also established to take advantage of federal assistance under the Bureau of Reclamation. To receive this assistance the federal law requires a local organization with taxing power, having legal power to contract with the federal government and be responsible for the repayment of the reimbursable portion of the project. The only agency prepared to meet these conditions is a water conservancy district. The repayment of these reimbursable costs may be one disadvantage of the conservancy districts.

Contracts may be negotiated by the district for any number of years, but the common practice has been to maintain the length of the contract to cover the period of indebtedness of the project. Individuals and organizations may be reluctant to obligate themselves for a period of sixty years. In addition, in times when the user does not require the entire contracted amount there are no provisions for the trading or selling of excess water. This does not provide the flexibility needed for efficient management of water. However, in some

cases the directors have deviated from this policy of long term contracts and have negotiated short term contracts with no guarantee in times of scarcity and no obligation for the user to purchase any water from the district. The district will make water available upon demand as long as enough water is available to meet other contracts.(Webb, 1967) Therefore, nothing in the act would seem to impair the flexibility or security of the user--only the attitude of the board.

The board is also obligated to establish the price policy of the district. The act stated that "Rates shall be equitable but not necessarily equal or uniform of like classes of services throughout the district." Again this is a decision of the board and usually there has been a considerable difference in prices charged for the various uses of water. It is reasonable to charge more for domestic water than industrial water, as the domestic water is usually processed. However, there is considerable difference between charges made for industrial use and irrigation for the same quality of water. This lends substance to the report that agricultural use is frequently subsidized by other uses. This discrepancy may also be heightened by the condition in some projects that a certain quantity of water be set aside for agriculture. The favored position of agriculture would seem to imply an inefficient management of the water resource. In some instances the Bureau of Reclamation has set the prices on water use. In this case, if the prices have been set too high, the directors are not able to increase sale by lowering the price.

At the present time there are only twelve Water Conservancy Districts in Utah. Of these twelve only five are in operation and the remainder in some stage of construction. The Water Conservancy District would seem to have the capability for the planning and management of the state's water resource. It encompasses a large enough area to fully include a hydrologic basin and it must be developed as a multiple purpose project. The tax base is large enough to assure adequate financing, but the tax itself is low. The main source of revenue is from the sale of water.

Recommendations. The Water Conservancy District provides an efficient institution for the allocation and distribution of water. The district provides for efficient planning and management of the water supply. It is recommended that some consideration be given to the establishment of short term contracts, more flexible rates, and less difference in charges for the various uses. There should be an effort to see that the board is not dominated by one particular use.

Metropolitan Water Districts (1935)

Origin and Authority. Code, Chapter 8 Sections 73-8-1 through 73-8-59.

Purpose. To provide for all water needs of all the water users within the boundaries of the district.

Formation. The legislative body of any municipality may pass an ordinance stating: (1) proposal to organize a metropolitan water

district (2) names of cities to be included in the proposed district, (3) name of proposed district, and (4) proposed costs to each city of organizing the proposed district. A special election must be held by all those municipalities whose legislative body favored the organization of such a district. If the majority of the electors of the municipalities favor the proposal, a district will be created. The Secretary of State will then issue a certificate of incorporation stating the name of the district to be incorporated and the names of the municipalities composing the district.

Administration. The management of a metropolitan water district is exercised by a board of directors. The directors, with a representative from each city, are appointed by the legislative body of each municipality within the district. If the district includes only one municipality the board of directors may consist of either five or seven members as determined by the legislative body of that city. A director will serve for six years.

Powers. The board of directors shall have the power:

1. To have perpetual succession.
2. To sue and be sued in all actions.
3. To take by grant, purchase, bequest, devise, or lease, and to hold, enjoy, lease, sell, encumber, alienate, or otherwise dispose of water, waterworks, water rights, and sources of water supply.
4. To have and to exercise the power of eminent domain.

5. To construct and maintain works and to establish and maintain facilities across or along any street or highway.
6. To borrow money, incur indebtedness, and to issue bonds.
7. To fix and determine the funds required for district purposes and charge the same against each city within the district.
8. To levy and collect taxes to carry on its operations and to pay the obligations of the district.
9. To acquire water rights within or without the state; to develop, store, and transport water; to subscribe for, purchase and acquire stock in water companies; to provide, sell, lease, and deliver water within or without the district for all uses.
10. To enter into contracts; to employ and retain personal services and to employ laborers; to employ engineers, attorneys and other employees necessary to carry out its business.
11. To join with one or more corporations, public or private, for the purpose of carrying out any of its powers.

Comments. The beginnings of this type of institution in Utah date back to the early 1900's, and were in part due to the periodic water shortages suffered by Salt Lake County. The inability of local governments to solve this problem within the framework of existing institutions created a need for a new institution to provide for the present and future water needs of these metropolitan areas. A feasibility report, prepared by E. O. Larsen of the Bureau of Reclamation in 1931,

suggested that these problems might be solved by the creation of a metropolitan water district patterned after the Metropolitan Water District of Southern California. (Harris, 1942) This suggestion was shared by many people who felt that any effective water development program should be managed by an independent non-partisan board not subject to municipal administration. (Harris 1942) Thus the Metropolitan Water District Act was passed by the 1935 Legislature and was declared to be constitutional by the Utah Supreme Court the same year. (Lehi City v , Meiling 1935)

The purpose of the act was to remove water allocation from political control and to consolidate the water development efforts of adjoining municipalities into a single agency. By law the district has the authority to provide water for all uses, but usually the major customers are the municipal water departments and other agencies, such as water improvement districts, established to provide water services. The district also sells water to industry and agriculture. Essentially the metropolitan water district is organized for a single purpose, that of providing water for domestic and municipal purposes; priorities of use are not an important factor in the distribution of water.

Priority to water is given to any use or user within the district relative to those without the district. The board of directors may cancel its contract with any user outside of the district by written notice one year in advance. The provision for selling water outside the district is good, in that it is making beneficial use of water and also

providing water for the future when the district may reclaim it for its own use. However, this provision may result in inefficiency as the outside user may hesitate to invest too heavily in the works necessary to make effective use of the water that may be cut off with a year's notice. A longer time period of warning or the provision of adequate compensation to cover his investment may induce the user to fully develop his works.

The act provides that the revenue for financing the operation of the district should come from the sale of water. It is the duty of the directors to provide this revenue through water charges. The pricing method used determines to a great extent how efficiently the water is used. The fixed surcharge method sets a fixed price regardless of quantity used and normally results in water waste. The other system requires meters and provides that the user pay for only what he uses. This provides for more efficient use of water. In addition to water sales the district also has the power to levy taxes to raise the necessary revenue. This tax appears justified as everyone in the district benefits from an adequate water supply in fire protection, increased property valuation, etc.

Recommendations. The metropolitan water district seems to have accomplished the purpose for which it was created. It has provided an independent water board to manage the water supply and has consolidated the water works of a number of small municipalities. The planning and management functions have been enhanced due to the

larger area encompassed and the provision of adequate financing. The district may make its biggest contribution to efficient use of the water supply through its pricing procedure. It is recommended that pricing methods be reviewed and that the customer pay for what he uses. This means that all systems should be metered and that water sales provide for the major part of the cost of the district's operation. In addition it is recommended that a user outside the district be given contracts for a longer period or guaranteed adequate compensation.

Improvement Districts for Water, Sewer or Sewage Systems (1949)

Authority and Origin. Code, Chapter 6, Sections 17-6-1 through 17-6-27.

Purpose. Improvement districts may be established in any county or counties for the construction and operation of:

1. Systems for the supply, treatment and distribution of water.
2. Systems for the collection, treatment, and disposal of sewage.

Formation. The legislative body of any city or town included in the proposed district or 25 percent or more of landowners in the proposed district may petition the Board of County Commissioners to create an improvement district. The petition must include the boundaries of the proposed district and the purposes of the proposed district. After approval of the petition, the Board of County Commissioners has complete jurisdiction over the entire district.

Administration. The administration of the district is conducted by a board of trustees. This board may be the County Commissioners, or trustees appointed by the County Commissioners or elected by landowners of the districts. The trustees will be appointed or elected for a period of six years.

Powers. The board of trustees has the powers and duties:

1. To employ such agents and employees as it deems necessary to operate the district.
2. To sue and be sued.
3. To levy taxes for district purposes on all taxable property in the district.
4. To sell property for nonpayment of taxes.
5. To issue bonds.
6. To exercise all powers of eminent domain.
7. To enter into contract with municipal corporations and other public corporations for the purchase or sale of water or use of facilities.
8. To impose and collect charges or fees for water or other services or facilities afforded by the district to its consumers.
9. To own property, appropriate or otherwise acquire water and water rights within or without its boundaries and to sell water or other services to consumers residing outside its boundaries.

Comments. The improvement district serves a very important function in providing water for a municipality or a localized area. The district may act as sole operator in supplying, treating, and distributing water to the cities and towns or may act as an intermediary, buying water from another water organization and distributing it to a residential area or municipality at a price. In either case it serves as a municipal water department.

The district is a local organization depending on local financing for its well being. As such it does not exert much in the way of planning or management on a broad area. Its chief function is to provide domestic water to the residents of the area. This water must meet certain standards as set by the Division of Health. The source of this water may be surface streams, springs, artesian wells, and deep wells. The quality of the source water influences the amount of treatment necessary and consequently the cost. Water may be made available by other water organizations such as water conservancy districts and metropolitan water districts.

The allocation of water to the residents of an improvement district is the same as any municipal water department. Anyone in the district is entitled to what he wants at some established price. The efficient management of this supply depends primarily on what method of charging is in force and whether or not the supply is measured. Two methods are presently in force in Utah (Webb 1967), the fixed surcharge or the block system. When water is not metered the fixed

surcharge is preferred in which a set price is charged each resident regardless of the amount used. This results in extreme waste of an important resource, as there is no incentive to reduce the amount used. The block method or multiple price system requires that water be metered at each household. The resident pays only for the quantity used. Generally a certain minimum is charged up to a certain quantity with certain quantities above a minimum being subjected to decreasing rate per block or quantity. (Gardner, 1966) There is some tendency to waste water under this system due to heavier uses at reduced prices once the minimum is exceeded. This is still more efficient than the fixed charge method. The most efficient method would be to set one price regardless of quantity used and to meter the system so that everyone pays for what is actually used.

Recommendations. The improvement district adequately carries out the function for which it was organized. It does not have much effect on the planning and management function unless there are several improvement districts using the same source or working in the same area. Also it may be inefficient if it is operating in the same area as a metropolitan district and there exists duplication of facilities or paralleling of distribution lines. It is recommended, in areas where larger water organizations such as conservancy or metropolitan districts exist, that the municipalities obtain water from them or that the improvement district simply act as a distributor of water. Some improvement districts were organized to consolidate numerous

subdivisions in unincorporated areas and may provide irrigation water to the area.

Municipal Water Departments

Origin and Authority. Code, Title 10, Chapters 5, 6, 7, and 8; Title 17, Chapter 6.

Purpose. To construct, operate and maintain a system for the supply, treatment and distribution of water for the benefit of its citizens.

Administration. The management of the water department may be by the board of commissioners, city council, board of trustees, or city manager. One commissioner may be placed in charge of the water department or the governing body may select an engineer to operate the department.

Powers. The powers and duties of the authorities relative to water are:

1. To acquire by purchase or lease all or any part of any water, waterworks system, water supply or property connected therewith and, if deemed necessary for the public good, to bring condemnation proceedings to acquire the same.
2. To levy annually on all taxable property within its boundaries a sufficient tax to pay off the interest on all indebtedness incurred in the acquisition of a water system.
3. To levy special taxes for the purpose of constructing, extending, reconstructing or maintaining waterworks,

reservoirs, canals, ditches, pipelines and such for the purpose of supplying water for domestic use and irrigation.

4. To levy a tax annually not to exceed four mills on the dollar of assessed valuation on all property in the municipality, in addition to all other rights of assessment. This is to be placed in a special fund and used only for the purpose of financing the construction of facilities to purify the drinking water of the municipality or to pay principal and interest on bonds issued for the construction of such facilities.
5. To make a fixed monthly service charge or a minimum monthly charge for water service.
6. To enact all ordinances and regulations necessary to prevent pollution or contamination of the streams or watercourses from which the inhabitants derive their water supply within or without the city limits.
7. To have all the other powers granted to a political subdivision of the state.

Comments. The municipal water department is not involved in the planning and management of water to a great degree. It is involved in the planning and managing of its own water supply but as such should not have any conflict with any comprehensive plans. Once it has obtained its source of supply all other problems are strictly local. As surface supplies become scarce the city may have to go to well

supply, which may pose a problem due to legislative regulation of groundwater. Quality of water has deteriorated and municipalities have had to resort to some type of treatment. These treatment facilities range from simple chlorination to large rapid sand filtration plants. The Division of Public Health has the authority to establish and maintain minimum standards for domestic water that the municipality must meet.

In all condemnation proceedings the land affected by the taking must be considered in connection with the water and water rights taken for the purpose of supplying the city or town. Special assessments made and levied constitute a lien upon the property assessed and if unpaid may be sold at a tax sale.

Monies for retiring bonds and paying interest and operating costs may be derived from the sale of water. Poor management of the water department may result in the use of taxes to make up any deficit. The charges for water may be handled in various ways. Where water is unmetered the flat system is generally used, which constitutes a monthly or quarterly charge usually based on the number of water fixtures or the building use. The disadvantage of this charge is that it encourages waste and users may not contribute their fair share of the cost. The step rate system makes a charge per 1000 gallons used up to a certain amount. Then a lower charge is made for water used between this and the next step. The procedure is repeated for the next step and so on. The disadvantage of this method is that the closer a customer comes to a change of rate,

the greater the tendency to waste water to reach the lower rate. The most commonly used method is the block rate that divides the water into blocks. The initial block is charged the highest rate with succeeding blocks carrying lower charges. Then the total cost of service is the sum of the charges made for each block. This method usually contains a minimum bill which is paid whether the water is used or not. The advantage of this method is that the customer pays for his proportionate share of water and is not likely to waste water unless the charges are ridiculously low.

Recommendations. Municipal water departments are concerned only with the problem of management and development of their local water supply. However the broad powers of condemnation given to the municipalities to assure an adequate supply for its inhabitants may lead to conflict with other agencies. The power to acquire and develop a water supply outside its boundaries may interfere with another planned use of the water resource. Again it is necessary for municipal waters to be reviewed by a central state planning agency to conform to a comprehensive plan.

Drainage Districts (1913)

Origin and Authority. Code, Chapter 1, Sections 19-1-1 through 19-1-20.

Purpose. To enable landowners to organize for the purpose of reclaiming land burdened by excessive water.

Administration. The district is managed by a board of supervisors composed of three members appointed by the County Commissioners to serve for three years.

Powers. The board of supervisors has the duties and power:

1. To elect a president, secretary and treasurer from among their number and to adopt a code of by-laws governing the operation of the district.
2. To appoint a competent engineer and to employ and appoint agents, officers and employees necessary to operate the district.
3. To enter into contract with the United States or any of its agencies.
4. To sue and be sued.
5. To have perpetual succession.
6. To appropriate water for useful and beneficial purposes; to regulate and control, for the benefit of landowners within the district, all water developed, appropriated or owned by it; and to appropriate, use, purchase, develop, sell and convey water and water rights.
7. To acquire by purchase, condemnation or other legal means all lands and other property necessary for the construction, use, maintenance, repair, and improvement of canals, drains and works constructed by private owners, and all necessary appurtenances.

8. To enter any lands to make surveys and locate the drainage canals and branches deemed necessary.
9. To issue bonds.
10. To lay out and construct such proposed work and to levy tax on lands in the district, subject to the approval of the Board of County Commissioners.
11. To assess, levy and collect taxes on all lands in the district, the taxes being equitably apportioned among lands.
12. To sell land for delinquent taxes.

Comments. Much of what has already been said about mutual irrigation companies may be said about drainage districts. Generally the irrigation district covers a relatively small area, the average area being between 3000 and 4000 acres. The members of the drainage district have a local problem to remove excessive water with little regard for or cooperation with adjacent areas. The removal of this water may be adverse to adjacent owners and areas and lead to investigation. A consolidation of adjacent drainage districts or of drainage and irrigation companies would be advantageous to all concerned. The smallness of the drainage districts precludes provision of the necessary finances for an economical operation and inefficiency may result from underinvestment in project works. Consolidation of districts could avoid duplication and overlapping of facilities and provide adequate funds for good planning and management.

Recommendations. Drainage districts do not have an active part in overall water planning. As their problem is local, their planning is localized. However, their efforts may affect the planning of a much wider area by restricting the number of alternatives available to basin planning. As with the other smaller water institutions it is recommended that all plans for proposed works be approved by a central state planning agency. It is also recommended that the smaller drainage districts consolidate with each other or with irrigation companies. Such consolidation would improve the overall planning and management of a common water resource.

CHAPTER VI
EXAMINATION OF WATER INSTITUTIONS
WITHIN WEBER COUNTY

Weber County was selected for a detailed analysis of the various water institutions that affect the planning and development of water projects. This particular area has a long history of water-related activities and provides a wide spectrum of water institutions.

Settlement of the area began in 1848 with the arrival of the Mormon pioneers, many of whom had moved away from the Salt Lake settlement to find good land and water. The pattern of settlement was the same that took place in the rest of Utah. Upon arrival, work was begun providing a fort for protection, clearing and planting the fields, and planning the irrigation facilities so necessary in this arid region. All these activities were accomplished under the direction of the Mormon Church. This pattern of settlement had proved most successful and was probably the only way a completely self sufficient unit could be developed in this type of environment.

However, as far as water and land use was concerned, this pattern was very inefficient. The demand for domestic and irrigation water usually meant the selection of the simplest works that gave immediate water. These early irrigation works were built in areas

that were easily accessible to water and consisted of small diversion dams in the stream and short ditches to carry the water to the fields. As more settlers arrived, water was required in areas some distance from the stream. These crude ditches were simply extended to provide the necessary water with no thought of planning for future development. The first diversions were usually a matter of an individual doing the work, but these extensions required a more cooperative effort because of the magnitude of the work and the higher cost involved. This led to the development of the mutual irrigation companies which could provide the financing through assessment of the members. As the demand for water increased and water became scarce more of these companies were formed to provide the additional water. Many of these companies used the same source of supply and served the same individuals with duplicate facilities and parallel ditches. Thus at this particular time water development became a patchwork of individual efforts that led to duplication of facilities and uneconomical development. This was due to the failure to provide for the optimum development of the water resource and to the fact that the development took place without the use of the latest technology or competent engineering. Consequently the majority of these new developments were seldom integrated or consolidated into a more workable and economical arrangement. (Bishop, 1959)

Another deterrent to future planning has been the reluctance of these older companies to change their identity and so they have refused change or consolidation. This has led to the establishment of a large

number of small irrigation companies which, though qualified to do the job years ago under different economic conditions, have jealously guarded their rights and have resisted consolidation into larger, efficient and more economical companies. (Bagley, 1965) Most of the smaller irrigation companies do not have the finances to employ qualified staff to manage and operate the company efficiently. As a result, much waste has occurred in the loss of a valued water resource and in the money required to maintain duplicate facilities. The loss of a valued water resource must not be permitted and legislation must be provided to stop the waste and to force modernization or consolidation where required.

As the undertakings became more complex and involved greater construction costs institutions were needed that could provide a broader economic base. Thus began the growth of the quasi-governmental water distribution organizations such as the irrigation or conservation districts, conservancy districts, metropolitan districts and improvement districts. The major difference between these districts and the mutual company was the nonvoluntary nature of these new organizations that broadened the tax base. The objection to the mutual company was that its revenue was limited to assessment against irrigated land only. (Moss, 1967) Some of the earlier irrigation districts failed because they had included within the boundaries of the district only the lands to be irrigated. From these mistakes arose the concept that since the entire community prospered from increased benefits due to irrigation

it should help pay the costs of irrigation. Consequently the conservancy district and like organizations were created by legislation with the power to levy taxes on all taxpayers, including urban dwellers. This type of institution has eliminated the matter of insufficient financing.

Weber County contains a large number of water institutions that are directly or indirectly involved with the water resources of the area. Some of these agencies are regulatory in nature, others function as promotional or development entities and others are engaged in data collection; however, all are involved to some degree in the development and management of the water resources of the area. The intent of this study is to analyze these different institutions to determine if they are adequately performing their stated objectives and their effect on the planning and management functions of water. Those institutions that have statewide functions such as the Department of Natural Resources, Department of Health and the like have been fully described and commented upon in previous chapters and will not be re-examined at this time. The following is a listing and an evaluation of those institutions actively involved in the water problems of the area.

Mutual Irrigation Companies

A mutual or cooperative water company is a private association of individuals who have gathered together voluntarily for the purpose of providing water to their members at cost. These companies may be incorporated or not, depending upon the attitudes of their members.

The larger mutual irrigation companies tend to be incorporated. The incorporation of a mutual company is specified by the general corporation law of the state. The requirements of this law and the management of this type of institution were specifically described in Chapter IV of this text and will not be repeated here. Other irrigation companies, ditch companies, canal companies etc. had been incorporated under the laws of the Territory of Utah and others prior to this latest act.

There are a large number of corporated and unincorporated mutual companies operating in Weber County. About 60 of these organizations exist in this area at the present time. In reviewing these institutions it was determined that the large majority of them were formed by conveyance of existing water rights and distribution systems to the corporation in return for most of its capital stock. It is of interest to note that the objectives of the older companies are very brief and specific while the later ones list a great number of generalized objectives. In the period 1925 thru 1935 almost all of these companies amended their articles of incorporation to allow themselves to contract with the United States, and its agencies or other corporations. This was the time that the Bureau of Reclamation became active in this area through the Echo and Pine View Projects.

The federal government generally prefers to contract with an irrigation-district form of organization that has a tax base. However as the mutual company has been a popular type of institution in Utah for a considerable time an exception was made. The Bureau of

Reclamation, in several instances, has entered into contracts with water-users' organizations. The mutual company has benefited from this policy by obtaining stock in these organizations. (Hutchins, 1936) In several of the amendments it will be noted that the corporation has contracted with such entities as the Ogden River Water Users' Association or the Weber River Water Users' Association. These particular companies had contracted with the United States for the construction of the Pine View Dam and the Echo Dam, respectively.

Articles of incorporation and all amendments thereto are filed in the office of the secretary of state. The following brief summaries of these institutions were obtained from that source and from personal interviews with officers of the company. The incorporated companies operating in Weber County are:

1. Alder Creek Irrigation Company, Inc. 1909, Pleasant View, Utah.
 - a. Capital Stock: 180 shares at \$100.00 each.
 - b. Officers: The board of directors of this company consists of three members to be elected by the stockholders and to hold office for one year. The board elects a president, vice president and secretary-treasurer from its own members.
 - c. Purpose: The acquisition, maintenance and operation of Alder Creek and other canals and ditches that may be necessary for the irrigation of land for the benefit of the stockholders in the corporation.

- d. Source of Water: Ogden River
- e. Comments: The various incorporators have conveyed to the corporation their right, title and interest in the Alder Creek Irrigation Company for a proportionate number of shares. The proportioning of these shares has caused some problems in distribution as one shareholder, for example, is entitled to 39.95 shares or to 25 hours and 57 minutes of water use.

The directors have the power to levy two assessments, not to exceed 10 percent each, during one year. Stock may be transferred or sold to another individual to irrigate any other land lying along the company's land. No share or transfer of stock to irrigate lands other than company's land is permitted.

Some of the articles of incorporation were amended in 1933, which broadened the business pursuit of the company and in particular authorized it to contract with the United States, its agencies or other similar organizations. This also required a change to make the board of directors responsible for the levying and collecting of assessments as they see fit.

- 2. Bambrough Irrigation Company, Inc., 1955, Ogden, Utah.
 - a. Capital Stock: 80 shares of class A stock and 150 shares of Class B stock, each having no par value.

- b. Officers: Board of directors consisting of five persons elected by the stockholders to serve a term of one year. The board appoints a president, water master and secretary-treasurer.
 - c. Purpose: To construct, operate, and maintain the necessary facilities for the providing of irrigation water to its stockholders.
 - d. Source of Water: Weber River and Echo Reservoir.
 - e. Comments: Class A stock represents right to a portion of flow from the Weber River, and represents 100 minutes per share. Class B stock represents right to 150 acre feet of storage in Echo Reservoir at 37 minutes per share. Water is distributed by rotation every 7.5 days. Class A stock is assessed \$25.00 per share and Class B stock at \$0.75 per share. There are 24 shareholders and the company serves 254 acres. The company is affiliated with the Weber River Water Users' Association and provides only water for irrigation.
3. Bertinotti Irrigation Company, Inc., 1906, Marriot, Utah.
- a. Capital Stock: 120 shares at \$50.00 each.
 - b. Officers: A board of directors consisting of three persons who must be stockholders in the company. The board will appoint from its own number a president and a vice-president. The other officer is the secretary and

treasurer who need not be a stockholder. All officers are elected for a term of four years.

- c. Purpose: To acquire by appropriation or otherwise rights to the use of the waters of this state, and to construct, operate and maintain dams, reservoirs, canals, ditches for the purpose of providing water for irrigation, domestic and culinary uses to the stockholders.
- d. Source of Water: Ogden River and Pine View Reservoir.
- e. Comments: The corporation accepted in full payment of the capital stock subscribed by the incorporators all right, title and interest of each incorporator in the property known as the Bertinotti Canal. The case value of this conveyance represented \$5,300.00 or 106 shares. The remaining unsubscribed shares were placed in the treasury to be issued and sold at the discretion of the board of directors.

In 1933, the articles of incorporation were amended to increase the objectives of the company and included the power to enter into contract with the United States or others to provide water to its stockholders. To meet these new obligations all capital stock was made assessable in the amounts, times, and purposes as determined by the board of directors.

- 4. Beus Creek Water Company, Inc., 1936, Ogden, City, Utah
 - a. Capital Stock: 280 shares at \$50.00 each.

- b. Officers: A board of directors consisting of eight persons who must be stockholders in the company, elected to hold office for one year. The board elects a president, vice president, secretary and treasurer from its own members. The secretary and treasurer need not be members of the board or stockholders.
- c. Purpose: The corporation was formed for the purpose of establishing a mutual irrigation company to provide water for irrigation and culinary purposes to its stockholders.
- d. Source of Water: Weber River .
- e. Comments: All of the capital stock was fully paid for by the respective stockholders upon transfer of their right, title, and interest in the waters of Beus Creek, Beus Spring, Burch Creek and other property to the corporation. It is of interest to note that this corporation started life as a nonprofit organization but an amendment to the articles of incorporation in 1924 established a culinary water and irrigation company. This corporation is intended to operate as a pecuniary corporation and any money received may be used in the operation of the company or divided among the stockholders in the form of dividends.

The company lost all land under irrigation and now provides only culinary water to 24 homes. The system has been converted from open ditch to a completely piped distribution system. The system is unmetered, the cost of water is \$2.50 per month and the company takes care of all maintenance. The original shareholders still own the stock but are not using the water.

5. Co-op Farm Irrigation Company, Inc., 1913, Ogden City, Utah.
 - a. Capital Stock: 500 shares at \$20.00 each.
 - b. Officers: The officers of this company consist of five directors elected by the stockholders to hold office for one year. The board will select a president, vice-president, secretary and treasurer from its own number. All officers must own at least five shares of stock in the corporation.
 - c. Purpose: To acquire water rights, construct reservoirs and ditches for the purpose of storing and distributing water for irrigation and culinary purposes.
 - d. Source of Water: South Fork of Ogden River.
 - e. Comments: The full value of the capital stock of the corporation was fully paid for by the transfer of one thousand inches of water in the South Fork of the Ogden River. The capital stock of the corporation

is assessable but the maximum amount of such assessment is limited to \$1.00 per year for each share.

An amendment to the articles of incorporation in 1961 changed this corporation to a mutual irrigation company with the usual rights and obligations. The assessment limitation was changed to make all capital stock assessable in amounts and times as determined by the board of directors. The capital stock was changed to 1,050 shares having a par value of \$10.00 each. This additional stock was also fully paid by the transfer to the company of water rights having a value of \$500.00.

The assessments are \$4.60 per share and no water is delivered to delinquent shares. The company receives 400 acre feet of storage water from the Weber River Water Users' Association at a cost of \$40.75 per acre foot. The company has seven shareholders and serves 344.5 acres.

6. Crooked Creek Irrigation Company, Inc., 1925, Huntsville, Utah.
 - a. Capital Stock: 40 shares having no par value.
 - b. Officers: A board of directors consisting of five persons elected for a term of three years. The board will elect a president and a vice-president from its own number,

- and a secretary-treasurer from its own number or otherwise. The term of office for the president, vice-president and secretary-treasurer will be for one year.
- c. Purpose: To supply the stockholders of this corporation with water for irrigation purposes.
 - d. Source of Water: Ogden River.
 - e. Comments: All right in and title to the waters of Crooked Creek and Middle Creek were transferred to the Corporation for the sum of \$1.00. The board of directors may levy and collect assessments on the capital stock for the purpose of paying the expenses and debts of the corporation.

The company has priority rights dated back to 1924 for drainage water from Middle Creek and Crooked Creek. The company has seven shareholders and serves 50 acres. The assessments are \$1.00 per share with all large expenses divided among the shareholders. One share is entitled to 4.5 hours of water time every 10 days. Water shares go with land and the only way they can be transferred is by also selling the land.

- 7. Davis and Weber Counties Canal Company, Inc., 1884, Ogden City, Utah.
 - a. Capital Stock: 30,000 shares at \$5.00 each.
 - b. Officers: The officers of this company consist of seven directors, a president, a vice-president, a secretary

and treasurer. All of the officers must hold at least one share of stock and are elected for a term of one year.

- c. Purpose: To provide, operate and maintain water rights, canals and ditches for the distribution of water for irrigation and other lawful purposes.
- d. Source of Water: Weber River and Echo Reservoir.
- e. Comments: The original investment of \$150,000.00 was partially subscribed to by the conveyance of all the water, rights and facilities of the Central Canal Company to the corporation for a price of \$100,000.00. The articles of the corporation have been amended several times in order to provide money for expansion or to take advantage of new legislation. In 1889 the capital stock was increased \$50,000.00, 25,000.00 being issued to present stockholders and \$25,000.00 placed in treasury for sale at not less than \$40.00 a share. In 1900 the capital stock was increased \$50,000.00 to be used to repair and improve the facilities so that a larger flow could be obtained for irrigation purposes. In 1901 the capital stock in the company was increased \$250,000.00 by issuing 10,000 shares of secondary stock at \$25.00 a share. The holder of this secondary stock has no vote, is assessed in the same manner as primary stock and bears its proportionate

share of all expenses. The secondary stock does not entitle the owner to receive any water until the system has been enlarged to provide additional water. In 1925 the articles were amended to increase the purposes of the company and to allow the company to contract with the United States government to construct the Echo Dam and Reservoir project. In 1926 the company authorized the acquiring of shares in the Weber River Water Users' Association. In 1934 the corporate existence of the company was extended for another 50 years.

The Davis and Weber Counties Canal Company has been extremely active and is one of the largest privately owned water organizations in the area. It has storage rights in two reservoirs, East Canyon and Echo, and natural flow rights in the Weber River. At the present time it provides irrigation water to some 40,000 acres through a main truck line, 25 miles long, and numerous laterals. Each share in the company is entitled to one acre-foot of water. (Harris, 1970)

8. Dinsdale Water Company, Inc., 1911. Ogden City, Utah.
 - a. Capital Stock: 1200 shares at \$12.50 each.
 - b. Officers: A board of directors consisting of five members elected to serve for two years. The board selects from

- its own number a president and vice-president, and a secretary and treasurer who may or may not be a member of the board. These last officers hold office for one year.
- c. Purpose: To acquire water rights and construct, maintain and operate dams reservoirs, canals and ditches for the purpose of providing water for lands owned by the stockholders.
- d. Source of Water: Ogden River and Pine View Reservoir.
- e. Comments: The capital stock has been paid for by the transfer of all right, title and interests of the incorporators in the property known as the Dinsdale Water Company's Ditch.

The board may levy and collect assessments on all capital stock as it deems necessary. Shares of capital stock may be sold or transferred only for use upon company's land, and may not be used elsewhere.

The articles of incorporation were amended in 1933 to expand the objectives and the obligations of the company. This included the authorization to enter into contracts with the United States, its agencies and similar organizations and to encumber the corporation for the repayment of any expenses. Thus the stock of the company may be assessed without limitation to meet all expenses, debts, and obligations of the corporation.

The company owns 267 shares in the Ogden River Water Users' Association that are assessed annually at \$2.11 per share, and a flow right in the Ogden River of two second feet. The present rate of assessment averages \$1.50 per share and delinquent stock may be sold after two years. The company has 102 shareholders and serves 300 acres. One share of stock entitles the holder to nine minutes of water every seven days. The water to the individual users is not measured.

9. Downs Ditch Company, Inc., 1965 Huntsville, Utah.

- a. Capital Stock: The stock was divided into two classes. Class A stock was issued to those who conveyed to the corporation their interest in all water rights and facilities of "Downs Ditch" and represents a proportionate share in the corporation's right to use water from the South Fork of the Ogden River. Class B stock shall be issued for a cash consideration to be determined by the trustees and represents a proportionate share of the corporation's perpetual right to the use of water to be purchased from the Weber Basin Water Conservancy District or similar organizations.
- b. Officers: The governing board of the corporation shall be eight trustees. The trustees select and appoint a president, vice-president, and secretary-treasurer.

The secretary-treasurer need not be a member of the board of trustees.

- c. Purpose: Organized under the Utah nonprofit corporation act to provide water to its members at cost.
- d. Source of Water: South Fork of Ogden River.
- e. Comments: The company was organized to acquire water rights and facilities of "Downs Ditch" that had been used for irrigation purposes for the past 85 years. The ditch diverts water from the South Fork of the Ogden River, by means of a wing dam in channel of said stream, and runs due west about 1/4 mile, then northwesterly to Huntsville. Class A stock may be sold or transferred only where the water right represented by the stock is sold with the land upon which it is used or is to be used upon land lying under the said ditch. Water may only be used on company's land.

The company has 15 shareholders and serves 97 acres. The rate of assessment is \$5.00 per share and each share entitles the user to 1.8 hours of water time. Water is distributed by rotation and is not measured to the individual user. The company also contracts with the WBWCD for 100 acre feet at a cost of \$2.27 per acre foot. Delinquent shares are auctioned to pay off assessments.

10. Dunn Canal Company, Inc., 1906, South Weber, Utah.

- a. Capital Stock: 192 shares at \$50.00 each.

- b. Officers: A board of directors consisting of three members elected by the stockholders for a term of one year. The board will elect a president and vice-president from its own members and a secretary and treasurer from the stockholders. A director must hold at least six shares of stock.
- c. Purpose: To construct, maintain and operate reservoirs, canals, ditches for the distribution of water to its stockholders for irrigation and other useful purposes.
- d. Source of Water: Weber River and Echo Reservoir.
- e. Comments: Even though this company has its place of business in Davis County it is included here because its source of supply is located in Weber County.

The capital stock was fully paid by the conveyance of the incorporators of their right, title and interest in Dunn's Ditch to the corporation. This ditch was constructed in 1876 to divert water from the Weber River.

The articles of incorporation were amended in 1926 to allow the corporation to contract with the United States, and its agencies or other like corporations. To meet these new obligations the board of directors was authorized to levy assessments to meet all debts and obligations of the corporation.

11. Eden Irrigation Company, Inc., 1961, Eden, Utah.

- a. Capital Stock: 3,269.80 shares at no par value.

- b. Officers: Management of its affairs placed in an elected board of directors composed of a president, vice-president, secretary and treasurer to serve one year. All officers must own at least one share of stock.
- c. Purpose: Incorporated as a mutual irrigation company to provide irrigation water at cost to the stockholders.
- d. Source of Water: North Fork of Ogden River.
- e. Comments: 2741.03 shares were fully paid up by the transfer of proper deed in the Eden Irrigation Company, an unincorporated mutual irrigation company, to the corporation. The balance of the stock was placed in the treasury, thereafter to be issued to the non-joining owners of the unincorporated company upon their application to the company. The board also appoints a watermaster at the annual meeting of the corporation.

The company has a decreed right to surface water of the North Fork of the Ogden River and Wolf Creek. In addition, it has a contract with the Weber Basin Water Conservancy District for 1200 acre feet of water from Causey Dam at \$2.92 per acre foot. The rate of assessment is \$0.75 per share. There are 71 shareholders and the company serves 3000 acres. The water is measured to the individual users.

12. Emmertsen Irrigation Company, Inc., 1912, Huntsville, Utah.

- a. Capital Stock: 100 shares at \$10.00 each.
- b. Officers: The board of directors consists of three persons elected to hold office for two years. The board appoints a president, vice-president and secretary-treasurer from its own members. All officers must be stockholders in the corporation.
- c. Purpose: The acquisition, maintenance and operation of dams, reservoirs, canals and ditches for the distribution of water for irrigation domestic, culinary and other useful purposes.
- d. Source of Water: South Fork of Ogden River.
- e. Comments: The corporation took in full payment of stock all the right, title and interest of the incorporators in the property known as Emmertsen Irrigation Ditch. All the capital stock is assessable but the board of directors has the power to levy only two assessments, not to exceed five percent each, during the year.

An amendment to the articles of incorporation in 1961 made the corporation a mutual irrigation company. This included the right to contract with the Weber Basin Water Conservancy District and other like organizations and with the United States government and its agencies. The capital stock was changed to represent 100 shares of primary

stock at \$10.00 each and 100 shares of supplemental stock having no par value. Primary stock consisted of the original shares in the corporation and represented an interest in existing property. The supplemental stock was to be issued for a cash consideration determined by the board of directors and represents a right to the use of water purchased from the WBWCD and others. Primary stock is to be assessed on the basis of property existing prior to this date. Supplemental stock is assessed as above plus an extra amount to pay for the purchase of water from the WBWCD. The capital stock of the corporation is to be assessed in amounts, times, manner and purposes as determined by the board of directors.

The company has 13 stockholders and irrigates 100 acres. It has a decreed right to divert water from the South Fork of the Ogden River in addition to 514 acre feet of storage water from the WBWCD. The rate of assessment is \$2.00 per share and each share entitles the owner to 1 1/2 hours of water time. The water is distributed by rotation every 6 1/2 days and is unmeasured to the individual users.

13. Felt, Peterson and Slater Ditch Company, Inc., 1906, Huntsville Utah.

a. Capital Stock: 2000 shares at \$1.00 each.

- b. Officers: The board of directors is composed of five members owning at least one share of stock elected by the stockholders. The board elects the president and vice-president from its own members. The secretary-treasurer is elected by the stockholders and serves on the board. The term for all officers is one year. The board is also authorized to appoint superintendents, watermasters and agents they deem necessary to conduct the business of the company.
- c. Purpose: The acquiring of water rights and physical facilities required to provide water for irrigation, domestic and other useful purposes to its members.
- d. Source of Water: South Fork of Ogden River.
- e. Comments: Articles amended in 1954 change the company to an incorporated mutual irrigation company. The total authorized stock of the corporation was divided into 426 shares of primary common stock at a value of \$1.00 each and 1,000 shares of supplemental stock without par value. The primary stock represented a proportionate interest in the corporation prior to this date and may be assessed only to cover expenses in proportion that prior conditions bear to the present stream flow. The supplemental stock may be issued for a cash consideration as determined by the board and represents a proportionate share of the

company's right to use water purchased from the WBWCD or from any other source. The supplemental stock is assessed according to the relation the amount of water attributed to supplemental stock bears to entire stream flow plus a further assessment to pay for the purchase of water from the WBWCD or other sources. The capital stock is assessed in such amounts, times, and manner and for such purposes as determined by the board.

The company provides only irrigation water to its seven shareholders. It has a decreed right to 2.5 second feet of water from Ogden River and purchases 110.6 acre feet of water from the WBWCD at \$2.92 per acre foot. The rate is \$1.00 per share but may be raised when needed.

14. Glenwood Ditch Company, Inc., 1941, Ogden City, Utah.

- a. Capital Stock: Stock divided into 10,000 shares without par value and consisting of 8,673 shares of Class A stock that represents water rights in the John Farr Ditch and 1,327 shares of Class B stock representing water rights to be acquired from other sources.
- b. Officers: A board of directors consisting of six members elected by the stockholders for a term of three years. The president, vice-president and secretary and treasurer may or may not be members of the board or stockholders

in the corporation. All directors must own at least one share of stock.

- c. Purpose: The company was incorporated as a mutual irrigation company to distribute irrigation water to its stockholders at cost.
- d. Source of Water: Ogden River and Pine View Reservoir.
- e. Comments: All of the Class A stock subscribed for by the incorporators was issued in consideration of transfer by said incorporators to the corporation of all rights in the John Farr Ditch. Each share of stock in the corporation has equal voting power.

The board of directors was authorized to borrow or mortgage the assets of the corporation up to the sum of \$150.00. The stock of the corporation is assessable but the maximum annual assessment was \$0.05 per share with the minimum assessment to one stockholder being \$1.00 regardless of the number of shares owned. The amendments of 1968 removed both of these restrictions from the articles of incorporation. The board was given the authority to create indebtedness without the approval of the stockholders and to levy and collect assessments on capital stock without limit to meet the financial obligations of the corporation.

The company has the second oldest right on the Ogden River having a priority date of 1849. This gives it a flow

of 1/27 second feet which with the 35 acre feet from BWCD constitutes its total water supply. The company has 78 shareholders and serves 78 acres. The rate of assessment is \$7.00 per 100 shares. Each 100 shares entitles the owner to two hours and three minutes of water. Owners pay the conservancy district \$4.85 per acre foot. The water is not measured to the individual owner. All property on this ditch has been divided into one-acre lots and sold to the public along with a water right.

15. Hooper Irrigation Company, Inc., 1902, Hooper, Utah.

- a. Capital Stock: 10,000 shares at \$10.00 each.
- b. Officers: The officers of the company consist of seven directors, a president, vice-president, secretary and treasurer. The directors, secretary and treasurer are elected by the stockholders and hold office for two years. The president and vice-president are elected by the directors from their own number to serve for one year.
- c. Purpose: To maintain and operate the Hooper Irrigation Canal for the benefit of the stockholders.
- d. Source of Water: Weber River and Echo Reservoir.
- e. Comments: The Hoover Irrigation Canal diverts from the Weber River in Ogden City, then runs in a westerly direction for three miles where it branches and runs west and southwest. The canal is approximately 40 miles long

and is used to irrigate about 8400 acres of land. The corporation received in full payment for the stock all rights to the interest of the incorporators in the Hoover Irrigation Canal. The directors have no power to levy more than two assessments, not to exceed 10 percent of capital stock, during one year. The stockholder may transfer or sell his stock to irrigate any other land lying along the company's land. Minor amendments to the articles were made in 1908 and 1913. In 1925 amendments were made to allow the company to contract with the United States government or its agencies. To provide the necessary monies the board was authorized to levy assessments to meet all debts and obligations of the corporation. The article placing a limit on the sum of money to be borrowed and limiting the indebtedness of the company was repealed. Also the board was empowered specifically to enter into subscription contracts for water from the Echo project. The 1964 amendments included the change to perpetual succession and increased the capital stock to \$120,000.00. The capital stock in the corporation now consists of 10,000 shares of Class A stock at \$10.00 per share and 2,000 shares of Class B stock at \$10.00 per share. Class B represents water and water rights to be purchased after April 1, 1964. The company has 545 shareholders and serves 11,000

acres with irrigation water. It owns 9100 acre feet of water in Echo Dam under contract with the Weber River Water Users' Association at \$1.30 per acre foot. The assessment rate is \$6.40 per share and the water stock may be sold if assessments are not paid. Though the par value of the stock is \$10.00 it is being sold for \$300.00. Improvements to the system of \$1,600,000.00 are being financed by small project loans from the Bureau of Reclamation. Interest on loans is paid only by nonfarmers.

16. Huntsville Irrigation Company, Inc., 1939, Huntsville, Utah.
 - a. Capital Stock: 2,190 shares at no par value.
 - b. Officers: A board of directors consisting of five persons elected by the stockholders. The board elects a president and vice-president from its own members and a secretary who may or may not be a member of the board.
 - c. Purpose: To construct, operate and maintain the necessary facilities for the purpose of providing irrigation water to its members.
 - d. Source of Water: Ogden River.
 - e. Comments: The company has approximately 300 shareholders and serves 1095 acres. It does have a priority to the drainage waters of the South Fork of the Ogden River but supplements its flow by contracting with the Weber Basin Water Conservancy District for 600 acre feet of

water at \$2.92 per acre foot. The present rate of assessment is \$2.00 per share and has an additional charge of \$4.00 per outlet at the individual homes. Water is not measured to individual users. The only way water shares can be transferred is through sale of land.

17. Huntsville Mountain Canal Irrigation Association, Inc., 1883, Huntsville, Utah.

- a. Capital Stock: 5000 shares at \$1.00 each.
- b. Officers: The officers of the association will consist of five to seven directors including the president and vice-president, secretary, assistant secretary and treasurer. All officers must be stockholders in the corporation and are elected by the stockholders for a term of one year.
- c. Purpose: To enlarge, repair, operate, manage and control canals, ditches and reservoirs and to provide water for irrigation, culinary and other purposes.
- d. Source of Water: South and Middle Forks of Ogden River.
- e. Comments: Articles were amended in 1902 to expand the objectives of the association, to change the annual meeting to a biennial meeting and to change the terms of the officers to two years.

The company has decreed right to water from the South Fork and Middle Fork of the Ogden River. In addition it has contracted with the WBWCD for 1800 acre feet of water

at \$.92 per acre foot. The company has 34 shareholders, who are assessed at the rate of \$9.00 per share, and provides water to 1600 acres of land. The company uses only 25 second feet of its original surface flow right of 32.08 second feet. The company sells 500 acre feet of water at \$.92 per acre foot plus a charge of \$1.00 per acre foot if the company's ditches are used. Each share of stock entitles the owner to two hours of water every 12.37 days. The only way stock can be transferred is through sale of land.

18. Huntsville South Bench Canal Company, Inc., 1929, Huntsville, Utah.

- a. Capital Stock: 284 1/2 primary shares at \$25.00 each.
- b. Officers: A board of directors consisting of three members elected by the stockholders for a term of three years. At each annual meeting the stockholders will elect a secretary-treasurer for a term of one year to sit on the board. All directors must own at least six shares of stock.
- c. Purpose: Organized to divert and use the unappropriated waters of the Ogden River and to acquire all the physical facilities to distribute water for the purpose of irrigation. Also has the power to incur indebtedness, issue bonds, mortgage or encumber property, rights of corporation, and to enter into contract with the United States or its agencies.

- d. Source of Water: South Fork of Ogden River.
- e. Comments: All primary shares of the corporation were subscribed to by individuals having shares and interest in the Huntsville South Bench Canal and who, in lieu of cash, conveyed these rights to the corporation. These rights date back to 1885. These ditch and water rights were essential to the organization and operation of this corporation.

The source of water for the company is Bennett Creek with a decreed water right of 1885. This creek dries up in July and the company has a contract with the WBWCD for 600 acre feet at \$2.92 per acre foot. The company has 25 shareholders and serves 225 acres with irrigation water. The stock is assessed at \$20.00 per share. An outstanding debt is an interest free loan of \$43,000.00 from Utah Water and Power Board for three miles of cement lined ditch. The company paid \$37,000.00 as part of this project in addition to \$13,000.00 for 2400 feet of 24-inch pipe. These were financed by assessment. Each share entitles owner to 3/4 of an hour every seven days. The water is not measured and the individual takes all he wants during his turn.

19. Liberty Irrigation Company, Inc., 1889, Liberty, Utah.

- a. Capital Stock: 1,008 shares at \$10.00 each.

- b. Officers: The officers of this company will be a board of directors consisting of three persons, a president, vice-president, treasurer and secretary. All officers are elected by the stockholders and hold office for one year and must be stockholders in the corporation.
- c. Purpose: To construct, enlarge, repair, operate, manage and control reservoirs, canals, and ditches and to provide water for irrigation, domestic and other purposes.
- d. Source of Water: North Fork of Ogden River.
- e. Comments: The initial subscribers to the corporation fully paid for their stock by conveyance to the company of their rights, titles and interests to the use of a portion of the waters of the North Fork of the Ogden River and to the Shaw and Lindsay Ditch. Stock may be transferred only be being surrendered to the corporation.

The articles were amended in 1920 to increase the capital stock of this company to \$201,600.00. This consists of 1,008 shares of primary stock having a par value of \$100.00 each and 2,016 shares of secondary stock having a par value of \$50.00 each. The stock in each class is assessable without discrimination. The board of directors is authorized to collect an annual assessment for operation and maintenance of the company not to exceed \$0.50 per share.

The company obtains water from the North Fork of Ogden River and Cutler Canyon under a priority dated 1878. It has 57 stockholders and serves water to 1000 acres. The rate of assessment is \$0.50 per share plus an extra charge of \$0.80 per share for improvements. The company delivers water through three main canals and is measured to individual users. Each share of stock entitles the owner to 2.7 second feet of water every seven days.

20. Little Missouri Irrigation Company, Inc., 1910, Pleasant View, Utah.
- a. Capital Stock: 180 shares at \$50.00 each.
 - b. Officers: The board of directors consists of three members who must be stockholders, elected at annual meeting of stockholders. The board elects a president, vice-president and secretary-treasurer from its own number.
 - c. Purpose: To acquire a canal known as the Little Missouri Irrigation Company and the acquisition of other physical facilities for the irrigation of land, domestic, culinary and other useful purposes.
 - d. Source of Water: Ogden River.
 - e. Comments: Individuals who have had rights and interests in a certain canal and have used the water for the past 50 years decided to incorporate. All rights and title in the

canal have been conveyed to the corporation in return for shares. Each share of stock represents one hour of usage. Stock may be transferred or sold to an individual to irrigate any other land lying along the company's land. Stock cannot be sold or transferred to be used outside of the company's land. The directors may assess stock twice each year, not to exceed 10 percent each time. Any excess assessment must be approved by the stockholders.

This company has leased its springs to the Pleasant View Culinary Water Association and now obtains its water from Pine View Dam. The 200 acre feet of storage water is paid for by the association. All revenue to operate the company comes from the lease and no assessments are made.

21. Lynne Irrigation Company, Inc., 1930, Ogden, Utah.
 - a. Capital Stock: 20,000 shares at \$5.00 a share.
 - b. Officers: The company is administered by a board of directors who must be shareholders. A president, vice-president and secretary-treasurer are elected by the board from its own members.
 - c. Purpose: To acquire water rights and the physical facilities necessary for providing irrigation water to its members.
 - d. Source of Water: Ogden River and Pine View Reservoir.

- e. Comments. This company provides irrigation water to approximately 960 acres of land. The company has decreed water rights to a portion of the flow of the Ogden River. In addition it owns 1500 shares of stock in the Ogden River Water Users' Association. This entitles the company to 1500 acre feet of water in the Pine View Reservoir.
22. Marriott Irrigation Company, Inc., 1895, Marriott, Utah.
- a. Capital Stock: 586 shares at \$50.00 each.
 - b. Officers: The officers consist of a president, secretary and treasurer, and two directors elected by the stockholders for a term of one year. All officers must be residents of Weber County and be share holders.
 - c. Purpose: To acquire by purchase or otherwise, and to construct and operate reservoirs, canals, ditches and flumes for irrigation purposes and to provide water for irrigation, culinary and domestic purposes to the stockholders.
 - d. Source of Water: Ogden River.
 - e. Comments: Subscription of the stock has been fully paid by the conveyance of all rights and deeds of the water company of Marriott to the corporation. This water was originally appropriated in 1865. The company also owns 295 shares in the Ogden River Water Users' Association. The total number of shareholders in the company is 63

and water is provided to 580 acres of land. The rate of assessment is \$2.10 per share. Water is measured to the individual users by the use of branch ditches. The water master uses his own judgment in determining the amount each individual receives. The water is distributed by rotation.

23. Middle Fork Irrigation Company, Inc., 1919, Eden, Utah.

- a. Capital Stock: 168 shares at \$10.00 each.
- b. Officers: The officers of this company comprise the board of directors, consisting of three persons. The directors must be shareholders and be elected at the annual meeting of the stockholders for a term of one year. A president, vice-president and secretary-treasurer are elected by the board from its own number. The board will also elect a water master from among the stockholders of the corporation.
- c. Purpose: To own, accumulate, store, conduct, sell and furnish water for irrigation and culinary purposes and to deal in and maintain water and water rights for such purposes; to acquire land for ditches, reservoirs, or other purposes incident to and necessary for the carrying on of the irrigation company.
- d. Source of Water: Middle Fork of Ogden River.
- e. Comments: It is the duty of the board to levy assessments upon the stock of the corporation. It is provided in this corporation that the assessment levied, if levied for work,

may be paid for in money or its value in work or improvements. The capital stock is fully paid up by conveyance of appropriated and owned water and water rights in the Middle Fork of Ogden River.

The amendment of 1960 changed the articles of incorporation of the company to make it a nonprofit mutual irrigation company.

The articles of incorporation were amended in 1961 to include two classes of stock. Class A stock of 168 shares at \$10.00 per share represented the right to use water for one hour per week from the existing system. Class B stock consisting of 1000 shares at \$0.10 per share represented the right to water to be purchased from the WBWCD or like water organization. There were no voting privileges attached to this stock.

The company has six shareholders and serves 303 acres with water. It also contracts with the WBWCD for 840 acre feet at \$2.92 per acre foot. Each share is assessed at \$2.00 and entitles the owner to one hour of flow every seven days. The water is not measured.

24. Mound Fort Irrigation Company No. 1, 1935, Ogden, Utah

a. Capital Stock: 3000 shares having no par value.

b. Officers: The officers of the company consist of a president and a secretary-treasurer.

- c. Purpose: The company was organized for the purpose of providing irrigation water to its members.
 - d. Source of Water: Ogden River.
 - e. Comments: The company has a decreed right to the Ogden River and serves approximately 270 acres. It does not own any storage water. The water is distributed by rotation and is not measured. The company used 1204.1 acre feet of water in 1970.
25. Mound Fort Ditch Number Six, Inc., 1936, Ogden City, Utah.
- a. Capital Stock: 87,000 shares of stock representing no par value of two classes. Class A stock of 37,000 shares in-presents water and water rights of the subscribers in Mound Fort Ditch Number Six that had been transferred to the corporation. Class B stock represents 50,000 shares of stock in the Ogden River Water Users' Association that the corporation will purchase for the use and benefits of stockholders.
 - b. Officers: A board of directors consisting of six members and elected by the stockholders for terms of three years. The president, vice-president, secreatry and treasurer shall be elected by the board of directors from its own members. The secretary and treasurer may be members of the board or chosen from outside the board and may or may not be stockholders.

- c. Purpose: The corporation is to be a mutual irrigation company, not intended to be operated at a profit. However, the corporation may distribute irrigation water to its stockholders for land, as, for, and in lieu of dividends in proportion to the number of shares of stock owned by each.
 - d. Source of Water: Ogden River and Pine View Reservoirs
 - e. Comments: The company has high water rights on the Ogden River and Wheeler Canyon. It also has rights to 50 acre feet in Pine View Dam by ownership of stock in the Ogden River Water Users' Association. This water costs the company \$2.50 per acre foot. The company has six shareholders and serves 106.5 acres. No assessments are charged but a service charge of \$2.00 is made for each acre irrigated. Water is distributed by rotation every 6 1/2 days and divided according to the number of acres owned by each individual user. Water shares may be sold for non-payment of dues.
26. North Ogden Irrigation Company, Inc., North Ogden, Utah.
- a. Capital Stock: 4000 shares at \$25.00 each.
 - b. Officers: The officers consist of five directors who must be stockholders in the company and elected by the stockholders for a term of one year. The directors will elect from their own number a president, a vice-president and

second vice-president. They may elect a secretary and treasurer from their own number or from other members of the corporation. This office may, at the discretion of the board, consist of one person.

- c. Purpose: To construct, purchase, acquire, enlarge, remodel, repair, manage, control and operate canals, ditches, laterals, reservoirs, etc. and provide water for irrigation, stock and culinary purposes.
- d. Source of Supply: Ogden River, Pine View and Echo Reservoirs.
- e. Comments: This company was incorporated by a group of individuals who had appropriation rights to a portion of the Ogden River and to the North Ogden Irrigation Company. These rights were conveyed to the corporation for a proportional number of shares therein.

The board was given the power to levy and collect annual assessments for operation and maintenance expenses not to exceed two percent of the capital stock and said assessment to be a lien on the stock.

In 1926 the articles of incorporation were amended to greatly expand the purposes of the company and included the provision to contract with the United States government or any of its agencies. This also necessitated a change in the assessing policies and the board was authorized to levy assessments to pay all debts and obligations of the company.

In 1954, another amendment was made to increase the total number of shares to 6000, divided into Class A and Class B, and without par value. The Class A stock represents 4000 shares issued prior to this amendment and entitles the owners to the whole of the available natural water flow rights and interests of the corporation and in addition, are entitled to proportionate share and interest, shared with the owners of Class B stock, on a share by share basis, in all storage rights and interests of the corporation. The Class B stock of 2000 shares represents a proportionate share in only all storage rights and interests of the corporation. Class B stock is to be issued and sold on the amount determined by the board of directors as necessary for the best interests of the corporation.

In 1966, the articles were amended to conform to the provisions of the Utah Nonprofit Corporation and Cooperative Association Act.

The company owns right to 3000 acre feet of water in Pine View Reservoir through the Ogden River Water Users' Association at \$2.31 per acre foot and 1000 acre feet in Echo Reservoir through the Weber Water Users' Association at \$0.75 per acre foot. The rate of assessment is \$3.25 per acre foot for Class A stock and \$1.62 per acre foot for Class B stock. Delinquent stock may

betransferred. The company has 245 shareholders and serves 2500 acres with water. One share is entitled to 36 minutes of water every seven days. Water is not measured to individual users.

The company transferred 358 7/25 shares of its stock to the Weber-Box Elder Conservation District in exchange for the use of that district's facilities.

27. North Slaterville Irrigation Company, Inc., 1905, Slaterville Utah.

- a. Capital Stock: 387 shares at \$20.00 each.
- b. Officers: The officers consist of five directors elected by the stockholder for a term of two years. The directors must be stockholders of the company and shall elect, from their own number, a president and a vice-president, and may elect, from their own number or from the stockholders, a secretary-treasurer.
- c. Purpose: To conduct, purchase, acquire, engage, repair, manage, control and operate canals, ditches, laterals, reservoirs and to provide water for irrigation and culinary purposes.
- d. Source of Water: Ogden River and Pine View Reservoir.
- e. Comments: This is another case of a group of individuals having prior rights to a portion of waters of the Ogden River and to the rights of the West Slaterville Irrigation Company

who have formed a corporation. These rights and interests have been transferred to the new corporation.

The board of directors was empowered to levy and collect annual assessments but these assessments must not exceed five percent of the held stock. Stock may be transferred only by surrender to the secretary.

In 1934 the articles were amended to expand the purposes of the corporation which primarily included the authorization to contract with the United States government and its agencies. This also included the power of the board to mortgage or otherwise encumber the property of the corporation and to make all stock assessable without limitation and to levy assessments to meet all debts and obligations of the company.

28. Ogden River Reservoir Company Inc., 1912, Ogden City, Utah

- a. Capital Stock: 1000 shares at \$100.00 each.
- b. Officers: Board of directors consisting of three persons elected by the stockholders to serve for one year. Directors must own at least one share of stock. The board elects a president and a vice-president from its own number plus a secretary and treasurer who may or may not be a stockholder.
- c. Purpose: To store water to be used exclusively for irrigation of lands owned by the stockholders.

- d. Source of Water: Ogden River
- e. Comments: The stock is subject to assessment for the purposes of maintaining the reservoirs and ditches, to care for the impounding of water in reservoirs and delivery of water. The assessment may not exceed \$1.00 per acre water right for any one year without the consent of the majority of stockholders. The corporation has the power to bond, mortgage or borrow money on its securities but no water rights shall be mortgaged or encumbered in any fashion without the written consent of two-thirds of the stockholders. The company has 12 stockholders and does not make any assessments. Water is obtained from small springs and used primarily to provide culinary water to its members. Any expense is divided equally among the members.

29. Perry Irrigation Company, Inc., 1917, Ogden, Utah.

- a. Capital Stock: 315 shares at \$300.00 each.
- b. Officers: The company is managed by a board of directors and a water master.
- c. Purpose: The company provides irrigation water to its members.
- d. Source of Water: Box Elder Creek.
- e. Comments: The company has a right to approximately 20 second feet from the creek and also takes 200 acre feet

from the Ogden River Water Users' Association at \$3.00 per acre foot. There are 30 stockholders in the company and the rate of assessment is \$3.00 per share. Each share of stock entitles the owner to one hour of water every seven days.

30. Pine Canyon Ditch Company Inc., 1961, Liberty, Utah.
 - a. Capital Stock: 144 shares having no par value.
 - b. Officers: The company is managed by a board of directors elected by the stockholders. A president and secretary are also elected to the board.
 - c. Purpose: The company provides only irrigation water to its members.
 - d. Source of Water: Pine Canyon.
 - e. Comments: The company has six stockholders and serves 120 acres of land. The rate of assessment is \$1.00 per share and each share is equal to one hour of water. The water is distributed by rotation every six days.
31. Pioneer Irrigation Canal Company, Inc., 1895, Uintah, Utah.
 - a. Capital Stock: 100 shares at \$50.00 each.
 - b. Officers: The officers of this company will consist of a president, secretary and treasurer and two directors and shall constitute the board of directors. All officers will serve for a period of one year.
 - c. Purpose: To acquire, construct and operate reservoirs, canals, ditches and flumes for irrigation purposes and

to provide water for irrigation, culinary and domestic purposes to the stockholders.

- d. Source of Water: Weber River and Echo Reservoir.
- e. Comments: In this particular case an assessment not exceeding five percent may be levied by a majority vote of stock at the regular annual meeting. Articles were amended in 1926 to expand the objectives of the company and to authorize contracts with the United States government and other agencies. The board of directors was allowed to make assessments when necessary to satisfy the debts and obligations of the corporation.

The company has a flow right in Weber River dated 1851 for 1.33 second feet of water. In addition it has 200 acre feet of storage in Echo Reservoir through shares in the Weber River Water Users' Association at a cost of \$0.75 per acre foot. The company has 10 shareholders and serves 100 acres. The present rate of assessment is \$2.00 per share. Each share entitles the owner to 90 minutes of water every seven days. The company installed 5500 feet of 15-inch pipe in 1968 at a cost of \$25,000.00. Of this the federal government provided \$8450.00. The entire distribution system is pipe and the water is measured only at the source.

32. Pioneer Land and Irrigation Company, Inc., 1904, Plain City, Utah.

- a. Capital Stock: 1600 shares at \$15.00 each.
- b. Officers: The initial board of directors was composed of five persons elected by the stockholders to a term of one year.
- c. Purpose: To build and maintain dams, equip and run power plants and to build flumes, ditches, canals, and laterals for the distribution of water; to buy, sell and lease land, water and water rights; and all other things necessary for the operation of this irrigation enterprise.
- d. Source of Water: Weber River.
- e. Comments: The capital stock of the corporation was fully paid up by the deeding to it of a pumping plant, water right to a portion of the waters of the Ogden River, flumes, ditches, dams, reservoirs etc. The directors are authorized to levy and collect assessments only upon the stock whose owners actually use the water.

In 1922 this article was amended so that all stock was assessable whether the water was used or not. The amendment of 1948 increased the capital stock to \$29,000.00 divided into 1,600 shares at a par value of \$15.00 each. The terms of directors were changed to two years and it was stipulated that they must be stockholders of the

corporation. Provision was made for the board to elect a president and vice-president from its own number. The secretary and treasurer is also elected by the board and may be a member of the board, a stockholder or not. This office may be held by one person or different persons as determined by the board. All officers serve for a period of one year.

The company has 35 shareholders and provides irrigation water to 1000 acres. It has a decreed right of 4 to 7 second feet from the Weber River. The system has plenty of water and because of the pumping capability the user may take his water turn at any time. He may buy extra water if he uses more than his allotment. All shares are assessed at \$1.00 and each share represents 4 1/2 minutes of water. There are no dirt ditches and the water is measured. Their greatest expense is the buying of electrical power to run the pumps.

33. Plain City Irrigation Company, Inc., 1958, Plain City, Utah.

- a. Capital Stock: 40,000 shares at \$1.00 each.
- b. Officers: Management of the corporation is vested in an elected board of five directors, each of whom must own at least one share and serve for one year. The board elects a president, a vice-president, a secretary and a treasurer. All these must be members of the board except the secretary who may but need not be a member of the board.

- c. Purpose: As in the case of most later companies this corporation was formed as a mutual irrigation company with a sizeable list of objectives as required by law.
 - d. Source of Water: Ogden and Weber Rivers, Echo Reservoir.
 - e. Comments: It is interesting to note here that all subscription to the capital stock was paid for by transfer to the corporation of all rights, title and interests of the subscribers in the Plain City Irrigation Company whose charter had expired in 1952. In the case of mutual companies the board of directors may, without the authorized consent of the stockholders, issue stock, encumber the corporation in any fashion and assess without limitation to pay the debts and obligations of the corporation.
34. Riverdale Bench Canal Company, Inc., 1903, Ogden, Utah.
- a. Capital Stock: 5663 shares at no par value.
 - b. Officers: The company is managed by a board of directors composed of five persons elected by shareholders. The board elects a president, vice-president and secretary from its own members.
 - c. Purpose: To construct, operate and maintain the necessary facilities to provide irrigation water to its members.
 - d. Source of Water: Weber River.
 - e. Comments: The company has an 1857 priority right to 8 second feet of water from the Weber River. In addition,

it has 200 acre feet of storage water in Echo Reservoir. The cost of this water was \$240.00 per year for 20 years and was paid up in 1969. The rate of assessment is now \$0.35 per share. The company has 60 shareholders and serves 600 acres of land. Water is distributed to the users every 7 1/4 days and is not measured.

35. Shupe Middleton Canal Water Company, Inc., 1907, Ogden City, Utah.

- a. Capital Stock: 200 shares at \$10.00 each.
- b. Officers: A board of three directors elected by the stockholders to serve for two years and consisting of a president, a vice-president and a secretary-treasurer. All officers must own at least one share of the stock in the corporation.
- c. Purpose: To own, maintain, construct and operate ditches, canals, dams and all other devices for the holding and conveying of water and to buy, sell, use, own, maintain, operate and distribute water for irrigation, domestic, culinary and all other useful purposes.
- d. Source of Water: Ogden River.
- e. Comments: This is the case of a group of individuals having rights, title and interest in property known as the Shupe Middleton Canal forming a corporation and receiving stock for their property rights. The stock entitles the owner to the usage of water for one acre of land for each share.

The company has 16 stockholders and serves 75 acres of land. The rate of assessment is \$3.25 per share and each share entitles the owner to 1 1/2 hours of water.

36. South Slaterville Irrigation Company, Inc., 1903, Slaterville, Utah.

- a. Capital Stock: 1200 shares at \$20.00 each.
- b. Officers: The board of directors consists of five persons elected by the stockholders to serve for a term of two years. The board elects a president, a vice-president and a second vice-president from its own number. It may also elect a secretary and treasurer from the board or from the stockholders. All officers must be stockholders in the company.
- c. Purpose: To conduct, purchase, acquire, engage, repair, manage, control, and operate canals, ditches, reservoirs, etc. and to provide water for irrigation and culinary purposes.
- d. Source of Water: Weber River and Echo Reservoir.
- e. Comments: The original appropriators and successors to a portion of the waters of the Ogden River and to the title and interest in the North West Weber Irrigation Association associated to form this corporation.

The board is authorized to levy and collect annual assessments for maintenance and operation of the system, but such assessments shall not exceed five percent of the capital stock. Stock may be transferrable only upon the

books of the company and by surrender of the original stock certificate.

The amendment of the articles in 1953 provided that each director must hold at least one share of stock. In addition, the board of directors was given unlimited authorization to issue stock, purchase property, rights and privileges, to incur indebtedness, issue bonds and to contract with the United States or other like agencies. Also the board was given the power to levy and collect assessments, without limitation, based upon the number of shares of stock held or proportionate to the amount of water used or owned, or by both methods.

37. South Weber Irrigation Company, Inc., 1921, South Weber, Utah.

- a. Capital Stock: 390 shares at \$25.00 each.
- b. Officers: The officers of this corporation are a board of five directors elected by the stockholders for a term of two years. The board will elect a president, vice-president, secretary and treasurer, and a watermaster from its own number. All officers must own at least one share of the capital stock of the corporation.
- c. Purpose: To own, acquire, make, build, construct and maintain reservoirs, dams, canals and ditches; to conserve for the purpose of irrigation, domestic and culinary uses,

and for all other purposes for which water can be applied;
and to conduct and distribute the same and to purchase and
own such lands and personal property as may be necessary
to carry out the object of the incorporation.

d. Source of Water: Weber River and Echo Reservoir.

e. Comments: This is another company that has its place of
business outside of Weber County but obtains its water from
the Weber River system. All of the capital stock has been
issued to the incorporators in return for the conveyance of
all right, title and interest to a portion of the flow of the
Weber River and the distribution facilities to the corporation.
All capital stock of the corporations is liable for assessment.
The directors only have the power to levy assessments not
to exceed the sum of \$500.00 in any one year. Any improve-
ment that exceeds this cost must be voted on by the stock-
holders.

In 1925, the articles of incorporation were amended to
authorize the corporation to enter into contract with the
United States or other agencies and to encumber the cor-
poration to guarantee the payment of any indebtedness. All
restrictions on assessments were removed and the board
of directors was authorized to levy assessments to meet
all debts and obligations of the corporation.

The company has 23 stockholders and serves 378 acres. It has an 1852 priority right to water from the Weber River. In addition it has 180 shares in the Weber River Water Users' Association that entitles the owner to nine minutes of water per share. The rate of assessment is \$2.00 per share for Weber River water and \$1.00 per share of Echo water.

38. Uintah Central Canal Company, Inc., 1895, Uintah, Utah.
 - a. Capital Stock: 234 shares at \$40.00 each.
 - b. Officers: The officers consist of a president, secretary and treasurer, and five directors elected by the stockholders for terms of one year.
 - c. Purpose: To acquire by purchase or otherwise, and to construct and operate reservoirs, canals, ditches and flumes for irrigation purposes and to supply water for irrigation, culinary and domestic purposes to its stockholders.
 - d. Source of Water: Weber River and Echo Reservoir.
 - e. Comments: The subscribers have conveyed to the corporation for the full amount of capital stock the deed to the Uintah Central Ditch and the right to surface flow of the Weber River of 22.50 cubic feet per second. This amount of water was appropriated in 1853 and has since been used by these subscribers.

The board has the power to make by-laws and regulations and to provide for the use, management and disposal of its

property and funds. The board may contract indebtedness up to a maximum of two hundred dollars. The board elects a water master annually and may appoint other employees as required. However an assessment not exceeding four percent may be levied only by a majority vote of the stockholders.

The amendments of 1926 broadened the activities of the corporation and obligated the corporation to carry out these activities. This included the power to contract with the United States and other agencies. In order to carry out its additional obligations, the board of directors was authorized to levy and collect all assessments necessary to conduct the business of the corporation and repay its obligations.

The company has 44 shareholders and serves 200 acres. In addition to a portion of flow from the Weber River the company has 350 acre feet of storage water in Echo Reservoir through its shares in the Weber River Water Users' Association. The cost of this water is \$1.59 per acre foot. The water is not measured to the individual user and is distributed every seven days.

39. Uintah Mountain Stream Irrigation Company, Inc., 1956,
 Uintah, Utah.

- a. Capital Stock: The capital stock consists of 168 shares of Class A stock having a par value of \$100.00 and 310 shares of Class B stock without par value.
- b. Officers: A board of five directors elected for a term of two years. The board elects a president, secretary-treasurer and a water master from its own members to hold office for one year. All officers must own at least one share of capital stock.
- c. Purpose: This company was incorporated as a mutual irrigation company having the usual associated powers.
- d. Source of Water: Mountain Stream, Stubbs Springs and the BWCD.
- e. Comments: Class A stock was issued to the incorporators in consideration of the conveyance to the corporation of the water rights, distribution system and assets of the Uintah Mountain Stream Irrigation Company, a voluntary association. Class B stock will be issued for a cash consideration to be determined by the board of directors and represents a proportionate share to the water purchased from the BWCD or any other source.

The capital stock is assessable in amounts, times, manner and purposes as determined by the board. Class A stock is assessed on the basis of the water flowing prior to the incorporation of this company to the entire flow in

the system after the addition of waters represented by Class B stock. The Class B stock is assessed on its proportionate share of the above expenses plus the amount necessary to pay for the use and purchase of water from the BWCD.

All waters distributed by this corporation are not considered to be appurtenant to the land upon which the water is used and stock may be sold, assigned or transferred. Provision is also made in the articles of incorporation for the consolidation of this corporation with other corporations in the same vicinity and like business. The company has 33 stockholders and provides water to 100 acres. The company has priority rights in the waters of Spring Creek and to 200 acre feet of storage water in Wanship Reservoir. This storage water is contracted from the BWCD for \$4.00 per acre foot. Each share entitles the owner to the use of the water for one hour every seven days. The stock is assessed at \$3.00 per share. The company obtains additional revenue by leasing the spring to the town of Uintah for \$650.00 per year.

40. Warren Irrigation Company, Inc., 1907, Warren, Utah.

a. Capital Stock: 2666 $\frac{2}{3}$ shares at \$15.00 each.

b. Officers: The board of directors consists of five persons elected by the stockholders for a term of two years. The

directors will elect a president, vice-president, secretary and treasurer from its own number. Directors must own at least one share of stock in the corporation.

- c. Purpose: To acquire, operate and maintain canals, ditches, reservoirs and dams to provide water for irrigation, culinary, domestic and other useful purposes to its stockholders.
- d. Source of Water: Weber River and Echo Reservoir.
- e. Comments: The incorporators transferred all of their right, title and interest in the Freemont Canal to the corporation in full payment of 266 $\frac{2}{3}$ shares of stock. The unsubscribed stock is to be kept in the treasury and may be sold at any time by the board of directors. This stock may be sold to anyone owning land that can be irrigated from the company's canals.

The articles were amended in 1937 to increase the capital stock to 2800 shares having a par value of \$15.00 each. The company has 125 shareholders and serves 4000 acres. The stock is assessed at the rate of \$7.00 per share. The company has priority of 1907 to a portion of the flow of the Weber River that was purchased from a power company serving this area. It also has 1500 acre feet of storage water in Echo Reservoir because of stock in the Weber River Water Users' Association. The cost of this water to the company is \$7.00 per acre foot. The

company sells 550 acre feet of this water to non-members for \$8.50 per acre foot. Water shares are not appurtenant to land and may be sold separately. One share of stock entitles the owner to 30 minutes of water every 7 1/2 days.

41. Weber Canal Water Company, Inc., 1965, Ogden City, Utah.

- a. Capital Stock: 60,000 shares at \$5.00 each.
- b. Officers: The affairs of the company are to be managed by a board of directors consisting of six persons. In this particular case there are only six incorporators so the board of directors is conveniently filled.
- c. Purpose: The prime purpose of this company was to take over, operate and maintain the properties formerly held by the Weber Canal Water Co., the charter of which had expired; to provide water to its stockholders for irrigation, domestic and culinary purposes.
- d. Source of Water: Weber River.
- e. Comments: This corporation was formed under the Utah Non-profit Corporation Act. In this instance the initial members of this corporation are the same stockholders of the Weber Canal Water Co., Incorporated in 1892, the charter of which had expired by lapse of time. Such membership shall be evidenced by shares of stock of this corporation issued to such members in the same proportion as the number of shares they held in the former corporation

and issued in consideration of transfer to this corporation of all properties and interest of the former corporation. This company was incorporated as a mutual irrigation company. All stock is assessable in the amounts, times, manner and purposes as determined by the board of directors.

The company has 115 shareholders and serves 300 acres. Only 25,000 shares have been issued and they are assessed at \$0.085 per share. A prior right of 1864 gives the company 6 second feet from the Weber River. The company needs financial assistance to construct a pressure pipe line to serve additional clients.

42. Western Irrigation Company, Inc., 1903, Harrisville and Farr West, Utah.

- a. Capital Stock: 40,000 shares at \$1.00 each.
- b. Officers: A board of directors consisting of five members elected by the stockholders to serve for two years. The board elects a president, vice-president, secretary and treasurer from its own members also to serve for two years. All officers must be stockholders of the corporation.
- c. Purpose: The irrigation of land and conservation of water for the purposes of irrigation, domestic and culinary uses; and for all other purposes and uses for which water may and can be applied.

- d. Source of Water: Ogden River, Echo and Pine View Reservoir.
- e. Comments: Again subscription of capital stock in the corporation was obtained by conveyance of the subscribers of their property and interest in a certain ditch in return for 21,061.05 shares. The balance of the authorized capital stock is to remain in the treasury to be issued and sold as determined by the board of directors.

In 1926, some articles were amended to broaden the powers of the corporation and to authorize the making of contracts with the United States government and other agencies. This necessitated giving the directors the power to levy and collect assessments at any time to pay the debts and obligations of the corporation. The board was also given the authority to subscribe for or purchase stock of similar corporations.

The company has 310 shareholders and is entirely supplied by storage water. It owns 4250 shares in the Ogden River Water Users' Association at a cost of \$2.30 per share and 1000 shares in the Weber River Water Users' Association at \$0.75 per share. Each share represents one acre foot of water. Water is distributed on a rotation basis every seven days and is unmeasured to the individual user. The rate of assessment is \$0.60 per share.

43. Wilson Irrigation Company Inc., 1903, Kaneshville, Utah.

- a. Capital Stock: 3377 shares at \$10.00 each.
- b. Officers: A board of directors of five members elected by the stockholders to hold office for two years. The board will appoint, from its own members, a president and a vice-president for a term of one year. A secretary and treasurer are elected by the stockholders to serve for two years. All officers must be stockholders in the corporation.
- c. Purpose: To acquire, by appropriation or otherwise, rights to the use of water for any useful or beneficial purpose, including irrigation, domestic and culinary purposes and to build dams, reservoirs, canals, ditches, and laterals for the purpose of distributing water to its shareholders.
- d. Comments: The corporation accepted in full payment of the capital stock subscribed by the incorporators all the right, title and interest of each of said incorporators in the property known as the Wilson Canal. This amounted to 3222 shares of stock with 155 shares unsubscribed and remaining in the treasury.

The articles were amended in 1925 to expand the purposes of the corporation and to carry out these purposes the corporation could incur indebtedness, issue bonds,

mortgage and encumber its property, and contract with the United States. To insure finances the board of directors was authorized to levy assessments to meet all debts and obligations of the company. This paved the way for the board of directors to enter into subscription contracts with the United States government for water supply in the Echo project.

The company has 250 shareholders and serves 5000 acres. It owns 4950 acre feet of storage water in Echo Reservoir for which it pays \$0.75 per acre foot to the Weber River Water Users' Association. The rate of assessment is \$8.00 per share, and each share entitles the owner to one hour of water every 7 1/2 days.

There are a number of unincorporated mutual companies in the Weber area. These are generally operated by one or just a few individuals. Some of the companies providing irrigation water to city lots have quite a few members. There is not a great deal of information available on these companies. This is due to their keeping no books or records, generally dividing expenses between members with no formal assessment and also a reluctance to discuss their company with strangers. The companies personally interviewed were:

1. Andersen-Winters Ditch Company.

This company is operated by one man having a decreed water right to a portion of the flow from the Ogden River. The water is

available on demand, regulated by the water commissioner and used to irrigate 75 acres of farm land.

2. Bybee Ditch Company.

This company is owned by an industrial concern that uses the water for washing gravel. It has a water right decreed in 1897 to a portion of the flow of the Weber River. The water is diverted from the river by a six-inch pipe and is measured.

3. Chambers Ditch P. B.

This company is located in Liberty, Utah and is managed by five partners. They have a priority water right in Liberty Spring Creek that is regulated by the water commissioner. There are no assessments and each individual takes care of all ditch maintenance on his own land and pays all expenses attributed to his land. The water is not measured and most of it is used on a single farm. After the farm needs are satisfied each member receives water for two hours each week on a rotation basis. The water serves 100 acres of land and the distribution system consists of 20 feet of 20-inch pipe and a quarter mile of dirt ditches.

4. Dexter Farr.

The company was organized by Dexter Farr and his brother to obtain water from Causey and Beaver Creeks. They have a court decree to these waters dating back to 1944. Causey Creek is an early right to two second feet of water until about the first of August. Beaver Creek is a year round water right for 0.63 second feet. Also 150 acre

feet is obtained from the WBWCD at \$3.49 per acre foot. Mr. Farr has made extensive improvements that include \$500 for a replacement canal and \$3000 for open ditch culverts. The conservancy district provided an outlet from Causey Dam to his farm that includes 175 yards of stainless steel pipe. Both creeks are regulated by the water commissioner and storage water is available on 24-hour notice.

5. Emil Roberts Ditch.

There are two owners of this company that obtains water from the North Fork of the Ogden River, having a priority right of 1889. Water is delivered by gravity from the river through 10 feet of 12-inch pipe and 1/2 mile of dirt ditch. The water is regulated by the river commissioner. No assessments are collected and each takes care of ditches on his own land. At the present time they are transferring their water rights and drilling two wells because of high seepage loss.

6. Enoch Farr Ditch Company.

The company has a decreed right to 0.40 second feet of water from the Ogden River. There are seven users who irrigate land within the city. Each maintains his own stretch of ditch and pays his own expenses for maintenance. The water is not measured to the individual users.

7. Garner Ditch Company.

The company is owned by four partners who use the total flow of water from Birch Creek under a 1930 decreed right. This creek dries up in late summer and water must be obtained from other sources. One

owner obtains 130 acre feet from Pine View Reservoir and the other sources are unknown. One owner sold his surface flow rights to South Ogden. No assessments are collected and each partner takes care of his own expenses. The only thing they have in common is the use of Garner Ditch to get water on their own property. The company serves 70 acres and flow is regulated by a water commissioner. The water is distributed through 2 1/2 miles of dirt ditches.

8. Harbertsen Ditch Company.

This is a one-man operation taking water from Weber River under a prior right and applying it directly to his 10 acres of land. He supplements his supply with four shares in Dunn Canal Company that gives him four hours of water at 12 second feet.

9. Holmes Creek Irrigation Company.

The company consists of two men owning the rights to a spring. The area served is 65 acres and both men use the water as often as they need it. No assessments are involved and each man takes care of his own expenses. The spring has now been sold along with a portion of the land which is being subdivided for houses.

10. Holmes and Ferrin Irrigation Company.

This company has a capital stock of 192 shares having no par value. There are seven shareholders and water is provided to 300 acres. The company is managed by a president, vice-president and secretary elected by the shareholders. Source of water is a spring and water is not measured to individual users. The rate of assessment is

\$1.00 per share. Improvements costing \$300.00 were financed by assessing stockholders directly.

11. Jones Ditch.

This company consists of six shareholders and has 155 shares of stock having no par value. The company has a decreed right of 1853 to a portion of the flow of the Weber River. This is supplemented by 50 shares in the Weber River Water Users' Association costing \$0.75 per share. The rate of assessment is \$2.00 per share. The water is measured to each individual user.

12. Montgomery Irrigation Ditch.

This company is composed of seven partners having decreed stock right to a portion of the flow in the Ogden River. This is a high water right and they are generally out of water by July. There are no assessments and all expenses incurred are divided equally. The water is measured to each individual who obtains his water every seven days.

13. Mound Fort No. 2.

There are 104 individuals on this system that supplies irrigation water to 10 blocks in Ogden. The source of the water is Mill Creek and the company has prior right dated back to 1880. Each individual takes his share of water on an hourly basis about every six days. The assessments are \$1.00 per share plus sharing in any labor. The land goes with the water right. Recent improvements costing \$3500.00 were financed by assessment of stockholders.

14. Mound Fort No. 3.

This company has 113 individuals receiving a portion of flow from the Ogden River under a prior right. The company is managed by a board of directors and assessments are made as required. Each acre of land represents one share. One share entitles the user to four hours of water at 1.8 second feet. Watering time is allotted by a committee according to size of lot. The water right may be transferred only with the land.

15. Mound Fort No. 4.

The company has a decreed right to two second feet of the flow in Mill Creek. The rotation is every seven days and the individual user may use the two second feet for his allotted time. Shares are assessed at \$0.05 per share and each individual is charged \$1.50 for the outlet to his property. There was not much information available on this company.

16. Mound Fort No. 5.

The company has 19 shareholders and serves 77.5 acres. Three acres of land is entitled to eight hours of water time. The rate of assessment is \$0.35 per hour of use. The water is measured to the ditch and the user has the use of the entire ditch every 6 1/2 days. All maintenance work is done by the users or they may hire someone to do their share of the work. A secretary takes care of the establishing of water turns and other business. The users voted against incorporation because they felt this would negate their water rights and increase the

cost of water. They have priority right to a portion of the flow from the Ogden River. The water right is tied to the land.

17. Shaw Ditch (Everett B.).

This particular company is not actively engaged in the distribution of water. It does have a prior right to a portion of the flow of Ogden River that the owner will eventually exchange for well rights.

18. Upper Club Plain City.

This company has established priority rights on the Ogden River dated 1885 and 1867 and on the Weber River dated 1878. In addition they have 210 acre feet in Echo Dam through stock owned in the Weber River Water Users' Association. This storage water costs \$0.75 per acre foot. All water is conveyed to the company via the Willard Canal. The cost of using the canal is \$111.60 per season and is paid to the WBWCD. The company consists of five water users and serves approximately 500 acres. The water is distributed by rotation every 10 1/2 days and the user has use of the full stream for as long as his turn allows. The length of a turn depends on the number of acres to be irrigated. The water to the ditch is measured. All costs are distributed among the users in proportion to the number of acres irrigated and the amount of water used.

Evaluation. The mutual irrigation company is one of the oldest and most popular water institutions in Utah and developed naturally from the small, independent ditch systems of the early Mormon pioneers. Briefly it consists of several water users in the same area using the

same source of supply for the same purpose. This has led to one serious disadvantage of this type of institution. As new settlers moved into the area they became members of the company; however with additional members these existing systems became over-taxed. This forced the newcomers to organize thier own company. That usually meant using the same source of supply and the construction of a parallel ditch system. It was not uncommon for several of these companies to service one area with the resulting duplication of facilities. This has resulted in tremendous losses in seepage and evaporation, not to mention the loss of land due to ditch construction.

The mutual irrigation company is exempt from federal tax if 85 percent or more of its income consists of amounts collected from its members and used solely for the operation of the company.

The company is also exempt from income tax in Utah so long as it is used only for the service of members. Consequently many of these companies in their articles of incorporation have stated that the primary purpose of the company was to provide water only to stockholders at cost. Some older companies were incorporated with authority to sell water to others besides their own stockholders. They have found it expedient to amend their articles of incoporation limiting their activities to a mutual company. It is interesting to note that the Beus Creek Water Company was originally organized as a mutual irrigation company and then amended its articles to become a pecuniary corporation. However when these companies have been organized as

profit making organizations they come under the state law governing public utilities and the rates they charge for services are controlled by the public service commission. The ease of formation and the advantage of changing their objectives and structure through amendments have made the mutual company a convenient organization for the distribution of water to old or new areas.

Another disadvantage of the mutual company is its difficulty in raising sufficient funds to operate efficiently. The individual who owns shares in the company is a part owner of the physical facilities and entitled to the use of a portion of water developed by the company. In return his stock is assessed or he may be required to pay a service charge or a combination of both. This is the only revenue available to the company. As noticed in the survey of existing companies some have placed a limitation upon the amount of assessment that may be levied by the board of directors. This does not provide sufficient revenue to operate the company efficiently. However it was also noted that when the companies amended their articles to contract with the United States or other agencies the boards of directors were given unlimited authority to levy and collect assessments. Since the mutual company is a private and voluntary organization it is unable to obtain revenue from land in its immediate area that is not using company's water. This inability to tax all land in its service area is one of the major weaknesses of the mutual company. The mutual company may place a lien upon any stock that does not pay its assessment but not

upon the land. Incorporation does strengthen the financial position of the company as Utah law provides for the sale of delinquent stock. This alone provides a strong incentive to pay all assessments as loss of water rights reduces the value of the land.

A mutual company does offer some security and a degree of flexibility in its operation. The stock in the company is a valuable piece of real property and this stock may be sold or transferred within the company. Most companies permit the sale or transfer of stock among members of the company or to land that lies along the company's canals and ditches, but do not allow the stock to be transferred outside of the company's service area. These sales and transfers do provide for greater flexibility of operation. Utah law provides for transfer of water from one company to another. Most companies could become a strong influence in water management.

Another item that may be a disadvantage to the overall picture of water planning and management is that as a private entity the mutual company does not come under any public supervision and none of its planning or development programs are reviewed by higher authorities to see if they fit into a comprehensive plan. This is an advantage as far as the mutual company is concerned.

The mutual company does have another advantage in that the management of the company is local and familiar with local conditions and problems and should do a better job for the stockholders. However this is again a disadvantage in terms of comprehensive planning as the solutions are strictly local.

The mutual companies investigated range from just four or five stockholders to those having over 300 and provide water to areas from 50 to 40,000 acres. The major problem affecting the smaller companies is financial. All seem to need money for improvements. A great many are wasting water due to having only dirt ditches and in most cases no idea of how much water they are using. Even some of the larger companies having pipes and cement ditches do not measure their water. The cost of water to the mutual companies is usually ridiculously low, amounting to approximately \$3.00 per acre foot from the Weber Basin Project and only \$0.75 per acre foot from the Weber River Water Users' Association. The fact that it costs the WBWCD about \$8.00 per acre foot to produce irrigation water shows that irrigation is heavily subsidized.

The mutual companies operating in Weber County do not appear to have a problem in terms of overlapping of services which is common in other areas. A number of these companies have found it economical to lease their spring water to municipalities and to obtain water for their own purposes from the WBWCD. The Alder Creek Irrigation Company, the Little Missouri Irrigation Company and the Uintah Mountain and Stream Irrigation Company have such an arrangement.

Tables 1 and 2 show the water allotments, rights and costs of the aforementioned incorporated mutual companies.

Table 1. Water allotment and rights of mutual irrigation companies.

| Name | Source of Water | | Water Allotment | | | Classification of Right | Priority | Purpose | |
|--|---------------------------|------------|---------------------|-------|-------------------|-------------------------|-------------|---------|-----------|
| | Surface | Storage | Surface Second Feet | | Storage Acre Feet | | | | |
| | | | Flood | High | | | | | Low |
| Alder Creek Irr. Co. | Spring | | | 2.32 | 1.16 | | Decreed | 1852 | Irr. |
| | | Pine View | | | | 357 | Contract | | |
| Bamborough Irr. Co. | Weber R. | | 5.36 | 4.17 | 2.50 | | Decreed | 1856 | Irr. Stk. |
| | | | 3.39 | 2.63 | 1.58 | | Decreed | 1870 | |
| | | Echo | | | | 150 | Contract | | |
| Bertinotti Irr. Co. | Ogden R. | | | 3.50 | 1.95 | | Decreed | 1851 | Irr. Stk. |
| | | Pine View | | | | 30 | Contract | | |
| Beus Creek Water Co. | Spring | | 1.39 | 1.39 | 0.87 | | Decreed | 1869 | Irr. |
| Co-op Farm Irr. Co. | South Fork | | | 11.48 | 4.31 | | Decreed | 1862 | Irr. |
| | | Causey | | | | 400 | Contract | | |
| Crooked Creek Irr. Co. | Middle Cr. Crooked Cr. | | | 12 | 4 | | Application | 1924 | Irr. Stk. |
| | | Causey | | | | 400 | Contract | | |
| Davis & Weber Counties Canal Company | Weber R. | | 75 | 75 | 46.15 | | Decreed | 1881 | Irr. Stk. |
| | Weber R. | | 60 | 60 | 36.9 | | Decreed | 1889 | Irr. Stk. |
| | Weber R. | | 75 | 75 | 46.15 | | Decreed | 1902 | Irr. Stk. |
| | Weber R. | | 215 | | | | Application | 1909 | Irr. Stk. |
| | | E. Canyon | | | | 13,000 | Decreed | 1896 | Irr. |
| | | E. Canyon | | | | 15,000 | Application | 1912 | Irr. |
| | | Kays Creek | | | | 4,000 | Application | 1935 | Irr. |
| | | Echo | | | | 29,000 | Contract | | Irr. |

Table 1. continued

| Name | Source of Water | | Water Allotment | | | Classification of Right | Priority | Purpose | |
|--------------------------------------|-----------------|-----------|---------------------|-------|-------------------|-------------------------|-------------|---------|---------------|
| | Surface | Storage | Surface Second Feet | | Storage Acre Feet | | | | |
| | | | Flood | High | | | | | Low |
| Dinsdale Water Co. | Ogden R. | | | 5.50 | 3.42 | | Decreed | 1855 | Irr. |
| | | Pine View | | | | 267 | Contract | | Irr. |
| Downs Ditch Co. | South Fork | | | 1.83 | 3.42 | | Decreed | 1855 | Irr. |
| | South Fork | | | 0.85 | 0.32 | | Decreed | 1900 | Irr. |
| | | Pine View | | | | 90 | Contract | | Irr. |
| Dunn Canal Co. | Weber R. | | 3.04 | 2.37 | 1.42 | | Decreed | 1869 | Irr. Dom. Sk. |
| | Springs | | 0.01 | 0.01 | 0.01 | | Decreed | 1872 | Dom. Sk. |
| | | Echo | | | | 288 | Contract | | |
| Eden Irr. Co. | Wolf Creek | | | 20 | 9.85 | | Decreed | 1861 | Irr. |
| | No. Fork | | | 48.87 | 18.33 | | Decreed | 1966 | |
| | | Causey | | | | 1200 | Contract | | |
| Emertsen Irr. Co. | S. Fork | | | 2.75 | 1.03 | | Decreed | 1862 | Irr. |
| | S. Fork | | | 2.54 | 0.95 | | Decreed | 1898 | |
| | | Causey | | | | 90 | Contract | | |
| Felt, Peterson, and Slater Ditch Co. | S. Fork | | | 0.83 | 0.31 | | Decreed | 1880 | Irr. |
| | S. Fork | | | 2.74 | 1.03 | | Decreed | 1863 | |
| | | Causey | | | | 110.6 | Contract | | |
| Glenwood Ditch Co. | Ogden R. | | | 2.57 | 1.25 | | Decreed | 1849 | Irr. |
| | Ogden R. | | | 3.00 | 3.00 | | Application | 1941 | |
| | | Pine View | | | | 35 | Contract | | |
| | | | | | | | | | |

Table 1. continued

| Name | Source of Water | | Water Allotment | | | Classification of Right | Priority | Purpose |
|--|-------------------------|-----------|---------------------|--------|-------|-------------------------|----------|----------------|
| | Surface | Storage | Surface Second Feet | | | | | |
| | | | Flood | High | Low | | | |
| Hooper Irrigation Co. | Weber R. | | 16.36 | 12.86 | 6.92 | Decreed | 1859 | Irr. Dom. Stk. |
| | Weber R. | | 0.73 | 0.57 | 0.31 | Decreed | 1865 | |
| | Weber R. | | 136.40 | 107.17 | 57.71 | Decreed | 1869 | |
| | | Echo | | | | 9100 | Contract | |
| Huntsville Irr. Co. | S. Fork | | 41.54 | 15.88 | | Decreed | 1861 | Irr. |
| | | Causey | | | | 600 | Contract | |
| Huntsville Mountain Canal Irrigation Co. | S. Fork and Middle Fork | | 32.08 | 12.03 | | Decreed | 1872 | Irr. |
| | | Causey | | | | 1800 | Contract | |
| Huntsville South Bench Canal Co. | Bennet Cr. | | 8.92 | 3.34 | | Decreed | 1884 | Irr. |
| | | Causey | | | | 600 | Contract | |
| Liberty Irrigation Co. | N. Fork | | 8.19 | 1.88 | | Decreed | 1865 | Irr. |
| | N. Fork | | 40.17 | 9.20 | | Decreed | 1876 | |
| Lynne Irrigation Co. | Ogden R. | | 15.20 | 6.70 | | Decreed | 1851 | Irr. Stk. |
| | Ogden R. | | 9.80 | 4.32 | | Decreed | 1867 | |
| | | Pine View | | | | 1500 | Contract | |
| Marriott Irrigation Co. | Ogden R. | | 12.00 | 7.32 | | Decreed | 1856 | Irr. |
| | | Pine View | | | | 295 | Contract | |
| Middle Fork Irrigation Co. | Middle Fork | | 10.60 | 3.98 | | Decreed | 1863 | Irr. |
| | | Causey | | (Surp) | | 840 | Contract | |
| Mound Fort Irr. Co. #1 | Ogden R. & Mill Creek | | 8.00 | 4.51 | | Decreed | 1849 | Irr. |
| | | | | | | | | |

Table 1. continued

| Name | Source of Water | | Water Allotment | | | Classification of Right | Priority | Purpose | |
|------------------------------|--------------------------|-----------|---------------------|-------|-------------------|-------------------------|----------|---------|--------------|
| | Surface | Storage | Surface Second Feet | | Storage Acre Feet | | | | |
| | | | Flood | High | | | | | Low |
| Mound Fort Irr. Co. No. 6 | Ogden R. | | | 3.54 | 1.81 | | Decreed | 1854 | Irr. |
| | Ogden R. | | | 1.81 | 0.75 | | Decreed | 1872 | |
| | | Pine View | | | | 50 | Contract | | |
| North Ogden Irrigation Co. | Ogden R. | | | 25.15 | 21.00 | | Decreed | 1857 | Irr. |
| | Ogden R. | | | 7.37 | 5.52 | | Decreed | 1870 | |
| | Ogden R. | | | 12.51 | 10.00 | | Decreed | 1862 | |
| | | Pine View | | | | 3000 | Contract | | Irr. |
| | | Echo | | | | 1000 | Contract | | |
| N. Sluerville Irr. Co. | Ogden R. and Mill Cr. | | | 10.00 | 4.84 | | Decreed | 1853 | Irr. |
| | | Pine View | | | | 267 | Contract | | |
| Ogden River Res. Co. | Ogden R. | | | | | | | | |
| Old Wilson Irr. Co. | Weber R. | | 6.88 | 5.50 | 3.44 | | Decreed | 1853 | Irr. Stk. |
| Perry Irrigation Co. | Ogden R. and Mill Cr. | | | 11.00 | 5.00 | | Decreed | 1851 | Irr. Stk. |
| | | Pine View | | | | 200 | Contract | | |
| Pine Canyon Ditch | | | | | | | | | |
| Pioneer Irrigation Co. | Weber R. | | 2.86 | 2.22 | 1.33 | | Decreed | 1851 | Irr. Stk. |
| | | Echo | | | | 200 | Contract | | |
| Pioneer Land and Irr. Co. | Weber R. | | 10.28 | 8.08 | 4.35 | | Decreed | 1903 | Irr. Stk. |
| Plain City Irr. Co. | Ogden R. | | 42.26 | 33.20 | 17.80 | | Decreed | 1875 | Irr. Stk. |
| | | Echo | | | | 4405 | Contract | | |

Table 1. continued

| Name | Source of Water | | Water Allotment | | | Classification of Right | Priority | Purpose |
|----------------------------------|---------------------------|---------|---------------------|-------|-------|-------------------------|----------|----------------|
| | Surface | Storage | Surface Second Feet | | | | | |
| | | | Flood | High | Low | | | |
| Riverdale Bench Canal Co. | Weber R. | | 8.26 | 6.61 | 4.13 | Decreed | 1851 | Irr. Stk. |
| | Weber R. | | 8.26 | 6.61 | 4.13 | Decreed | 1857 | |
| | Echo | | | | 200 | Contract | | |
| Shupe and Middleton | Ogden R. | | | 3.00 | 1.41 | Decreed | 1854 | Irr. |
| South Slaterville Irrigation Co. | Weber R. | | 23.98 | 19.19 | 11.99 | Decreed | 1854 | Irr. Dom. Stk. |
| | | | | | 342 | Contract | | |
| South Weber Irr. Co. | Weber R. | | 9.45 | 7.56 | 4.72 | | 1852 | Irr. & Dom. |
| | Echo | | | | 180 | Contract | | |
| Utah Central Canal Co. | Weber R. | | 7.03 | 5.47 | 3.28 | Decreed | 1852 | Irr. Dom. Stk. |
| | Echo | | | | 350 | Contract | | |
| Utah Mountain Stream Irr. Co. | Mountain Str. Stubbs Spr. | | 2.10 | 2.10 | 0.66 | Decreed | 1853 | Irr. Dom. Stk. |
| | Wanship | | | | 200 | Contract | | |
| Warren Irrigation Co. | Weber R. | | 55.50 | 43.61 | 23.48 | Decreed | 1881 | Irr. Stk. |
| | Weber R. | | 15.00 | 15.00 | 15.00 | Application | 1905 | |
| | Weber R. | | 17.00 | | | Application | 1911 | |
| | Weber R. | | | | 1800 | Application | 1913 | |
| | Echo | | | | 1500 | Contract | | |
| Weber Canal Water Co. | Weber R. | | 9.54 | 7.42 | 4.17 | Decreed | 1864 | Irr. Stk. |
| Western Irrigation Co. | Ogden R. | | | 27.62 | 19.0 | Decreed | 1858 | Irr. |
| | Pine View | | | | 4250 | Contract | | |
| | Echo | | | | 1000 | Contract | | |

Table 2. Water costs of mutual irrigation companies, 1970.

| Company | Amount of water in acre feet | | Total amount used in acre feet | Total cost of water to users | Cost per acre foot to users | Storage water obtained from | Cost of storage water to company per acre ft. |
|---------------------------------|--|-----------|---|------------------------------------|-----------------------------------|--------------------------------------|---|
| | River | Reservoir | | | | | |
| Alder Creek | This company leases its spring to town of Pleasant View in return for 357 acre feet of storage water from the ORWUA. | | | | | | |
| Bamborough | 1,212 | 144 | 1,356 | \$ 2,112.50 | \$1.56 | WRWUA | \$0.75 |
| Bertinotti | 954.8 | 29.9 | 984.7 | | | ORWUA | |
| Beus Creek | This company no longer operates as an irrigation company. It now provides only culinary water to 23 homes at \$2.50 per month. | | | | | | |
| Co-op Farm | 2,030.6 | 232 | 2,262.6 | 4,830.00 | 2.12 | WRWUA | 0.75 |
| Crooked Creek | 270.0 | 0 | 270.0 | 37.00 | 0.14 | -- | -- |
| Davis & Weber Counties Canal | 44,266 | 20,877 | 65,143 | 78,349.00 | 1.20 | WRWUA | 0.75 |
| Dinsdale Water | 695 | 3.60 | 698.6 | 2,200.00 | 3.15 | ORWUA | 2.11 |
| Downs Ditch Water | 564.6 | 90 | 654.6 | 525.00 | 0.81 | WBWCD | 2.27 |
| Dunn Canal | 1,414 | 264 | 1,678 | | | | |
| Eden | 8,292 | -- | 8,292 | 4,904.70 | 0.59 | WBWCD | 2.92 |
| Emertsen | 514.2 | 90 | 604.2 | 200.00 | 0.33 | WBWCD | -- |
| Felt, Peterson, and Slater | 850.0 | 96 | 952.6 | 426.00 | 0.46 | WBWCD | 2.92 |
| Glenwood Ditch | 361.18 | 27.7 | 388.88 | 300.00 | 0.77 | WBWCD | 4.86 |

Table 2. continued

| Company | Amount of water in acre feet | | Total amount used in acre feet | Total cost of water to users | Cost per acre foot to users | Storage water obtained from | Cost of storage water to company per acre ft. |
|------------------------------|---|-----------|---|------------------------------------|-----------------------------------|--------------------------------------|---|
| | River | Reservoir | | | | | |
| Hooper | 27,838 | 8,702 | 36,540 | \$67,777.48 | \$1.85 | WRWUA | \$1.30 |
| Huntsville | 7,077 | 540 | 7,617 | 5,580.00 | 0.75 | WBWCD | 2.92 |
| Huntsville Mountain Canal | 4,108 | | | 5,301.00 | 1.25 | WBWCD | 2.92 |
| Huntsville South Bench | 447.8 | 436 | 883.8 | 5,700.00 | 6.50 | WBWCD | 2.92 |
| Liberty | 3,359.2 | 0 | 3,359.2 | 1,512.00 | 0.45 | -- | -- |
| Little Missouri | This company leased its spring to town of Pleasant View in return for 200 acre feet from the ORWUA. | | | | | | |
| Lynne | 3,587.5 | 1,125.70 | 4,713.2 | -- | -- | ORWUA | -- |
| Marriott | 2,078 | 234 | 2,312 | 1,327.00 | 0.57 | ORWUA | -- |
| Middle Fork | 450 | | 450 | 2,788.80 | 6.20 | WBWCD | 2.92 |
| Mound Fort #1 | 1,204.1 | 0 | 1,204.1 | | | | |
| Mound Fort #6 | 373.0 | 0 | 373.0 | 213.17 | 0.57 | ORWUA | 2.50 |
| North Ogden Irr. | 7,131.8 | 1,691 | 8,822.8 | 14,713.94 | 1.56 | ORWUA | 2.31 |
| North Slaterville | 1,509.1 | 198.3 | 1,767.4 | -- | -- | -- | -- |
| Old Wilson | 920 | 0 | 926 | 373.50 | 0.41 | -- | -- |

Table 2. continued

| Company | Amount of water in acre feet | | Total amount used in acre feet | Total cost of water to users | Cost per acre foot to users | Storage water obtained from | Cost of storage water to company per acre ft. |
|---------------------------|---------------------------------------|-----------|---|------------------------------------|-----------------------------------|--------------------------------------|---|
| | River | Reservoir | | | | | |
| Perry | 1,507.8 | 0 | 1,507.8 | \$ 945.00 | \$0. 62 | ORWUA | \$3.00 |
| Pine Canyon Ditch | | 0 | | 144.00 | | -- | -- |
| Pioneer Irr. Canal | 415 | 212 | 627 | 200.00 | 0. 32 | WRWUA | 0. 75 |
| Pioneer Land | -- | 0 | | 2,400.00 | | -- | -- |
| Plain City | 4,876.4 | 1,858 | 6,734.4 | 2,068.00 | 0. 31 | WRWUA | 0. 75 |
| Riverdale Bench | 2,163 | 122 | 2,285 | 1,982.05 | 0. 90 | WRWUA | 0 |
| Shupe & Middleton | 325.37 | 0 | 325.37 | 306.50 | 0. 94 | -- | -- |
| South Slaterville | 3,669 | 342 | 4,011 | -- | -- | -- | -- |
| South Weber | 1,522 | 182 | 1,704 | 960.00 | 0. 56 | WRWUA | 0. 75 |
| Uintah Central Canal | 844 | 165 | 1,009 | 1,404.00 | 1. 30 | WRWUA | 1. 59 |
| Uintah Mountain Stream | -- | 200 | | 504.00 | 2. 52 | WBWCD | 4.00 |
| | Leases spring to Uintah for \$650/yr. | | | | | | |
| Warren | 16,340 | 3,000 | 19,340 | 19,600.00 | 1. 01 | WRWUA | 7.00 |
| Weber Canal Water | 242 | 0 | 242 | 2,125.00 | 8. 80 | | -- |
| Western | 9,202 | 1,687 | 10,889 | 16,744.20 | 1. 54 | ORWUA | 2. 30 |
| Wilson | 11,136 | 4,506 | 15,642 | 27,256.00 | 1. 73 | WRWUA | 0. 75 |

Water Users' Associations

This is essentially a mutual irrigation company with the exception that the water rights and stock are appurtenant to the land and the provision that the assessments should become liens upon both stock and land. It is empowered to enter into contract with the United States and encumber its stockholders with the charges for construction, operation and maintenance of water projects.

In 1922 the Bureau of Reclamation was authorized to enter into contract with legally organized districts. The collection procedures of the association were still unsatisfactory, as the only way to collect delinquent charges from a water user was to prosecute and bring individual action. This led to a preference for an irrigation form of enterprise that had taxing machinery. However in Utah, because of strong feeling in the state against irrigation districts, the Bureau of Reclamation has entered into contract with water users' associations. The association is formed under the corporation law of the state and its members hold stock in the company in proportion to their irrigable acreage. The stockholders in the company may be individuals, corporations, irrigation districts or drainage districts. Thus the mutual companies have obtained the benefits of such projects by acquiring stock in these associations. (Hutchins, 1953)

Two of these associations are active in Weber County and will be discussed here. Even though these are essentially mutual irrigation companies they will be discussed separately because of their size and financial arrangements.

1. Weber River Water Users' Association (WRWUA).

This association was created in 1962 under the corporate laws of Utah with its place of business in Ogden, Utah. Its general purpose is acquiring, constructing, operating and maintaining dams, reservoirs, canals, pumping plants, power plants, etc., for the reclamation, irrigation, or enjoyment of the lands or property of its stockholders. Its specific purpose was to sponsor the construction of Echo Dam and reservoir to provide water for irrigation companies and municipalities and for use on approximately 98,000 acres of land. The prime function is to operate and maintain Echo Dam for its stockholders. Its area of operation includes Weber, Davis, Utah, Morgan, Summit and Salt Lake Counties.

The capital stock of the association is 74,000 shares without par value, with each share entitling the owner to one acre foot of water per year and to one vote.

The administration of the association is conducted by a board of nine directors elected by the stockholders for terms of three years. Each director must be a stockholder in the company or a duly authorized representative of a stockholder, more than 21 years of age and a citizen of the United States. The board elects a president, vice-president, secretary and treasurer from its own number. The board may also employ a full time manager and other necessary personnel to operate the system. The board has the power to levy and collect assessments and to contract with the United States or other parties. It is also provided

that no contract with the United States or other parties can exceed \$10,000.00 without the approval of the stockholders.

The articles of incorporation provide that each stockholder precedent to the issuance of such stock must enter into contract guaranteeing the payment of assessments by a lien on water rights, all facilities and land. In case of nonpayment of the assessment the board may sell the stock of the stockholder or foreclose the mortgage on his property. All assessments for operation and maintenance are levied equally upon each share. The assessments for repayment to the United States are based on a crop production plan in which event assessments may be made at unequal rates per share. The stockholder may sell or transfer his shares only with the consent of the board and only to be used on such land as agreed upon by the purchaser and the board.

This association was primarily formed to contract with the United States for the construction of the Echo Dam project. Its duties are to operate and maintain Echo Dam for the benefit of its stockholders. The dam has a capacity of 74,000 acre feet and the association provides supplemental water to almost all of the irrigation companies on the Weber River. The projects' primary purpose was to provide water for irrigation and the association is paying the full cost of the project as there were no reimbursable costs attached to the project. (Harris, 1942) All stock in the association is assessed equally, the present rate being \$0.75 per share. This being an irrigation project no interest was charged on the construction costs. (Harris, 1970)

2. Ogden River Water Users' Association (ORWUA)

The association was created in 1933 under the corporation act of Utah to sponsor the construction of the Ogden River Reclamation Project. The object of the project was to impound and distribute the surplus waters of the Ogden River for the irrigation of lands located in the highly developed areas of Weber County and the southeastern portion of Box Elder County. In 1934, the association entered into contract with the Bureau of Reclamation for the construction of Pine View Dam in Ogden canyon. The contract also included the construction of a 75-inch woodstave pipeline down the canyon, the Ogden-Brigham Canal running from the mouth of the canyon a distance of 24 miles to Brigham City and the south Ogden Canal running southwesterly a distance of seven miles. The total cost of the project was \$4,200,000.00. This was the amount that the association was obligated to repay as there were no nonreimbursable funds allotted to the project. The first irrigation water was delivered in June, 1937 and the operation and maintenance of the project was turned over to the association in August, 1937. (Annual Report, Pine View Water System, 1969)

In 1950, as part of the Weber Basin Project, the WBWCD and the Bureau of Reclamation entered into an agreement for the enlargement of the Pine View Dam and Reservoir from 44,175 acre feet to 110,000 acre feet. This construction was begun in 1955 and was completed in 1957. The Pine View Dam and Reservoir is now operated and maintained by the association for the parties involved on a cost sharing

basis. The association was reimbursed by the conservancy district because of the joint use of the dam and reservoir sites, the transfer of 471 acres of land from the association to the Weber Basin Project and for the time spent at the site by employees of the association during the construction period. This reimbursement amounted to \$14,604 in cash and the paid-up water right to 875 acre feet to be delivered annually by the conservancy district. The association owns 44,175 acre feet of storage water in the Pine View Reservoir and 2830 acre feet subscribed from the BWCD for the Box Elder Conservation District in addition to the 875 acre feet mentioned above. (Southwick, 1970)

The capital stock of the association is 49,175 shares consisting of 44,175 shares of Class I stock and 5000 shares of Class II stock. The Class I stock represents the rights and interests of the association acquired under contracts between the association and the United States and to the water resulting therefrom; in addition owners are entitled to have distributed to them equally any available water above that required for storage purposes. Class II stock represents the rights and interests to the water resulting from contracts between the association and the BWCD. The owners of this stock bear their proportionate share of liabilities and obligations to the extent that the structures and facilities are used to deliver the water obtained from the BWCD plus an equitable share of the operation and maintenance costs. All stock of the corporation is assessable and each stockholder is entitled to own not less than one acre foot of water per annum, or what constitutes a proportional part

of the water available from each share of stock of the class he subscribed for, and is entitled to one vote for each share of stock (Articles of Incorporation).

The headquarters of the company is located in Ogden, Utah, and its area of responsibility includes Weber and Box Elder Counties. The corporation is managed by a board of directors consisting of nine members elected by the stockholders to hold office for three years. Directors must be United States citizens, more than 21 years of age and stockholders or the duly authorized representatives of stockholders. The board elects a president, vice-president, and secretary and treasurer from its own members. The board is empowered to employ a manager and other employees necessary to operate the company, levy and collect assessments and to execute contracts involving the expenditure of more than \$10,000.00 must be approved by a majority vote of the stockholders.

Revenue for the operation of the company is obtained from renting and delivery of irrigation water, sale or rent of electric power and from assessment of stock. These assessments shall be equitable but not necessarily equal. The assessment at the present time ranges from \$2.30 to \$2.75 per share. The stockholders of the company are composed of 16 irrigation companies, the municipalities of Ogden, North Ogden, Willard, Brigham, Pleasant View and the South Ogden Conservation District and the Weber-Box Elder Conservation District. The association serves 24,500 acres. (Southwick, 1971)

Each subscriber to stock must give such assurance, liens, contracts or mortgages to secure the payment for the stock and for any assessments levied by the board of directors. Failure to pay the assessment will result in sale of stock or foreclosure of the lien or mortgage upon the property of the shareholder. A stockholder may sell his stock only with the consent of the board and upon such terms as agreed to by the purchaser and the board.

Evaluation. As these associations are a form of mutual company they contain the same advantages and disadvantages. One of the advantages claimed is the ease with which they can be formed. Being private corporations they do not require public hearings, elections or any report of project feasibility to a higher authority. This may also be a disadvantage in that it does not provide any safeguard against unsound or economically unfeasible projects. The membership in such an association is voluntary and no attempt is made to include any unwilling land owners, as is sometimes done in public organizations. Again this may also be a disadvantage because they do not have the power to tax or to compel individuals in their service area to join. They do have the advantage of being able to cross state lines and the ability to raise revenue in any amount at any time for any use as decided by the board of directors. The mutual companies and associations do suffer some disadvantage in the investment market when they attempt to sell bonds, and also because their bonds are not exempt from federal taxes.

The major disadvantage of the water users' association or the mutual company is that it does not have the taxing machinery to raise revenue. The association has strengthened itself by making water rights and stock appurtenant to the land and by the fact that assessments become a lien upon both stock and land. This does brighten the financial picture of the association.

However with both of these associations finances do not seem to be a problem. By 1950 all of the available water had been subscribed for in the ORWUA. At the present time they own 3570 shares in the WBWCD. The strength of the ORWUA is that the major stockholders are the conservation districts and the municipalities that do have taxing powers. The WRWUA also controls 74,000 acre feet of water in Echo Reservoir and the assessments are only \$0.75 per share.

Irrigation Districts

Irrigation or conservation districts were established primarily to obtain the necessary revenue to effectively operate and manage an irrigation development. The district was authorized to levy and collect taxes on all property within its boundaries that was benefited by the project whether it used the water or not. It also provided a convenient vehicle to enter into contract with the United States or any of its agencies or other state agencies to obtain the necessary water for irrigation. The United States preferred to contract with irrigation districts and like organizations that had the power of taxation. This insured the ability of the district to repay the obligations incurred in the construction,

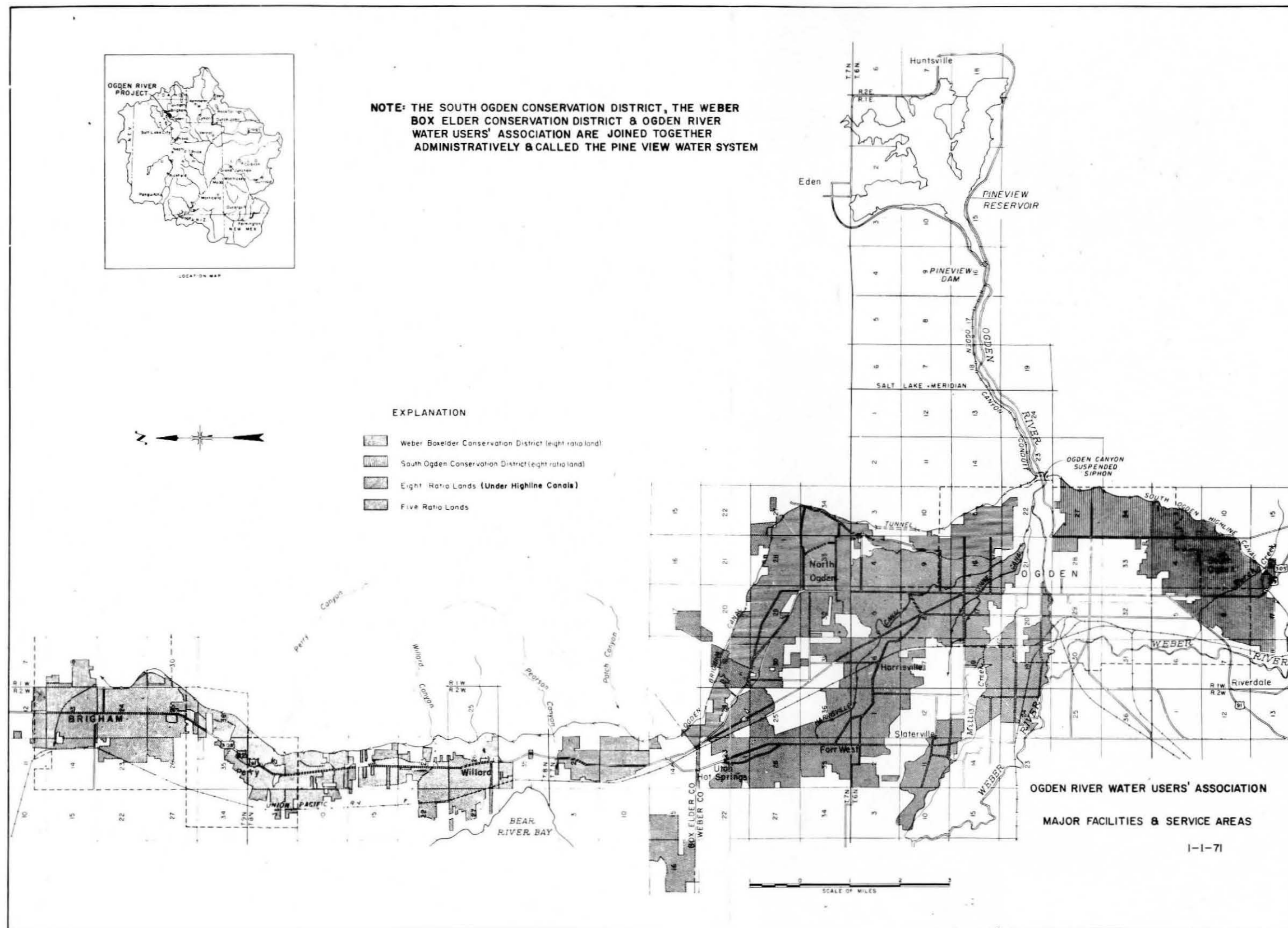


Figure 4. Boundaries of irrigation districts.

operation and management of a large scale water project. These taxes and assessments may be collected by the county treasurer along with the regular taxes. These taxes constitute a lien against the land which may be sold at a tax sale for nonpayment.

The inability of the mutual companies to finance construction and operation of larger water projects necessitated such an organization as the irrigation district. It was able to take advantage of operating over a larger area to develop an irrigation project under a single organization and of requiring all benefited land to share in the cost. This expansion of boundaries and the use of a common water source tended to avoid the duplication and overlapping of facilities caused by the efforts of smaller companies.

However, even with all these apparent advantages the irrigation district concept has not been widely accepted in Utah. This is in part due to failures of some of the earlier irrigation districts and the natural preference for the mutual company. The Bureau of Reclamation prefers to contract with organizations that have the power to tax rather than with mutual companies. The strong feelings against irrigation districts has caused the Bureau to change its policy and to execute contracts with a form of mutual company known as a water users' association. These associations made the stock and water appurtenant to the land and provided that the assessments become a lien upon stock in the association. Only two of these districts are found in Weber County. Figure 4 shows the boundaries of these districts.

1. South Ogden Conservation District.

This conservation district was organized in 1934 under the Utah Irrigation District Act. The objectives of the district were to conserve, distribute and put to beneficial use the water resources in the area and to provide irrigation water for residential and agricultural users at a nominal cost. Its area of responsibility is from the mouth of Ogden Canyon south, including part of Ogden city, south Ogden, Washington Terrace and Riverdale. The district includes 3,091.99 acres of land with 3,034.35 acres having a water allotment. This is made up of approximately 9200 separate tracts of land most of which is residential. The water supply of the district includes 6,939.35 acre feet of stock of the ORWUA, 2,300 acre feet of Weber Basin water and a share in the flood rights of the ORWUA. The management of the district resides in the board of directors, elected by popular vote of the water users within the district to serve for a period of three years. The board elects its own president and appoints whatever employees it requires to perform the work of the district. In this particular case it shares a full-time secretary-manager with the Weber-Box Elder Conservation District and the ORWUA.

The original intent of the district was to include only those lands that had agricultural potential and to provide only a simple system consisting of lined ditches or concrete pipes. However it soon became obvious that the district land would soon be changed into residential areas requiring a more elaborate distribution system than originally intended. Therefore in 1940 the district contracted with the Bureau

of Reclamation for a loan of \$345,000 to construct a distribution system. The system constructed at that time consisted of 35 miles of high pressure steel pipe and two large cement lined equalizing reservoirs and served approximately 1000 tracts of land. Since that time the system has been expanded to 150 miles of pipelines, six equalizing reservoirs serving over 9000 users with irrigation water under pressure. In 1969 the district applied to the Bureau of Reclamation for a loan of approximately \$400,000 to construct two reservoirs, to replace old pipelines and to pipe part of the South Ogden Canal. A levy of 28.5 mills has been placed on lands within the district to provide finances for the repayment of loans and for the operation and maintenance of the system.

2. Weber-Box Elder Conservation District.

The district was organized in 1934 under Irrigation District Act of the state of Utah, with the objective of providing irrigation water to areas of land that had never been irrigated or cultivated. These lands were situated between the bench lands of the irrigation companies and below the Ogden-Brigham Canal. Since that time the district has been expanded several times until it now includes 6,883.63 acres of land within its boundaries. The area of responsibility includes the northeast bench of Ogden City, the Pleasant View area, North Ogden City, Willard City, Perry, Brigham City and section lands in Weber and Box Elder Counties. The district is under contract for 14,363.18 acre feet of water including 2830 acre feet from the WBWCD but

purchased from the ORWUA. The district also has a share in the flood water rights of the association.

The district receives water at the head of the Ogden-Brigham Canal and delivers it into eight equalizing reservoirs. The operation of the district is administered by a board of directors composed of three members who are elected by popular vote of the water users in the area, to serve for a period of three years. The board elects its own president and employs whatever other employees it considers necessary to run the district including the sharing of a secretary-manager. The trend towards residential development in the northeast portion of Ogden on the bench lands included in the district necessitated a pipe system to convey water from the Ogden-Brigham Canal to these lands. This led to the organization of the Weber-Box Elder Pipeline Association that secured a loan from the Utah Water and Power Board. The loan was used to construct a skeleton system to serve this area and was completed in 1950. As of now this area has become a highly developed residential area of about 10,000 inhabitants. The final repayment of the loan was made in 1969. The operation and maintenance of the lines of the Pipeline Association had been taken over by the district and the Pipeline Association dissolved.

A tax levy ranging from 29.5 to 33.0 mills was placed on these lands to provide the necessary revenue for the operation of the district.

Evaluation. Even though the irrigation district has not been an active institution in the state of Utah it does offer some advantages. Many of these advantages are inherent in the water conservancy district, the subconservancy district and others. The irrigation district was the first to provide sufficient revenue for the construction and operation of a large irrigation project. This was done by levying taxes against all benefited lands in the service area of the district. This was an entirely new concept as only those who actually benefited from the water paid any assessment prior to this. It also has the authorization to charge tolls for the use of the water. This tax levy is based upon a water evaluation. Those who use the water pay the full mill levy; those who have access to the distribution system but do not use water pay one-half of the mill levy; those without access pay one-fourth of the mill levy.

The amount of water allotted to each land has been determined by the state engineer and has become a part of the petition. This allotment represents the amount of water that can be beneficially used on each tract of land. This amount may be lowered by the board but not increased. The water users are assessed equally for each acre foot of water used. This could result in greater efficiency as each user attempts to receive maximum results from his water and to avoid waste. However he is still taxed at the original allotment set by the state engineer or the board. This could make the individual put his water to the highest use possible. The fact that the board may reduce

this allotment provides some insecurity to the individual water user. However this will probably never be done except in times of scarcity. In addition the board is elected by the water users and is answerable to the users and this provides additional security.

The act does provide for transfers of water within the district. This flexibility is hindered to some extent in that such transfers must be approved. However the board, being elected, would listen to the desires of the users in this regard.

The board also has the authority to lease or rent surplus water to any individual inside or outside the district. These contracts are good for five years and may or may not be renewed. Any water user contracting for water under these terms would be very reluctant to invest heavily in providing proper facilities. No provision is made for compensation to the user if his lease is not renewed so consequently he is probably wasting water with inadequate facilities.

There is another disadvantage in that the district is obligated to pay back the United States or others the non-reimbursable charges of the project. These constitute a fixed cost to the district and cannot be lowered by management efficiency or economy in operation and management. Something should be done to make these costs more flexible to encourage efficiency and economy. This is a disadvantage of all quasi-public institutions. If the fixed charges are too high for the users to pay the company must choose between rate

reduction and either reduction in sales or delinquent accounts.

(Hutchins, 1953)

Pine View Water System

This rather unique organization was created in 1962 to represent the water users of Pine View Reservoir. The system is composed of three separate entities: the Ogden River Water Users' Association, operators of Ogden River Project; the Weber-Box Elder Conservation District; and the South Ogden Conservation District. Figure 5 shows the organization of this system. Each of these is incorporated and administered by a board of directors elected by the shareholders of the organization. The boards have the power to appoint a full-time manager to supervise the work of constructing, operating and maintaining the works necessary to the business of the corporation. The manager may employ other assistants as required and perform such duties as defined by the board of directors. In this particular instance the individual boards have selected a common secretary-manager to represent and be responsible to each board of directors. In the same fashion the personnel of the system work for all three organizations and report a breakdown of their time devoted to each organization. A common personnel and finance committee represents each organization and provides for coordination among the three organizations. It may also be observed that several directors of the two conservation districts are also directors of the association. All these facts point to a well developed and coordinated system. Figure 6 shows the administrative organization of the system.

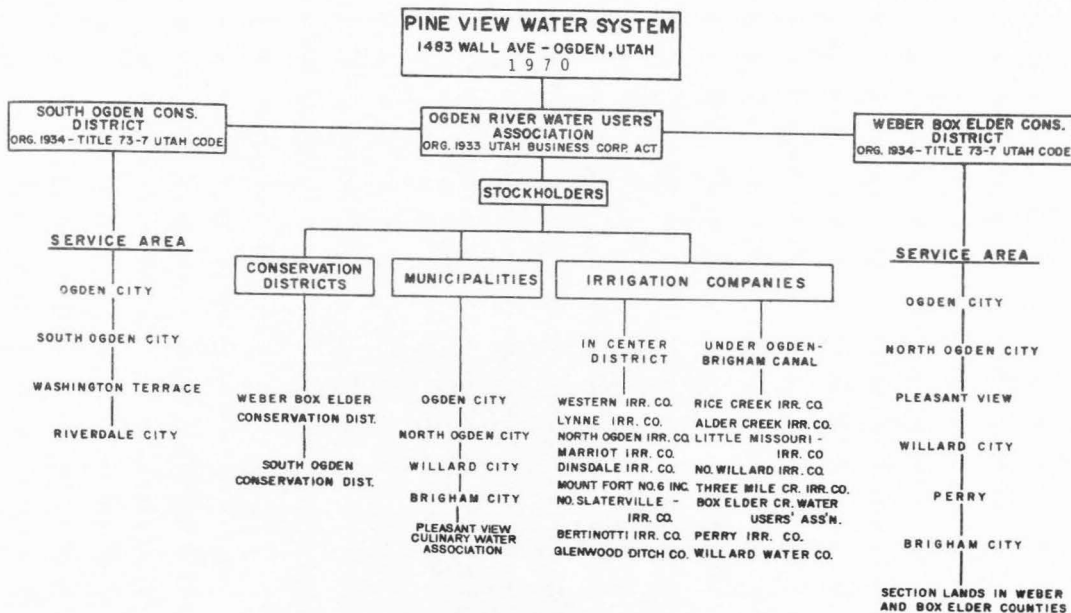


Figure 5. Pine View Water System.

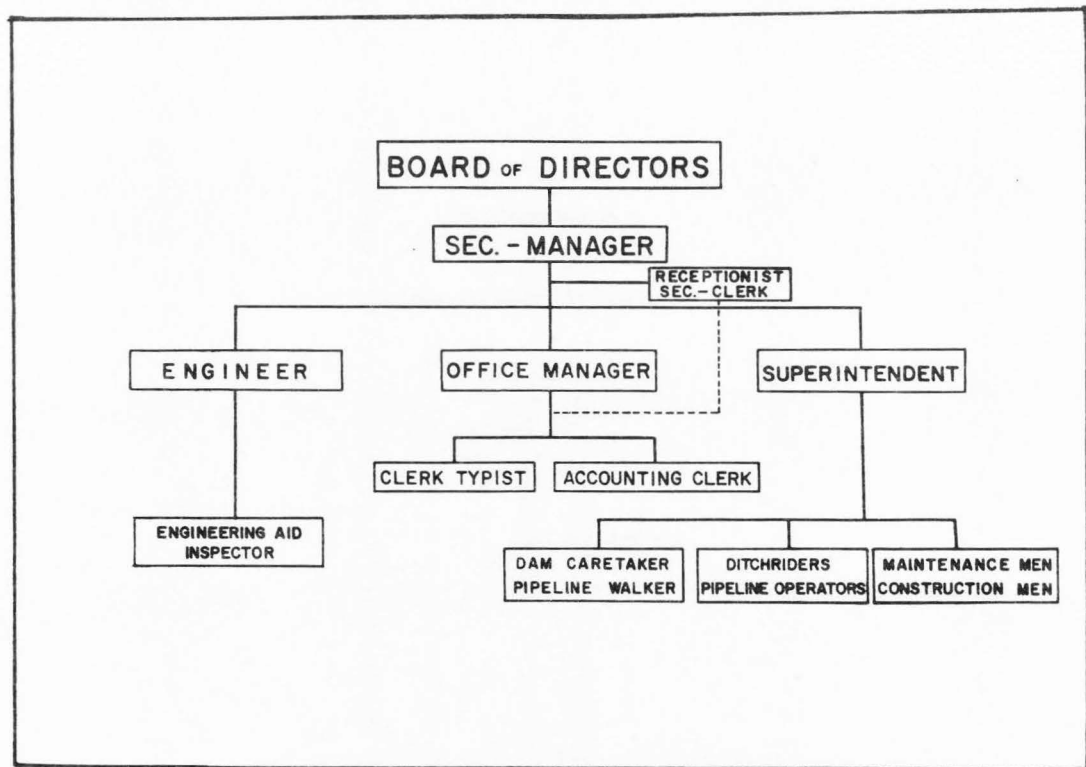


Figure 6. Management of the Pine View Water System.

The history of the organizations making up the Pine View system has been discussed, at length, elsewhere in this study. However a summary of some of the operating features of each organization relative to the system will be repeated.

The ORWUA consists of 24 stockholders, two of the largest being the conservation districts. The association acts as a wholesaler to its stockholders while the conservation district acts as a retailer in distributing water to its various members. The association controls 44,175 acre feet of water in Pine View Reservoir and is responsible for the operation of the entire reservoir, which has a capacity of 110,200 acre feet. The association also subscribes to 2,830 acre feet of water from the WBWCD that is delivered to the Weber-Box Elder Conservation District and owns 870 acre feet of water annually from the WBWCD as part payment received due to the enlargement of Pine View dam.

The South Ogden Conservation District owns 6,939.35 shares of stock in the association. Each share represents one acre foot of water from the Pine View Reservoir. The district also subscribes to 2,300 acre feet of water annually from the WBWCD.

The Weber-Box Elder Conservation District owns 14,363.18 acre feet of water, 10,793.18 acre feet from the association's portion of Pine View Reservoir and 3,570 acre feet from the association's subscription to WBWCD water (2830 acre feet purchased annually plus 740 of the 875 acre feet of settlement water). The district also

purchases 300 acre feet annually from the Cold Water Irrigation Company, and has additional stock in the North Ogden Irrigation Company and the Cold Water Irrigation Company.

Evaluation. The system is unique in the water spectrum as it has consolidated and coordinated the efforts of a large variety of water institutions. The members consist of mutual companies, conservation districts, municipal water departments, and individuals. The system is large enough to be financially able to provide sound management and employ capable engineers to manage and operate the separate entities. Having a common personnel representing the separate entities does provide for the correction of duplication and waste of effort on the system. However the primary object of creating such an organization appears to be one of economics where the three entities have banded together to share the costs of management and technical expertise. This does provide for good management of the water resource but does not provide the opportunity to extend to the operation practices of the entities. If such a system could be truly consolidated into one large water organization entirely responsible for the operation and distribution of water to all on the system much more could be attained in planning and management. Such a system containing a number of different uses and having wide boundaries could certainly provide flexibility of operation. The opportunity for sale or transfer of water to members or others and between uses would enhance such a system.

Weber Basin Water Conservancy District (WBWCD)

The WBWCD is one of the relatively younger institutions in the area even though the vision of such an agency had been in the minds of many people since the early 1920's. These people foresaw that the time would come when the full development of the Weber River and its tributaries, including the Ogden River, would be needed to satisfy the water needs of this area.

Some work was accomplished in 1927-30 when the Bureau of Reclamation constructed the Echo Dam on the Weber River to provide storage and to avert the danger of flooding. Again in 1934 the same agency began construction of the Pine View Dam and Reservoir, the Ogden Canyon conduit, the Ogden-Brigham Canal and the South Ogden Highline Canal, permitting the irrigation of the bench lands in Weber and Box Elder Counties. However these projects did little to provide the additional water that was required due to expansion of the military establishments, industrial growth and population increase that occurred in the early 1940's. To alleviate this situation the Davis-Weber Counties Municipal Water Development Association was formed in 1945 and began an active campaign to make a full feasibility study of the water requirements in the area. This data was sufficient to request the Bureau of Reclamation to prepare comprehensive plans for the water resources of the Weber Basin. These plans were completed in 1949 and a recommendation for a comprehensive reclamation project was approved by Congress in 1949.

Federal law required that some organization must be established on the local level that had the taxing power and the authority to enter into contract with the federal government and to assume repayment of the reimbursable costs of the project. The institution most qualified to meet these obligations was the Water Conservancy District. In 1950, the second district court of Utah established a political subdivision of the state of Utah to include the counties of Davis, Weber, Morgan and a portion of Summit. The court at this time appointed nine directors, fixing their terms at three years, and provided that the terms of three of the nine directors should expire each year. The court has annually appointed or reappointed directors to the board because of resignation or other reasons.

The WBWCD is essentially a multiple purpose project designed to put to beneficial use all of the unappropriated water resources of the Weber River Basin. The facilities include dams, dikes and reservoirs; diversion dams and canals; bifurcation works, covered aqueducts and distribution truck lines; power plants; pumping plants; drainage system; irrigation systems and roads. Supplemental features of the project include flood control, recreation, and fish and wild life developments. Two hundred miles of drainage canals have been constructed along with several wells to drain approximately 29,000 acres of land and to improve 19,000 acres of land now only partially developed. Two small power plants are included in the project to provide power for project purposes. The flood control portion of the project was

developed by the Corps of Engineers with the approval of the district, and will virtually eliminate the danger of floods over the entire basin.

The original contract with the federal government did not provide any facilities for purification and distribution of domestic water. This was rectified by the WBWCD which raised sufficient money through a bond issue to provide three water treatment plants and the necessary system of pipelines. At this time, the city of Ogden requested and was permitted to build and operate its own filtration plant at Pine View Dam. The first delivery of treated municipal water was made in 1953. At the present time a large number of municipalities are buying domestic water from the district along with sales of treated and untreated water to industry. The first irrigation water from the Weber Basin project was delivered in 1954 and now includes sales to a large number of irrigation companies. Provision is also made for the sale of water to individuals for irrigation of small tracts of land and to suburban housing developments for lawns and gardens and to small agricultural tracts not serviced by other sources.

In 1957, the state legislature amended the Utah Conservancy Law to allow annexation of areas to conservancy districts which were not previously provided for and to allow that the tax levy, imposed on properties within municipalities to raise payments due the conservancy district for municipal water purchased by them under a Class B contract, could be levied on both real and personal property. This allowed a portion of Box Elder County to become a part of the Weber Basin project.

The projected cost of the Weber Basin project was approximately \$109,550,990. The water users of the district will repay approximately \$81,656,000 over a sixty-year period. The difference is the non-reimbursable amount that has been allocated to such public benefit features as recreation, flood control, fish and wildlife. Under the terms of the contract the WBWCD will operate the completed project. However since the project has been built in several stages over the years, each stage upon completion is turned over to the district, who signs a repayment contract for 60 years for each completed stage. The project continues to be owned by the federal government until the repayments are completely made. Figure 7 shows the boundaries of the Weber Basin project.

Financial arrangements of the district. One of the reasons for the creation of a conservancy district was the need for an organization that had wider taxing powers. By law, the conservancy district has the power to levy and collect taxes on all property located within the district. In addition, it may levy and collect assessments for benefits provided to property within municipalities or to farm lands that have increased in value due to the use of district water. The district may also obtain money by the sale of bonds and the sale of water.

The sale of water is controlled by the Utah Conservancy Act that allows the district to sell water under three different types of contracts. The WBWCD also provides for the sale of water for replacement purposes. These contracts are managed by the board of directors and once the board approves a petition for the sale of water the purchaser is bound

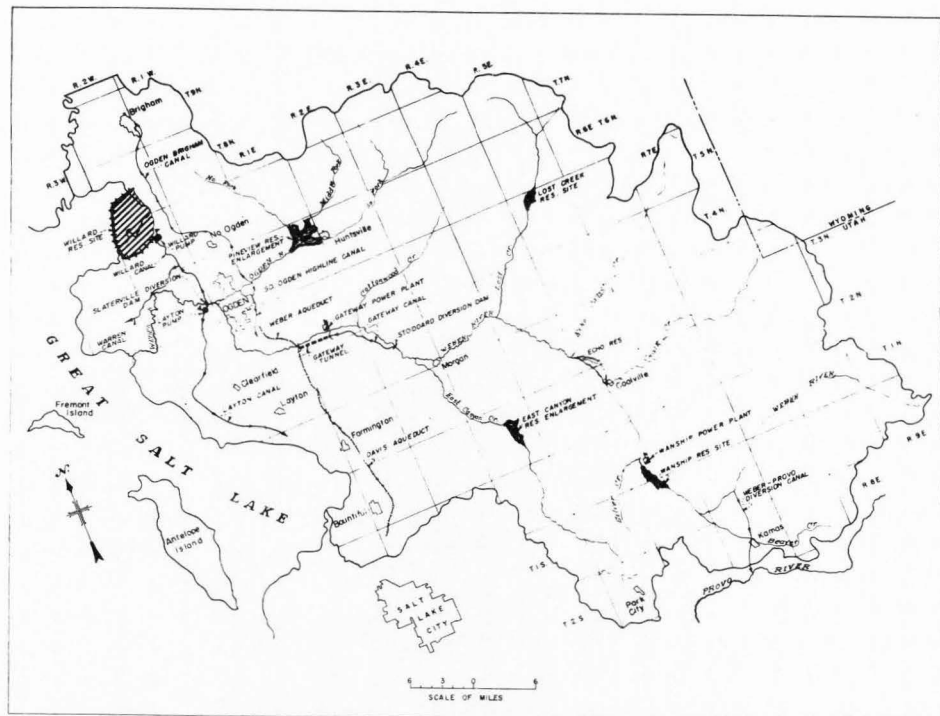


Figure 7. Boundaries of the Weber Basin Water Conservancy District.

by the terms of the contract for the period mentioned in the contract. These conditions are pertinent to every type of contract and may be summarized as follows:

1. The purchaser must pay the charges fixed by the board whether his allotment is used completely or not.
2. The purchaser must bear a pro-rata share of all conveyance evaporation losses from storage reservoirs to point of delivery.
3. The district will deliver and measure water at a point selected by the district and the petitioner.
4. The district is not responsible for the providing of facilities to convey water from such a point (s) to place of actual use except in the case of sales to individuals or corporations. The petitioner must bear the cost for any facilities necessary for delivery or measurement of water.
5. The federal government has claim over the return flow, seepage or waste resulting from the delivery of water.
6. The district may be allowed to substitute for stored water if it can be delivered to the required point (s).
7. During periods of shortage municipal and industrial water will have preference.
8. The payments agreed to in the contract will not be reduced because of shortage or other causes not controlled by the district.

The conditions and stipulations of these various contracts are important to the planning and development of the water resource.

Municipal contracts. The WBWCD was established to alleviate the chronic water shortages of this area, primarily the demands of municipalities for more water. The policy of the district is to give first priority to the municipal use of water. This is done under what is called a Class B contract. Under this type of contract the municipalities make payments to the district as determined by the board; the contracts are for 40 years; Class B taxes may be levied by the board upon property within the city if the city so desires; and the water supplied must meet minimum standards of the Department of Health.

At the present time there are 40 municipalities receiving water from the district. These municipalities may pay their water bills, due annually, in advance either by cash or a special tax levy. In 1957, the district collected \$232,988.76 from the municipalities for the delivery of treated project water. This rose to \$568,879.56 in 1965 and to \$1,089,502.00 in 1970. The treatment plants are operating fully and continuously and plans are being made for additions and extensions to the plants.

In addition companies, water districts and others may obtain water from the district under special contract. At the present time the district has 12 special contracts that include one conservation district, two water improvement districts, one subconservancy district and eight other types of water organizations. The cost of municipal and

industrial water is fixed at \$15.00 per acre foot. To this must be added \$16.00 per acre foot for retirement of bonds, plus operation and maintenance costs to bring the total charge for municipal water to approximately \$43.60 per acre foot. When untreated water is sold to municipalities or industries, the bond repayment charge is omitted.

Irrigation Contracts. Sale of water to irrigation companies is under class C contracts. Most of the irrigation companies buy water only to supplement their present supply. At the present time about 45 irrigation companies purchase water from the district. Irrigation companies purchase their water on an individually executed contract with the district that imposes certain conditions, in addition to those previously stated, as listed below.

1. The irrigation company must obligate itself for a period of 60 years to pay a fixed charge based upon irrigation's portion of the reimbursable obligation. In return the company will have a right to a fixed quantity of water, annually, for purposes of irrigation.
2. The company must levy and collect all the necessary assessments to pay the charges determined by the board.
3. The district has first lien upon monies obtained by the irrigation company to pay these annual charges.
4. The annual charges must be paid in advance to receive water.
5. Under federal reclamation laws water cannot be delivered to more than 160 acres of irrigable land if separately held, 320 acres if jointly held.

6. The irrigation company cannot sell district water to any individual who is not a member of the irrigation company unless it has the previous written consent of the district.
7. The company must keep records of crops produced, expenses and receipts of the company and of water supply and its distribution.

The irrigation companies are billed directly for the water used and may distribute the water according to the needs of the stockholders within the irrigation company. This practice allows for interchange between individual stockholders within the irrigation company. If the water is used for purposes other than irrigation the district will change the charges for the quantity of water.

The district can do little in setting the price of water as this had been done by the federal government before the district began operation. The government had classified the land and estimated how much each land type could afford to pay for water. This was the basis of how much revenue can be derived from irrigation water. The remaining project expenses were then the costs of water to municipal and industrial users. The federal government projected these costs as to what the district had to repay in 60 years. These costs are permanently fixed and the district cannot change them. The present cost of irrigation water ranges from \$1.10 to \$3.70 per acre foot. This represents only the repayment charge and the district has to add operation and maintenance charges plus incidentals.

Sale to Individuals. The district may set up a distribution system where there are no irrigation companies and sell water directly to individuals under a class D contract. The cost of such a distribution system is paid for directly by the users. The individual signs a contract that all charges become a tax lien on his land. Thus these charges are collected directly by the county treasurer's office and may be recovered by the district by selling the property if the charges are not paid. The district may not sell on contract more or less water than the limit fixed by the Bureau of Reclamation. Any extra water required may be rented from the district by the individual. However less water used than recommended by the Bureau of Reclamation is still charged to the individual at a fixed quantity. If the land under water contract to the district is sold the contract is automatically transferred to the new owner. As far as industrial water contracts are concerned the district may provide water only to industries located outside of municipalities or towns as these cities deliver water to those industries contained within their own boundaries.

Replacement Contracts. The district also provides a number of replacement contracts to those individuals who are required to replace water that they are using. When domestic water is replaced the district charges \$20.00 per acre foot (\$15.00 for project costs and \$5.00 overhead charge). The charge for placing irrigation water is \$1.40 per acre foot for repayment of project costs plus other district costs. This provision for replacement provides some flexibility as upstream and

downstream owners may exchange water. As in the othe types of contracts certain conditions must be agreed to by the petitioner. In addition to the general conditions previously noted the replacement contract includes:

1. In the case of irrigation water the applicant cannot transfer any part of the contract without the approval of the board.
2. The recipient is not allowed to store, rent, or sell the water.
3. No charges will be made in the contract for construction costs if the district's obligation for repayment has been met.
4. Applicant must obtain the approval of the state engineer for some types of replacement contracts.
5. A lien upon the lands mentioned in the application up to the annual amount payable to the district must be included in the contract.

In review of the financial arrangements within the WBWCD it was determined that a conservancy district can do little as far as the cost of water is concerned. Before construction began the Bureau of Reclamation had classified the land according to use and set the price each tract could afford to pay. The cost of irrigation water varied from \$1.10 to \$3.70 per acre foot depending upon the type of land. The government also determined how much minicipal and industrial users would have to be charged to repay the remaining project expenses. These repayment charges are firmly fixed and the WBWCD cannot change them.

The total price of water is therefore based upon the repayment charge, a proportional amount for operation and maintenance charges, costs and expenses involved in administration and distribution, and incidental charges. The board can set the last three charges but may do nothing about the repayment charge. The municipal and industrial charges for repayment are \$15.00 per acre foot plus \$16.00 per acre foot for retirement of the bonds issued to build the water treatment plants plus operation and maintenance charges that brings the total cost of treated water to \$43.60 per acre foot. When untreated water is sold to municipalities or industries, the \$16.00 bond payment is deducted. It may be noted that although municipalities and industries use the same untreated water as irrigators the price per acre foot for irrigation purposes is considerably less. It has been estimated that the WBWCD produces irrigation water at an average cost of \$8.00 per acre foot. Thus it is clearly seen that irrigation water is not paying its own way. (Winegar, 1970)

The district is also restricted as to the amount of water it can sell on contract by the Bureau of Reclamation. The bureau has set 3 acre feet per acre as the maximum amount required for agricultural production in the area. If the irrigator demands less water than that contracted the district is unable to change the amount contracted for and thus there is a waste of water. It seems ridiculous that if the individual is using less water than the fixed water duty, he still has to pay fixed charges. This means a waste of a scarce and valuable resource. The

fact that Class D water is not metered and that the district has no control over the supply except the limit that the land can use, leads to inefficient use. (Winegar, 1970) It has also been pointed out that homeowners after land development use less water per acre than when under irrigation. Water is wasted if the district insists on the same quantity after urban development as before. (Pendse, 1967)

Another problem that has confronted the district is that the project will provide 183,000 acre feet of water for irrigation purposes and 42,000 acre feet of water for municipal and industrial purposes. To date the district has under contract 29 different entities buying 27,257 acre feet of treated water for municipal and industrial purposes, 48 irrigation companies and approximately 3,000 individual users buying 81,295 acre feet of irrigation water. It is apparent from the above figures that much of the WBWCD water remains unsold. The hope had been that all the water would have been allocated when the project was completed.

Reasons given for the water remaining unsold are: (1) The irrigators claim that the waters contain too much salt, though water experts state that the water is suitable for most crops; (2) Projections on demand of water were exaggerated; (3) The price of water was set too high. (Pendse, 1967) The only means available to the district to make water cheaper is to reduce the bond retirement charge or to get the federal government to lower the repayment for municipal and industrial users or increase the charges to irrigation users. In 1966, the district reduced the bond retirement charge from \$16.00 to \$6.00 per acre foot only for municipal

users already buying water from the district. Eight municipal users took advantage of this offer to increase their demand of water approximately 50 percent. As the change from agricultural to urban use continues the district must find new buyers for the water. Unless prices are reduced municipalities will look elsewhere for their water. Some are already investigating new sources of water such as wells because they can develop their own source of water cheaper than buying district water and in addition have the security of their own supply.

A study was made in the summer of 1966 wherein some 50 water customers of the district expressed their opinions concerning the operation of the district. (Pendse, 1967) Some of the results of the survey were very interesting. 44 of the customers questioned indicated that they were willing to pay more than the present current district price. This would seem to imply that the cost of district water is too low. However this may be explained by the fact that they were receiving irrigation water and also that they could not obtain water from any other source. Most of the municipalities contacted felt that the cost of district water was too high. Several of the municipalities had plans for drilling new wells rather than purchasing additional water from the district. One complaint that was frequently expressed concerned the contract condition that the charges fixed by the district be paid whether the water was fully used or not. Under district regulations excess water cannot be transferred or resold by the customers. One suggestion that had merit was that the board of directors of the district should be elected by the water users of the district.

Evaluation. The Water Conservancy Act of Utah defines the rules and regulations under which a conservancy district operates. These are of such a nature as to allow the district a wide latitude in its operating policy. However, the original act was intended as a vehicle for a state institution to cooperate with agencies of the federal government. The restrictions imposed by these federal agencies may in some instances hinder the most efficient management of the state's water resource. By law, the board of directors of the district is allowed complete freedom in its pricing policies. However this freedom is restricted on the Weber Basin Project due to the conditions imposed by the Bureau of Reclamation. They have stipulated that so much water is available for irrigation. The district has set up its contracts with irrigation users for a period of 60 years and for a fixed use. The applicant must not resell or transfer water rights or any part of them without the permission of the district. This restricts the use of water to a fixed use for a long period of time. In the case of sales to individuals (Class D contract) the water allotment is tied to the land. The present policy of the district is not to allow transfers from one use to another. These rules and regulations tend to restrict the free transfer of water from a low use to a high use of the available water. Also, the strict adherence to the 60-year period of the contract has eliminated the advantages to be gained by short period contracts.

The one exception to this no-transfer regulation is the case of water sales to irrigation companies where the irrigation company can

exchange water rights among its stockholders. This condition leads to good management and efficient use of the water resource. However water rights may not be exchanged between irrigation companies. If the water sold to an irrigation company is transferred to a use other than irrigation, the irrigation company must inform the district which in turn changes the water rate. Consequently there is no incentive for one to change to a higher use.

More flexibility is needed in water transfers. Many customers do not use all of their allotment of water but are prohibited from transferring their excess to others because of the policies of the district. The customer must also pay for his full share whether he uses it or not and consequently there is no reason for him to be prudent in his water management. The district should allow transfers between water users and between uses and not require the long term contracts.

Large scale farming regulations in the area are restricted due to the conditions imposed by the Bureau of Reclamation that irrigation cannot be used on land larger than 160 acres if held separately or 320 acres if jointly held. This prohibits the advantages that could be gained by large, efficient agricultural units using the available water most effectively.

The district cannot contract with an individual for more or less water than the quantity set by the Bureau of Reclamation based upon the land use classification. This adherence to fixed amounts of water is a waste of a valuable resource. This classification also assumes that

when farm land is taken for urban development the new owners will use the same amount of water as the previous tenants. This is not the case as urban dwellers tend to use less water than is required for agricultural irrigation. This water is wasted if the same quantity is allocated after development.

The WBWCD is a multi-purpose project created to serve all the uses within its boundaries. It would seem reasonable that the cost of water to each use would vary according to the difficulty in supplying the users. It has been noted that the price of municipal water is greater than the price of industrial water because of the extra cost in the treating of domestic water. This is reasonable and just. However, the cost of irrigation water has been computed by the Bureau of Reclamation based upon increased production due to an increased water supply. As shown before these costs are extremely low and a wide discrepancy may be observed when comparing the cost of the same water to industrial users and irrigation users. The end result is an inefficient use of the water resource, since irrigation is heavily subsidized. At the present time the WBWCD is not selling sufficient water in order to meet its obligations nor is it in a position to reduce its costs to non-irrigation users. The municipalities are requiring more water but are not willing to pay the high cost for district water. If the price of municipal water were reduced the district would be in a position to sell more water to municipalities and thus increase its revenue.

The Utah Water Conservancy Act was created to cover large areas to broaden its tax base so that all in the district contribute to the success of the district. It was felt that the increased revenue would solve the economic problems that befell smaller organizations. Also since it provided for a multi-purpose entity to satisfy all the water uses in the area it was believed that it would be large enough and capable enough to be effective in planning, developing and managing the water resource. This it has done except for the questions of providing flexibility in allocation of water and modifying its system of cost. The act itself has not put any restrictions on these questions but they have been introduced by the regulations of the federal government and the policies of the board of directors of the WBWCD. The water conservancy district has the further advantage that no priority system is contained in the act. The question of priorities, appropriation doctrine, junior and senior appropriators are not a hindrance to the planning and development of the water resource. It also provides a very low tax levy, one mill as far as the WBWCD is concerned, and relies primarily on the sales of water to operate the project. However, the district has the authority to levy special assessments whenever the board determines it to be appropriate.

Subconservancy Districts

The Conservancy Act of Utah provides for the organization of subconservancy districts within or partly within and partly without the boundaries of a conservancy district. These subdistricts become political

subdivisions of the state of Utah with all the powers of a public or municipal corporation. The subdistricts are separate entities within the conservancy district with the authority to contract with the United States of America, or any officer or agency of the United States of America; this usually means to contract with the conservancy district for the obtaining of water. The administrations of such subdistricts are completely autonomous, having their own boards of directors and officials. The steps for the formation of a subdistrict are the same as for the conservancy district. Thus far only one such subconservancy district has been organized to use the waters of the WBWCD. This is the Bountiful Water Subconservancy District.

Bountiful Water Subconservancy District. The subdistrict was organized in 1954 under chapter 9, title 73 Utah Code Annotated, 1953 in the second judicial district in the county of Davis. The purpose of the subdistrict was the conserving, developing and stabilizing of supplies of water for domestic, irrigation, power, manufacturing, municipal and other beneficial uses. The petition specifically states that the district agreed to allot to the subdistrict 6,000 acre feet of water annually for the purpose of irrigation. The cost of this water was to be \$18,000.00 annually or such other sum as the district and the subconservancy district may determine.

Though the place of business of this subdistrict is Bountiful, Utah located in Davis County, it is included here because it is taking water from the WBWCD.

The subdistrict is administered by a board of directors, consisting of five persons appointed by the county court, who are not directors of the district. The term of office for the directors is three years. The board shall select one of its own as president and elect a secretary who may or may not be a member of the board. The directors receive a compensation for their service as directed by the court but this sum shall not exceed \$500.00 per year. In addition they are reimbursed for traveling expenses incurred in the performance of their duties. The board of this subdistrict has employed an attorney and a consulting engineer and several full time employees including a manager to assist in its operation. The board has the right to levy and collect taxes and assessments to carry out its purposes. Such taxes and assessments may be levied and collected on top of those being levied and collected by the district in which the subdistrict may lie. Such taxes are limited to paying the expense of its organization and administration and shall not exceed one mill. This ad valorem tax is included in the regular Davis County tax levy.

The subdistrict was organized for the purpose of constructing a water distribution system to serve 4400 acres of land in the vicinity of Bountiful. This was brought about because a survey of existing individual irrigation systems showed that the existing open ditch systems were inadequate and outdated. Rehabilitation and expansion of the existing system would not provide an adequate system. Therefore it was decided to provide a completely covered system consisting

of 70 miles of high pressure pipe. Unfortunately no measurement of water was contemplated for the system. The district consists of a few large underdeveloped tracts of land, many part-time farms having a partial water supply and residential areas irrigating small gardens, fruit trees, lawns and shrubs.

A loan was made from the U. S. Government of \$3,500,000 for the purpose of constructing the water distribution system. The loan was obtained under the Small Reclamation Act of 1956, PL 984. The loan is interest free on land classified as agricultural but with 3 1/8% interest on municipal and industrial land. Funds for repayment of the loan are obtained from revenue from sale of water and an ad valorem tax of 1 mill. This tax is included in the regular tax levy and is collected by the county treasurer. The subdistrict is served by six private irrigation companies that take their supply from mountain streams and account for 45% of the water. The remaining 13,000 acre feet is obtained by contract from the WBWCD. (Stewart, 1970)

The power of a subconservancy district to levy an ad valorem tax was upheld by the case of Bountiful Water Conservancy District vs. Board of Commissioners of Davis County, Utah, et.al.

Evaluation. The subconservancy district has all the advantages of the district. It has been established to serve a small area with only irrigation replaced with a complete pipe service. All previous open ditch systems had become inadequate for the increased demand and were extremely wasteful of water. This added safety with the discarding of the open ditches and added to the land. Efficiency in the

management of water was obtained by the use of high pressure pipe. One disadvantage was that no means of measuring the water was planned. The subconservancy district has the advantage over a mutual company of being able to levy and collect taxes on all property owners within its service area whether or not they are using the water. In addition they have the authority to make special assessments to provide the necessary funds for the operation and maintenance of the district. The board has the advantage of certifying to the board of county commissioners the rate of taxation. The board of county commissioners then levies such taxes on all property within the district in addition to other taxes. If these taxes are not paid then the real property may be sold at a tax sale. This has provided a solid tax base for the operation and management of the district.

One objection raised to this type of institution is in regard to the selection of the board of directors. This is done by the judge of the county court. How he arrives at the selection of such a board can be done on his own initiative or with the help of attorneys or landowners in the district. In this fashion it would be possible to pack a board. The fair solution to this problem may be to let the property owners of the district elect their own board of directors or to let their elected council members of the district serve as the board of the subconservancy district. The subdistrict also has the advantage of changing its boundaries as the need for services increases.

The subdistrict is not incorporated and acts only as a retailer of water to the individuals that contract for the same. At the present time the subdistrict contracts for 16,000 acre feet of water annually from the WBWCD at a cost of \$4.77 per acre foot. The water is totally used for irrigation purposes, both rural and residential. Since its beginning some of the land has changed from agricultural to residential use. The contract for storage water is with the Bureau of Reclamation for a 50-year period under a Class C contract. The Bureau has allotted 2.9 acre feet of water per acre irrigated and water is distributed by an acre foot or proportion thereof to the users. The area served has increased to 6000 acres. Cost of water varies according to whether or not the land is classified as agricultural or residential. The present charges are \$6.00 per acre foot for water plus \$15.50 plot charge that is used to retire the loan plus a charge for operation and maintenance of the system. Property of eight acres or over is considered to be agricultural land and is assessed at \$7.00 per acre foot. Some comparative annual charges are:

| <u>Lot Size</u> | <u>Water Cost</u> | <u>Plot Charge</u> | <u>O & M</u> | <u>Total</u> |
|-----------------|-------------------|--------------------|------------------|--------------|
| 1/4 acre | \$ 4.35 | \$15.50 | \$ 4.90 | \$24.75 |
| 1/2 acre | \$ 8.70 | \$15.50 | \$ 8.80 | \$33.00 |
| 1 acre | \$17.40 | \$15.50 | \$13.35 | \$46.25 |

One acre of land receives 2.9 acre feet of water. Therefore the cost of an acre foot of water is \$16.93.

Water Improvement Districts

These districts are created upon petition to and with the approval of the board of county commissioners who have complete jurisdiction over the district. The administration of such a district is conducted by a board of directors or trustees. This board may consist of the county commissioners, or be appointed by them or elected by the land-owners of the district. The district serves an important part in the providing of water to cities, towns and small local areas. It may act as sole operator in the supplying, treating and distributing of water to its area or act as an intermediary by purchasing water from other organizations and distributing it at a price, or a combination of both.

Five of these improvement districts are located in this area. The South Davis Water Improvement District is included here because its major source of water is the WBWCD. The other four districts are located in the vicinity of Ogden. Figure 8 shows the service areas of these four districts. Each has its own board of directors and as a political subdivision of the state has all the powers of a public or municipal corporation. Data pertaining to these districts were obtained through personal interviews and examination of records in the Weber County Courthouse.

1. South Davis County Water Improvement District.

The district services an area of 1212 acres lying approximately between Bountiful City on the north, highway 91 on the west and the

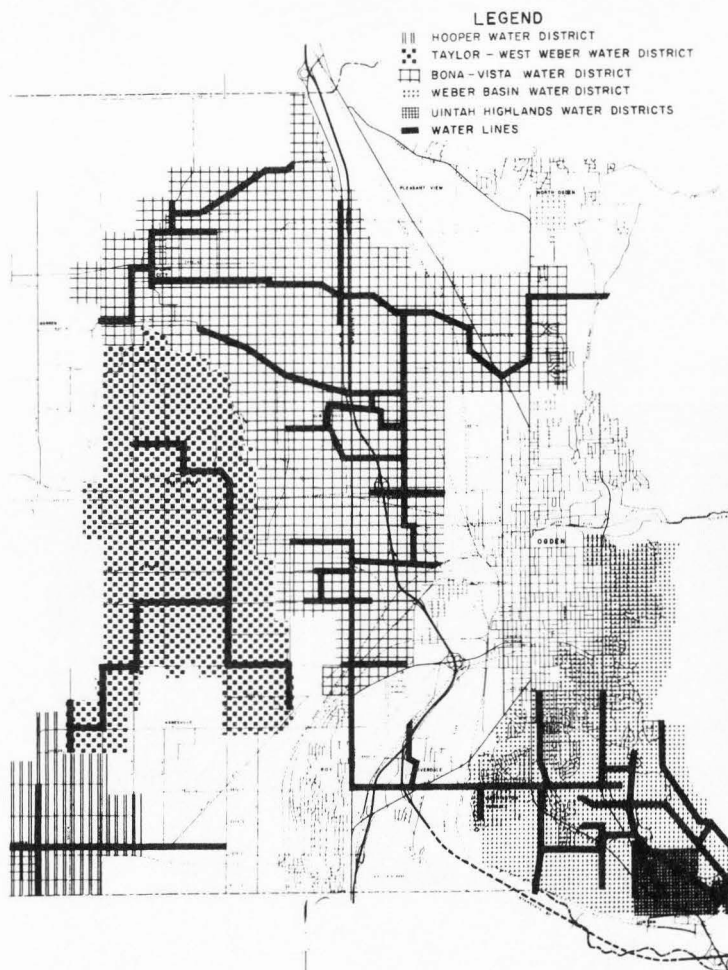


Figure 8. Water Improvement Districts.

foothills on the east with the latter two meeting at a point on the south. The district is managed by a board of three trustees elected to serve six-year terms on an overlapping basis. The board of trustees has the authority to appoint others to assist them in the operation of the district. At the present time the board employs a full time engineer plus two other full time men.

The organization of such a district was prompted by the inefficiencies of numerous individual water developments in the unincorporated areas of the county. The district set about to consolidate these independent water companies into one large efficient water organization. Some of these older companies date back to 1903 and were found to contain the disadvantages that normally occur with small independent water organizations over a period of time--inadequate quantity and quality of water supply, lack of ample storage, open storage subject to contamination, inadequate pressure, small distribution lines and little or no fire protection. Thus the objective of the district was to rectify these disadvantages and to provide the entire area with an adequate and safe water supply and fire protection. The basic policy of the district was not to compete with existing water companies by constructing duplicate or parallel facilities. Consequently the major task was to acquire title to all the water services organizations in the area. This was done by purchase, with the value based upon existing facilities, water rights and connections being served. These individual systems were then integrated into a large, efficient single system. Careful

consideration was given to the provision of a separate irrigation supply and this was justified for a number of reasons, not the least being that irrigation water was available from the WBWCD at about 10 percent of the cost of domestic water.

Open storage reservoirs were eliminated for domestic water, some inefficient reservoirs were eliminated and sources of water supply were adjusted to the best wells, supplemented by water from the WBWCD. Adequate storage and pressure were obtained throughout the system. Main water lines were constructed to meet increased demand and distribution lines were installed to supplement those already existing. Many of the existing lines were eliminated due to inadequate size or poor condition. The renovation of the system was completed in 1958. Since that time water service has been extended into new subdivisions as they have developed. Funds for this portion of the development were derived from the sale of bonds, income from taxes, new connections and sale of some acquired land.

The irrigation water is handled through a separate supply and is fully pressurized. This has eliminated the hazards of open ditches and the involved maintenance problems. The construction of the pressure irrigation system was begun in May, 1959 and completed in October, 1960. The system consists of four independent pressure zones, each with its water supply, open reservoir storage and distribution system. The water supply consists mainly of water from the WBWCD. Irrigation service is provided on demand with the time and amount at the option

of the user, and the only restriction being prudence in use and avoidance of waste. Funds for the construction of the separate irrigation facilities were obtained as a loan from the U.S. government, supplemented by income from service connections. The loan is to be repaid within a 50-year period and is interest-free on land classified as agricultural but with 3 1/8 percent interest on municipal and industrial land.

Taxes are levied by the district on all residents of the area and received by the county treasurer. Assessments are divided equally between the culinary and irrigation water systems. The present tax rate is 4 mills. The culinary system is fully metered and charge is made according to lot size. Some users have both culinary and irrigation water. In 1970 there were 1446 culinary customers and 1367 irrigation customers using the system. (Maxwell, 1970)

2. Bona Vista Water Improvement District.

This district, with headquarters in Ogden, was organized in 1956. Its purpose is to provide domestic water to the communities of Wilson, Fairmont, Slaterville, Marriott, Plain City, Farr West, Harrisville and Randall in the West Weber County area. The district is operated by a board of five members elected by the users in the area. The board has the authority to appoint a full-time manager who is usually an engineer to handle the operation of the district under the policies of the board.

The district maintains three reservoirs and its source of water supply is from wells and springs, supplemented by 1210 acre-feet of treated municipal water from the WBWCD. In 1969 the system was

completely metered and due to the savings involved the water rate was lowered. The cost of water is based upon a minimum monthly fee of \$5.00 plus an extra charge of \$0.27 per thousand gallons over 15,000 gallons. (Palmer, 1970) In addition, the district has the power to levy and collect taxes from the landowners within the district. This levy is determined by the board and is collected by the county treasurer along with other taxes. When levied these taxes become a lien against the land and if not paid the land may be sold at a tax sale to pay the assessment. The present tax levy on landowners in the area of this district is 8 mills. This tax levy will drop to 7.25 mills in 1971. The number of connections has increased in recent years along with a corresponding increase in revenue. The district has a total of 1239 connections at the present time.

3. Taylor-West Weber Culinary Water District.

This district was established in 1964 for the purpose of providing culinary water to the unincorporated areas of Taylor and West Weber. Figure 8 shows the boundaries of the district. The district is managed by a board of trustees composed of five persons elected by the qualified voters residing within the district. The trustees are elected to serve a term of six years. Elections are held every two years so that terms of office are staggered. Trustees must be taxpayers, qualified voters and reside within the limits of the district.

The principal source of water for the district is supplied by two wells having a capacity of approximately 1500 gallons per minute. The

water is not treated and has been approved by the Department of Health. In addition to providing water for themselves the district also delivers water to Hooper. The district has one tank capable of storing 250,000 gallons of water. The water supply appears to be ample and no restrictions have been imposed on the use of water as yet.

At the present time there are 403 connections. The district has a minimum monthly charge of \$8.50 that included the use of 12,000 gallons. Any additional water is charged at the rate of \$0.25 per 1,000 gallons. This district did not levy a tax in 1970.

4. Hooper Water Improvement District.

This improvement district was organized in 1966 to provide water to the town of Hooper and its vicinity. Figure 8 shows the boundaries for the district. The district is managed by a board of trustees consisting of five persons. This board was originally appointed by the county commissioners but since 1969 the board has been elected by the qualified voters residing within the confines of the district. The trustees serve a term of six years and elections are held every two years. This allows the composition of the board to retain experienced leadership.

At present their total water supply is purchased from the Taylor-West Weber Improvement District. The district is now in the process of developing a well which, when completed, will be their only source of supply. The district maintains two reservoirs having a combined storage capacity of 750,000 gallons.

The district has 340 water connections and the system is completely metered. The present minimum monthly charge is \$8.50 and includes the use of 12,000 gallons of water. Any additional water used is charged at a rate of \$0.25 per 1,000 gallons. The water from Taylor-West Weber costs the district \$42.50 per acre foot plus an additional 15 percent service charge.

The district is now paying \$22,714.00 a year on the original loan. In addition to developing the new well the district has just completed a new 500,000 gallon reservoir and added five miles of water lines. This district did not levy a tax in 1970.

5. Uintah-Highlands Water Improvement District.

This district was created in 1966 to provide water to the Uintah-Highland areas but excluding the town of Uintah. Figure 8 shows the boundaries of the district. The board of county commissioners appointed the first board of trustees to manage the newly formed district. The trustees are now elected by the qualified voters living within the district and serve for a term of six years. Elections are held every two years so that at least three trustees are carried over to give the board the necessary continuity.

The district purchases treated water from the WBWCD and has a storage capacity of 400,000 gallons. The system is completely metered and has 65 connections.

The present minimum monthly rate is \$8.50 for the use of 12,000 gallons. Any additional water costs \$0.25 per 1,000 gallons. The present tax levy for this district is 12 mills.

Evaluation. The water improvement district serves an important function in providing water to cities, towns and small rural areas. These districts are local organizations depending upon local financing for the operation and maintenance of the system. As such they usually do not have much effect on the planning and management of the water resource. However, in the case of the South Davis County Water Improvement District much was accomplished in planning and management. This district consolidated eight separate water systems that were exhibiting all the deficiencies of older companies and moulded them into one compact and efficient district. The distribution of culinary water was improved by increased pressures and the elimination of all open reservoirs. Only a small portion of the district had access to irrigation water and this through open ditches. The district made irrigation water available to all in the area by constructing a pressure irrigation system. The renovation of the old systems to a single system was a fine example of good planning and management of the water resource. However there does seem to be some disadvantage in the maintenance of two separate systems--one for culinary and one for irrigation. At the present time the district supplements its culinary water with 360 AF from the WBWCD and most of its irrigation water is brought from the WBWCD which amounts to 3210 AF. This poses the question that either the treated water from the WBWCD is too high or that the irrigated water is being sold for too little. The fact that irrigation water is available from WBWCD at about 10 percent of the cost of

treated water shows that the irrigation water is being heavily subsidized. Another disadvantage is that the delivery of irrigation water is available on demand with the amount and time dependent on the user. The only restriction in usage is prudence and avoidance of waste. This is not conducive to effective management of the water resource.

The Bona Vista Water District and the South Davis County District have been in operation for some time. The other three water improvement districts are of more recent origin. The Hooper Water Improvement District began operation in November 1967 with water purchased from the Taylor-West Weber Water District. The Uintah-Highlands Water Improvement District began operation in May 1968. Table 3 shows the available water data of these districts.

Municipal Water Departments

A number of water departments operate in the Weber area to provide domestic water to its citizens. The majority of them operate with revenue derived from water sales without the aid of taxes. The following is a summary of these water departments obtained by personal interviews with company officers.

1. Eden Water Works Company.
 - a. Source of water: springs.
 - b. Amount: maximum diversion rights from two springs.
 - c. Storage: 110,000 gallons
 - d. Number of connections: 90

Table 3. Water costs of the water improvement districts.

| Area of jurisdiction | Source of Water | | Number of connections | Water delivered in million gallons | Income from users | Income per connection | Cost of water per 1,000 gallons |
|---|----------------------|----------------------|-----------------------------|---|-------------------------|-----------------------------|--|
| | Well or Spring | WBWCD (acre feet) | | | | | |
| Bona Vista Water Improvement District | 1 Spring 1 Well | 1,210 | 1,239 | 371.3 | \$97,699 | \$78.85 | \$0.26 |
| Taylor-West Weber Water Improvement District | 2 Wells | | 403 | | | | |
| Hooper Water ^a Improvement District | | | 340 | | 30,000 | 88.24 | |
| Uintah-High Lands Water Improvement District | | 40 | 65 | | | | |
| South Davis Water Improvement District | 1 Spring 2 Wells | 360 | 1,446 | 201.6 | 83,939 | 60.81 | 0.44 |

^a Purchases water from Taylor-West Weber Water District.

- e. Rates: minimum charge of \$3.00 per month that allows Class A stockholders 35,000 gallons and Class B stockholders 20,000 gallons. Over these amounts costs the Class A stock 10 cents per 1,000 gallons and 25 cents per 1,000 gallons for Class B stock.
- f. Service area: Eden, Utah.
- g. Comments: It is of interest to note that this is a private water works company. The company is managed by a board of directors consisting of three persons elected by the stockholders. Prior to 1968 each new connection would receive 375 shares of Class A stock for \$500.00. After 1968 each new connection received only one share of Class B stock for \$500.00. The number of connections has increased in recent years as indicated below. The net income shown has been only estimated.

| <u>Year</u> | <u>New Connections</u> | <u>Income</u> |
|-------------|------------------------|---------------|
| 1966 | 2 | \$3,040 |
| 1967 | 2 | \$3,120 |
| 1968 | 4 | \$3,280 |
| 1969 | 3 | \$3,400 |
| 1970 | 5 | \$3,600 |

This water is not treated in any fashion and enters the distribution system directly from the springs. The system is completely metered.

2. Huntsville Water Department.

- a. Source of water: springs
- b. Amount: maximum diversion rights from four springs.
- c. Storage: 190,000 gallons.
- d. Number of connections: 186
- e. Rates: a minimum charge of \$2.50 per month for 15,000 gallons. For users outside the city limits the minimum monthly charge is \$4.50. Any use over 15,000 gallons costs 12 cents per 1000 gallons.
- f. Service area: Huntsville and adjacent areas.
- g. Comments: Only chlorine treatment is provided. The new connections and income for the past few years was:

| <u>Year</u> | <u>New Connections</u> | <u>Income</u> |
|-------------|------------------------|---------------|
| 1966 | 2 | \$ - |
| 1967 | 1 | \$5,412 |
| 1968 | 2 | \$5,412 |
| 1969 | 1 | \$5,740 |
| 1970 | 1 | \$5,740 |

The water supply has been adequate for the past few years.

In 1963 lawn watering was restricted to a turn basis. The amount of water delivered from one spring in 1970 was 139,488,000 gallons. The other three springs are not metered and the amount produced was not known. The system is entirely metered.

3. North Ogden Water Department.

- a. Source of water: springs and wells.

- b. Amount: have priority rights on springs and own their own wells.
- c. Storage: 2,173,000 gallons.
- d. Number of connections: 1205
- e. Rates: each new connection costs \$225.00. The minimum charge is \$4.00 per month and entitles the user to 12,000 gallons of water per month. The next 18,000 gallons costs \$0.18 per 1000 gallons; the next 20,000 gallons costs \$0.15 per 1000 gallons; the next 20,000 gallons costs \$0.13 per 1000 gallons; over 70,000 gallons costs \$0.12 per 1000 gallons.
- f. Service area: North Ogden
- g. Comments: chlorine is applied only to the spring water.
- The water from the well is untreated and is only used during the summer months as needed. The new connections and income from the sale of water are:

| <u>Year</u> | <u>New Connections</u> | <u>Income</u> |
|-------------|------------------------|---------------|
| 1966 | 34 | \$55,208 |
| 1967 | 30 | \$58,320 |
| 1968 | 39 | \$61,652 |
| 1969 | 29 | \$65,497 |
| 1970 | 22 | \$67,389 |
| 1971 | 50 | \$ - |

The system is completely metered and delivers approximately 220,000,000 gallons each year. The present water supply is adequate and has no restrictions.

4. Ogden Water Company.

a. Source of water:

| | |
|--|------------------|
| Ogden River Water Users' Association | 5,500 acre feet |
| Weber Basin Water Conservancy District | 10,000 acre feet |
| Ogden Bench Canal | 2,100 acre feet |
| Artesian Wells | 18,000 acre feet |
| Wheeler Creek | 890 acre feet |
| Wells | 5,280 acre feet |

b. Amount: as above

c. Storage: 63,850,000 gallons.

d. Number of connections: 19,097

e. Rates: there is a monthly service charge of \$1.25 on all connections plus a minimum charge of \$2.80 that allows the use of 11,300 gallons of water per month. Any use over this amount is charged as follows:

| | |
|-------|---|
| First | 100,000 gallons costs \$0.25 per 1000 gallons |
| Next | 100,000 gallons costs \$0.225 per 1000 gallons |
| Next | 300,000 gallons costs \$0.1875 per 1000 gallons |
| Next | 500,000 gallons costs \$0.15 per 1000 gallons |
| Over | 1,000,000 gallons costs \$0.12 per 1000 gallons |

f. Service area: Ogden

g. Comments: the company provides approximately 6,000,000,000 gallons of water each year. The city has its own treatment facilities and provides treatment for all water except the 8,500

acre feet of treated water it buys from the conservancy district. The cost of water from the WBWCD is \$37.00 per acre foot for treated water and \$15.00 per acre foot for untreated water. All WBWCD water must be paid for whether used or not. The water from the Ogden River obtained through its stock in the Ogden River Water Users' Association costs approximately \$3.73 an acre foot. This water, if not used, may be carried over to the next year. The increase in new connections and water income is:

| <u>Year</u> | <u>New Connections</u> | <u>Income</u> |
|-------------|------------------------|----------------|
| 1966 | 108 | \$ 911,820.00 |
| 1967 | 71 | \$1,028,030.00 |
| 1968 | 62 | \$ 478,500.00 |
| 1969 | 98 | \$1,084,054.00 |
| 1970 | 117 | \$1,135,515.00 |

The entire system is metered and the water supply is adequate. The company drilled seven new wells in 1970 and are in the process of expanding the filtration plant to double its present capacity. It is interesting to note that these municipalities find it more economical to provide new sources of water than buy from the conservancy district.

5. Pleasant View.

a. Source of water: creek and springs.

b. Amount: maximum diversion rights on all sources.

- c. Storage: 230,000 gallons.
- d. Number of connections: 425
- e. Rates: a charge of \$400.00 is made to connect into main line. The minimum charge per month is \$4.50 and entitles the user to 12,000 gallons per month. Any use over this is charged 40 cents per 1000 gallons.
- f. Service area: Pleasant View
- g. Comments: the water is not treated before entering the distribution system. All connections are metered and the supply is considered to be adequate. The water system is not under the management of the city but is a private company. The user receives one share of stock when he pays for his connection. The company is managed by a board of directors consisting of five persons elected by the stockholders to serve for two years. They are now attempting to place the company under the control of the municipality. The new connections and the revenue from water sales are:

| <u>Year</u> | <u>New Connections</u> | <u>Income</u> |
|-------------|------------------------|---------------|
| 1966 | 10 | \$20,679 |
| 1967 | 15 | \$20,258 |
| 1968 | 18 | \$21,000 |
| 1969 | 16 | \$22,985 |
| 1970 | 13 | \$24,165 |
| 1971 | 12 | - |

6. Riverdale Water Company.

- a. Source of water: well and WBWCD
- b. Amount: the company owns its own well and buys 625 acre feet from the conservancy district.
- c. Storage: 1,500,000 gallons.
- d. Number of connections: 840
- e. Rates: minimum monthly charge of \$2.25 is made that entitles the user to 10,000 gallons. Any more is charged \$0.18 per 1000 gallons over the minimum.
- f. Service area: Riverdale
- g. Comments: they receive treated water from the conservancy district but do not treat the water from the wells. The system is completely metered and the water supply is adequate at the present time. There is some restriction on lawn watering in the late summer when the users are put on a turn basis. The new connections and income from water sales are:

| <u>Year</u> | <u>New Connections</u> | <u>Income</u> |
|-------------|------------------------|---------------|
| 1966 | 13 | \$29,211 |
| 1967 | 14 | \$30,732 |
| 1968 | 17 | \$35,401 |
| 1969 | 16 | \$39,241 |
| 1970 | 20 | \$40,867 |

In 1970 the company delivered 223,836,500 gallons of water to its customers.

7. Roy Water Department.

- a. Source of water: wells and WBWCD
- b. Amount: they receive 32 acre feet of water from the conservancy district and own two wells.
- c. Storage: 2,250,000 gallons
- d. Number of connections: 3500
- e. Rates: a minimum monthly charge of \$2.25 for the use of 10,000 gallons of water. The next 20,000 gallons costs \$0.19 per 1000 gallons; the next 20,000 gallons costs \$0.17 per 1000 gallons; any amount over 50,000 gallons costs \$0.15 per 1000 gallons. Connection fees vary from \$125.00 to \$275.00 depending upon the size of the meter. There is an additional charge of \$75.00 for connections outside of a subdivision.
- f. Service area: Roy
- g. Comments: the company received 32 acre feet of treated water from the conservancy district but the well water is not treated prior to delivery. All connections are metered. The company delivers approximately 8,500,000 gallons a day. A new 2,000,000 gallon reservoir is expected to be completed in the fall of 1971. New connections and income from water sales for prior years are:

| <u>Year</u> | <u>New Connections</u> | <u>Income</u> |
|-------------|------------------------|---------------|
| 1966 | 57 | \$150,636 |
| 1967 | 55 | \$155,046 |
| 1968 | 62 | \$170,000 |
| 1969 | 70 | \$190,245 |
| 1970 | 78 | \$191,029 |

8. South Ogden Water Company.

- a. Source of water: well and WBWCD.
- b. Amount: purchase 700 acre feet from WBWCD and own well.
- c. Storage: 2,000,000 gallons plus the use of 5,000,000 gallon reservoir belonging to WBWCD.
- d. Number of connections: 2608
- e. Rates: minimum monthly charge of \$2.00 for the use of 10,000 gallons of water. Any amount used over 10,000 gallons costs \$0.20 per 1000 gallons.
- f. Service area: South Ogden
- g. Comments: water from well supply not treated prior to delivery. The water from the WBWCD has already been treated. The new connections and income derived from water sales for the past few years are:

| <u>Year</u> | <u>New Connections</u> | <u>Income</u> |
|-------------|------------------------|---------------|
| 1966 | 37 | \$78,647 |
| 1967 | 50 | \$83,936 |
| 1968 | 75 | \$82,018 |
| 1969 | 58 | \$88,282 |
| 1970 | 32 | \$94,676 |

The present water supply appears adequate and there are no restrictions on use.

9. Uintah Water Company.

- a. Source of water: springs and WBWCD.
- b. Amount: the company purchases 100 acre feet each year from the conservancy district. They have maximum diversion rights on one spring and lease water from another.
- c. Storage: 180,000 gallons.
- d. Number of connections: 110
- e. Rates: a minimum monthly charge of \$3.25 for 10,000 gallons of water. The next 10,000 gallons cost \$0.20 per 1000 gallons; the next 10,000 gallons cost \$0.19 per 1000 gallons; any amount over 50,000 gallons cost \$0.15 per 1000 gallons.
- f. Service area: Uintah
- g. Comments: the water from the springs is chlorinated before delivery. The WBWCD water has already been fully treated. The system is fully metered and the water supply is adequate. The new connections and water income for the past few years are:

| <u>Year</u> | <u>New Connections</u> | <u>Income</u> |
|-------------|------------------------|---------------|
| 1966 | 3 | \$4,000 |
| 1967 | 3 | \$4,215 |
| 1968 | 5 | \$4,215 |
| 1969 | 4 | \$4,000 |
| 1970 | 6 | \$4,000 |

10. Washington Terrace Water Company.

- a. Source of water: WBWCD and wells.
- b. Amount: 200 acre feet from WBWCD and own two wells.
- c. Storage: 2,000,000 gallons.
- d. Number of connections: 1750
- e. Rates: the minimum charge is \$9.75 per quarter that allows the use of 30,000 gallons of water. Any amount over this costs \$0.20 per 1,000 gallons. Connection costs vary from \$300.00 to \$353.00 depending on the size of the meter.
- f. Service area: Washington Terrace
- g. Comments: The well water does not require any treatment while the WBWCD water has already been treated. The system is fully metered and is adequate for present needs. The company delivers approximately 800,000 gallons per day. New connections and water income for the past few years are:

| <u>Year</u> | <u>New Connections</u> | <u>Income</u> |
|-------------|------------------------|---------------|
| 1966 | 53 | \$71,279 |
| 1967 | 92 | \$73,164 |
| 1968 | 95 | \$74,565 |
| 1969 | 83 | \$76,933 |
| 1970 | 71 | \$79,301 |

Evaluation. Municipal water companies generally do not have any effect on the planning and management of the water resource except in their

immediate area. However, good management of the resource can lead to less waste and lower costs to its customers. The fact that all these systems are metered and all use the block system of charges provides that each user is paying his fair share. However this does violate an economist's viewpoint that all water should be sold at the same price. This does have merit in that a fixed water price would minimize waste and maybe curtail use. The one obvious fact that does come out is that the municipalities find it a great deal cheaper to develop new supplies than to buy water from the BWCD. If this is so one feels that a valuable resource is being wasted by the unreasonable pricing policies of the Bureau of Reclamation. It is a sad state of affairs when a federal agency, in enhancing its own image, has developed projects where the supply exceeds the demand, and where alternative sources of supply can be developed cheaper because prices set by the Bureau cannot be readily adjusted. Thus, this type of project is representative of poor planning and management of a valuable resource. Table 4 shows pertinent information concerning the various municipal water departments.

Private Water Companies

Private water companies are authorized to construct, develop and operate waterworks for the purpose of supplying water to municipalities or individuals where other facilities are not available. These private systems may be the property of partnerships, individuals or corporations. As private utilities they are subject to the rules and regulations of the Public Service Commission. The private utility must submit an application

Table 4. Water costs of municipal water departments.

| Area of jurisdiction | Source of Water | | Number of connections | Water delivered in million gallons | Income from users | Income per connection | Cost of water per 1,000 gallons |
|----------------------|-----------------------------|--------------------------------|-----------------------|------------------------------------|-------------------|-----------------------|---------------------------------|
| | Well or Spring | WBWCD (acre feet) | | | | | |
| Eden | 2 Springs | 0 | 90 | 84.9 ^b | \$ 3,600 | \$40.00 | \$0.04 |
| Huntsville | 3 Springs | 0 | 186 | 139.5 | 5,740 | 30.86 | 0.04 |
| North Ogden | 3 Springs 3 Wells | 0 | 1,205 | 220.0 | 67,389 | 55.92 | 0.31 |
| Ogden | 48 Wells | 12,100 (5,500) ^a | 19,097 | 6,000.0 | 1,135,515 | 59.46 | 0.19 |
| Pleasant View | Creek 1 Well 1 Spring | 0 | 425 | 26.4 ^b | 24,165 | 56.86 | 0.92 |
| Riverdale | 1 Well | 625 | 840 | 223.8 | 40,869 | 48.65 | 0.18 |
| Roy | 2 Wells | 32 | 3,500 | 1,115.5 | 206,754 | 59.07 | 0.18 |
| South Ogden | 1 Well | 700 | 2,608 | 1,140.4 | 94,601 | 36.27 | 0.08 |
| Uintah | 2 Springs | 100 | 110 | 15.8 ^b | 4,215 | 38.32 | 0.27 |
| Washington Terrace | 2 Wells | 200 | 1,750 | 288.0 | 81,352 | 46.49 | 0.28 |

^a From Ogden River Water Users' Association.^b Estimated.

to the commission for the purpose of receiving a certificate of convenience and necessity that allows it to do business. The application must include a franchise from the city to use roads, a statement of its financial assets, a schedule of rates, its organizational system, and description of the system. If approved the company is given a certificate of convenience and necessity to operate as a public utility subject to certain terms and conditions. Failure to meet these conditions results in suspension or cancellation of the certificate.

Three utilities distributing water to the public are located in Weber County. These are described below.

1. Western Public Service Company.

This water company received a certificate of convenience and necessity in 1961. The purpose of the company was to construct, operate and maintain a water distribution system consisting of reservoirs, pipe lines, a pumping station and other such facilities necessary to furnish water for culinary and domestic purposes. The company serves an area of approximately 300 acres located roughly two miles northwest of Uintah, Utah. The company has a contract with the WBWCD for a sufficient supply of treated water to serve approximately 430 homes to be included in a new subdivision. It is interesting to note that the company shares a reservoir with South Ogden to provide a water supply to a unit of the subdivision. The company also had to obtain a franchise from Weber County for right-of-way along roads for its pipe lines and distribution system and approval of the water supply and distribution

system by the Utah State Department of Health. It also provided a schedule of its rates and the rules and regulations regarding water connections and service.

2. Woodland Bench Water Company.

This company was authorized in 1958 to operate as a water utility for the production, transmission and distribution of culinary and domestic water in a residential area in southeastern Weber County. The certificate restricts the water service to 24 homes in the first unit only. The overall plan for the entire subdivision called for the development of four units.

The primary source of the water was to be from springs. The irrigation water rights were assigned to the company by its original owners and an application filed with the state engineer to convert the irrigation right to a culinary right. The terms of the certificate included cleaning out and procuring water from the springs in a manner to be approved by the State Department of Health and an adequate distribution of water from a reservoir to the household connections.

In 1961 it came to the attention of the commission that the system was acutely short of water and tests also showed contamination in the system. In addition the company was having water brought in by truck from a satisfactory source to maintain its service requirements. The commission strongly reprimanded the company for laxity and irresponsibility and ordered it to take immediate steps to remedy its service deficiencies. The company was to furnish the commission with written progress reports with regard to the steps being taken to correct the deficiencies in the system.

In 1962 the company had increased the flow from the springs and felt that the probable supply of water, even during low water season, would be sufficient to supply additional homes in the subdivision. In addition the State Department of Health had stipulated that the water supply was fit for culinary and domestic use. With these improvements the company was authorized to increase its water service to 60 connections. The company was also required to make written reports, not more often than every six months, to the commission concerning the condition of the water supply as to its adequacy, quality and the number of gallons per minute being distributed. A similar report was to be made when all connections had been completed.

The commission required that all the water must be metered. Service may be discontinued for nonpayment of bills and may only be resumed upon payment of the delinquent bill and a \$3.00 reconnection fee. The minimum monthly charge was established at \$2.50 per month. The rates for water were set at:

\$0.20 for first 15,000 cu. ft.

\$0.17 for 1000 cu. ft. up to 50,000 cu. ft.

\$0.12 per 1000 cu. ft. over 50,000 cu. ft.

Houses temporarily without meters are charged \$6.00 per month between May through September and \$3.00 per month for all other.

3. Nordic Valley Water Company.

This company was incorporated under the laws of the state of Utah and has its principal place of business in Liberty, Utah. A

certificate of convenience was issued to the company in 1967 authorizing it to construct, operate and maintain a culinary water system to serve 59 homes. The company owns decreed water rights to spring water of approximately 66 gallons per minute. The state engineer approved a change in the point of diversion and a change in use for culinary purposes. The company also owned a well having a capacity of 150 gallons per minute. The company had a contract with the WBWCD for 200 acre feet of water per year and the state engineer authorized the withdrawal of the said purchase water from the well. This water was found to be satisfactory for culinary purposes by the State Board of Health.

The rate schedule was approved for a minimum charge of \$2.50 for the first 10,000 gallons plus \$0.25 for each additional 1,000 gallons. The cost of a connection was approved at \$100.00 to cover the connection to the water main and the installation of the meter.

Evaluation. Private water companies serve a very useful function in providing culinary water to cities, towns and new subdivisions. These institutions are generally engaged in a single-purpose use of water and are not concerned with the effect of their actions upon other users. They do not have a great effect on the planning and management of the water resource. Their greatest contribution may be in the efficient management of the water, as they must sell water at a profit. These agencies are subject to public scrutiny and review through the actions of the Public Service Commission. This public review is urgently needed

for all water institutions to make them more aware that they are using a public resource.

One area of possible conflict between these institutions and others is in the power of condemnation given to them through legislation. In pursuing its stated objective of providing water to its customers a private company may condemn a particular source of water. Several other institutions may also exercise their powers of condemnation to the same source. This could result in costly litigation and an untimely waste of the water. Some means should be evolved to provide a satisfactory allocation procedure among competing uses.

In 1967 there were only 15 private water companies in the entire state under the jurisdiction of the Public Service Commission. In 1971 there are 29 active companies. Table 5 shows the amounts and costs of water for the private water companies.

Office of the State Engineer

The division of water rights is administered by the state engineer, who is responsible for the determination of water rights in the state of Utah. His duties are state-wide and the policies and decisions of his office will influence the development and management of the water resource throughout the state. Even though his office has been discussed elsewhere in this study he does exert a special influence in this area through two sources. One is his representation in the area office and the other is his appointment of the water commissioners in this particular area.

Table 5. Water costs of private water companies.

| Area of jurisdiction | Source of Water | | Number of connections | Water delivered in million gallons | Income from users | Income per connection | Cost of water per 1,000 gallons |
|--------------------------------------|----------------------|----------------------|-----------------------------|---|-------------------------|-----------------------------|--|
| | Well or Spring | WBWCD (acre feet) | | | | | |
| Western Public Service Company | | | | No Operation | | | |
| Woodland Bench Water Company | Spring | | 42 | 2.45 | \$ 2,022 | \$48.14 | \$0.82 |
| Nordic Valley Water Company | Spring | 200 | 46 | 4.97 | 1,778 | 38.65 | 0.36 |

The duties of the state engineer, not pertaining to policy matters, are performed in various area offices. The North Central Area Office administers most of the division of water rights matters in the Weber Drainage Basin and Davis County. (Lambert, 1970) The area engineer is responsible for the supervision of the distribution of the water in the Weber and Ogden River systems. The primary rights of these rivers have been distributed under court decrees. The waters of the Ogden River were distributed under the Ogden River decree of 1948 in the case of Plain City Irrigation Company vs. Hooper Irrigation Company. The waters of the Weber River and its tributaries were distributed according to the Weber River decree of 1937, also in the case of Plain City Irrigation Company vs. Hooper Irrigation Company. The decrees do not cover all rights on the rivers because of new applications since that time. The new applications receive water according to their priorities.

However at this time there is considered to be no unappropriated water above the mouths of the canyons of these rivers. Consequently no new applications to appropriate either surface water or ground water have been approved. After a basin is closed to any appropriation or a stream is fully appropriated any future developments in these areas must be accomplished by the purchasing of an existing right and then the filing of a change or exchange application. During the past few years there has been a gradual increase in change and exchange applications filed and fewer applications to appropriate.

The state engineer has been extremely active in meeting with the water users of the state and this area has been no exception. These meetings and subsequent discussions have led to the establishment of policy in the area. This has been done because of the need of the water users for definite policies relative to water development and use. These policies and the reasons for them are explained to the water users at public meetings and will be modified or changed only in public meeting. (Lambert, 1970) These open meetings can only lead to a better understanding between the state engineer and the water users.

The establishment of area offices has increased the efficiency of the state engineer's office. It has provided better service to the public through the availability of a qualified engineer who is able to give faster and more accurate service to the water users in the area. This area concept has given the office a more human approach by providing an engineer familiar with local problems and known to the water users. The work performed by the area engineer is in the appropriation, adjudication and distribution of the waters in his particular area. (Green, 1969) The area engineer is responsible for the supervision of the distribution of water in the Weber River and Ogden River systems. The costs of water distribution are assessed directly against the water users. These costs have continued to increase each year due to changes in water use, competition for water, and the rising costs of services. The collection of these assessments to pay the distribution costs has become a very costly item to the state engineer. (Thirty-Seventh Biennial Report, 1970)

To assist him in the distribution of water the state engineer is empowered to appoint water commissioners on organized river systems. The water commissioner is primarily responsible for distributing the waters according to adjudication and priority. In addition, he is responsible for the inventorying of his system to include canal diversions, reservoir contents, water exchanges, changes of use, streamflow records, snow surveys and any other useful information concerning his system. He may request installation of new or repair of existing measuring devices and structures. Also, he may institute these devices. Any temporary change application must be recommended by the water commissioner and the area engineer before being acted upon by the state engineer.

Both the Ogden and the Weber River systems have been placed under distribution and are supervised by the Ogden River Water Commissioner. The Ogden River is supervised by the Ogden River Water Commissioner and a deputy water commissioner. Their area of responsibility is entirely within Weber county. The Weber River Water Commissioner has supervision over the entire Weber River system with the exception of the Ogden River. The commissioner is assisted by four deputy commissioners who work full time from May through September. Each deputy is responsible for the direct distribution of water within his district. Their area of responsibility is Weber, Davis, Morgan, and Summit Counties.

Evaluation. The establishment of these area offices has increased the efficiency of the state engineer's office. This has provided local solution to local problems and in some cases has avoided costly court action among users. The water commissioners serve an important function in the operation of the river systems. They provide a good record of water diversions and other important data about the river and keep the water users informed as to general procedures and results of water distribution. They are in a good position to recognize the inefficient use or waste of water on the system and to take steps to correct them. One objection is that though the water commissioner is appointed by the state engineer, he is recommended and paid by the water users against whom he may take action.

Water Rights Committees

These committees or associations have been established to represent the water users of a particular system and to be the governing body of the river system. The powers and duties of such entities are to make recommendations to the state engineer with regard to the appointment of water commissioners and to prepare a budget for the distribution operations of the water. They are also empowered to settle, compromise and adjust differences between water users and to protect, maintain and defend the water rights of the water users on their system. Two such institutions exist in Weber County.

1. Weber River Water Rights Committee.

This committee was organized and incorporated in 1940 to represent the water users of the Weber River system. The committee is governed

by a board of 12 members elected by the water users at their annual meeting. The board elects a chairman, vice-chairman and secretary-treasurer from their own number. The committee represents approximately 90 percent of the water rights of the Weber River system.

2. Ogden River Water Rights Committee.

This committee was created in 1940 to represent the water users on the Ogden River system. Its purpose was to protect the owners of water rights on the system, to recommend the appointment of a river commissioner and to assist in all important matters affecting the river system. The corporation is empowered to settle, compromise and adjust any differences between water users and to protect, maintain preserve and defend the water rights of all users having rights on the Ogden River.

The administration of the committee is invested in a board consisting of nine directors elected to represent various sections of the river and other water organizations. The board elects a chairman, vice-chairman, and secretary-treasurer. The committee represents approximately 75 percent of all water rights on the Ogden River. Two members of the board are appointed annually by the Ogden Water Users' Association.

Evaluation. These rights committees have little to do with the planning and management of water. They do have the important function of being in a position to settle and adjust differences between water users. This may avoid lengthy court action and improve the efficiency of distribution on the stream. They are also in a position to detect

and report waste among users along the river system. This has been done several times. Another important function of the committee is to meet annually with the state engineer to discuss mutual problems.

Soil Conservation Districts

The soil conservation districts were created under the Soil Conservation Districts Law and operate under the guidance of the State Soil Conservation Committee. These districts are organized by the local citizens and are considered to be a governmental subdivision of the state and as such may exercise all public powers. They are operated by an elected board composed of local citizens and are legally responsible for the soil and water conservation work within the boundaries of the district.

The district is managed by a board of five supervisors. Three of the supervisors are elected by the land owners of the district. The other two supervisors are appointed by the state committee and must be persons qualified by training and experience to perform the specialized services required. The term of office of each of the supervisors is three years. The supervisors appoint their own chairman and may employ other persons to help them operate the district. The board has the powers to conduct surveys, investigations and research, conduct projects, carry out preventive and control measures, acquire property and enter into cooperative agreements with any agency or individual land owner within the district. They also are authorized to develop comprehensive plans for the conservation of soil and water

resources within the district, maintain structures, and to take over and manage any soil and water conservation project within its boundaries undertaken by any federal or state agency. The district provides technical services and may also make available agricultural and engineering equipment, usually on a cost basis, to assist the land owners in carrying out their conservation programs.

The districts also are responsible for the local administration, leadership and direction of any small watershed projects developed within their boundaries under public law 566. This federal law was established to assist local organizations with watershed protection and flood prevention projects on areas of no more than 250,000 acres. These projects may be sponsored by state agencies and qualified local organizations such as soil conservation districts; municipalities; counties; water use associations. These projects are based on local initiative and responsibility, state review and approval, federal technical and financial assistance. Municipal and industrial water users may be included in the project by paying the additional costs required by their services. The federal government pays all costs attributed to flood prevention and shares the costs of other measures. It also lends the sponsoring agency to finance their share of the cost a maximum of \$5 million per project for a maximum of 50 years at a reasonable interest rate. In addition it may advance future municipal or industrial use amounting to a maximum of 30 percent of the cost of a multiple-purpose reservoir and defer payment for a maximum of 10 years without interest. The

major obligations of the sponsors include the acquiring of land, easements, and rights-of-way; awarding contracts for construction; sharing construction costs; and operating and maintaining the project when completed.

Two districts are located in Weber county--the Ogden Valley Conservation District located in Huntsville and the Weber Conservation district located in Ogden. Neither of these two districts is involved in any large soil and water conservation projects.

Evaluation. Soil conservation districts as originally created were concerned only with erosion control on farm lands. The role of these districts has been expanded by legislative amendments to include conservation, development, utilization and disposal of water. Their services have been expanded to cities and towns including municipal and industrial water users. The advantage of the district is that it is organized by local people to solve local problems involving soil and water conservation. The supervisors are responsible for development and coordination of programs in their district, and they work intimately with the Soil Conservation Service, U.S. Department of Agriculture and other related agencies. This all tends to bring expertise to the local level. A certain amount of coordination is available among the districts and approved by the State Soil Commission. There is no provision for plan review by other agencies except on an informal basis. These districts have a long history in solving soil and water conservation problems on a local level by local effort.

Since individual agencies do not normally concern themselves in terms of multiple purpose projects, if their particular projects extend over large watersheds then more attention is required for comprehensive planning. It is recommended that all such programs for this and other agencies be evaluated by a state planning agency in terms of statewide interests and overall water resource plans.

Utah Water Users' Associations

These particular institutions are regarded as "grass-roots" organizations, primarily interested in the broad aspects of water development and conservation, as distinguished from the action-oriented water users' associations that were established for the purpose of operating and managing local projects.

The Utah WaterUsers' Association is such a grass-roots organization having the primary purpose of representing the water users of the state. This organization is composed of three groups representing the state, district and county. Two such organizations are represented in Weber county--District 2 of the Utah Water Users' Association and the Weber County Water Users' Association. The functions and the make-up of these organizations are essentially the same as the parent body. These may or may not be incorporated. Generally they do not incorporate because most of their concern is with local issues and problems.

1. District 2 of the Utah Water Users' Association.

District 2 represents the water users of Weber, Davis, Morgan and Summit Counties. The district is administered by a board of directors composed of five persons elected by the individual counties at their annual meeting. The directors serve for a term of three years and elect a president, vice-president and secretary from their own number. The district organization is devoted to the protection of the water rights of the users in the counties that they represent. In addition they are charged to conserve water, cooperate with other agencies, recommend and promote water projects, and to consider and evaluate water legislation.

2. Weber County Water Users' Association.

This institution is affiliated with the Utah Water Users' Association and has essentially the same functions. These functions are to protect the water rights of users in Weber County, to conserve water, to cooperate with other agencies, to recommend projects and legislation concerning water.

The association is managed by a board of directors consisting of nine persons, five of whom are elected at the annual meeting and four are appointed by the board. These directors hold office for three years and should represent various areas of the county. The board elects a president, a first and second vice-president from its own members and elects a secretary and treasurer who may or may not be a member of the board. In addition the members also elect at their annual meeting two directors to serve on the district board.

Evaluation. These organizations are not actively involved in the planning and managing of water resources. As already pointed out their primary function is to act as an advisory group to the county and the Division of Water Resources on the feasibility of proposed projects and to act as a lobbying group on water legislation.

These associations could prove very effective in providing the necessary coordination between water organizations and water users. They could make a very significant contribution to the planning of water projects as they have both local and state representation among their members in addition to a variety of uses. As already pointed out, the main contributions are from irrigation companies and individual water users; consequently their efforts in planning could be slanted in favor of one group. The same bias could show up in their support of water legislation.

However it is felt that the state should have such an association to represent and guard the interests of water users. If the association can truly represent the entire spectrum of water users of the state it will be in a strong position to promote sound planning and management of water resources within the state. The association could contribute much to public understanding of new water projects and provide a vehicle for the creation and promotion of water projects.

CHAPTER VII

SUMMARY AND RECOMMENDATIONS

Summary

The Weber Basin is one of the richer water areas of the state and therefore does not have the same problems as other regions in the state. At the present time and for the immediate future it appears that the water needs of the Weber area will be satisfied. This situation may be attributed in part to the fact that the Weber Basin Water Conservancy District has developed more water than is being used at present. In addition, there is a large amount of groundwater available, particularly if there is a relaxation of the laws regarding lowering of the hydrostatic pressure.

Regardless of this, however, problems do exist in the area which may restrain the effective planning of the water resource. Many of these problems stem from the numerous water institutions in the area that have been created under the various laws of the state. Each of these agencies has been created for a specific purpose and to serve a specific segment of the population. These agencies have been endowed with certain duties and authority to carry out their objectives. The survey of these institutions has disclosed that an overlapping of the defined functions of these institutions is possible but not necessarily instituted.

New agencies have been created as the competition for water between uses and users has become more intense. Public demands for more recreational use, improvement of water quality, reduction of pollution, and a total protection of the environment have created greater demand on the water resource system. Water institutions that cannot or will not change their attitudes will be discarded. Older agencies which have adequately served their purpose in prior years have been retained on the books but have not changed sufficiently to meet these new demands. The large number of institutions in a single area has led to conflict of interest, overlapping and duplication of facilities and inefficient use of the water resource.

A case in point is the small mutual company that does not have the financing or technical competence to manage its water effectively. Water costs have been kept ridiculously low; as a result needed repairs and improvement of the physical facilities have not been made. Water is generally unmeasured to users and often used to irrigate low value crops. Consolidation or rehabilitation and the attaining of sufficient financing are needed by these institutions to improve their management efficiency and to avoid waste. The large mutual company has the ability to promote adequate financing and has demonstrated a capacity and a desire to improve facilities and to encourage efficient use of water. The mutual company has enjoyed considerable success in Utah because of its ease of creation, its voluntary membership and the fact that the members have a voice in the operation of the company. One serious disadvantage

of such an institution is that its activities or plans are not subject to public inspection. The mutual company does, however, provide a convenient vehicle for the transfer of water from rural to urban use. A few of the smaller companies have solved their financial dilemma by leasing their water to municipalities or by becoming a public utility and selling water.

Among the trends which may lead to further problems that must be resolved by the water institutions in the area is that of increasing competition between rural and urban users. It is apparent that the present agricultural lands will have to compete with the rapid urban development of the area. It has been estimated that by 1980 approximately 5500 acres of present agricultural land will be converted to other uses. Farm irrigation has steadily decreased since 1954--from 255,000 acres to 156,000 acres in 1966. (Weber County Planning Commission, 1966) How well the present water institutions can effect this change will be an indication of their worth.

The present law governing transfer of water rights is adequate for efficient development of the water resource. The law places no restriction upon transfer of water rights except in the manner of protecting the interests of third parties. Even this is not a serious restraint as provision is made for the payment of compensation to the affected parties. It has been noted in this study that the number of applications for appropriation of water has decreased and that about half of the applications are made for changes in use, change of place of use and

exchanges. This is evidence that the present law presents no barrier to free movement of water. In addition, since the appropriation doctrine fully describes the water right and treats it as real property the owner feels the security necessary to make firm plans for the development of his water supply. Any constraints to the transfer of water rights have been imposed by the water institutions themselves. The majority of these agencies have limited the transfer of water rights in a number of ways. These include making the water right appurtenant to the land, restricting transfers to agencies' boundaries and requiring the approval of the board of directors before allowing such transfers.

There are however two areas that require legislative action to make the use of water more efficient. The first is the unrealistic attitude that prevents well users from reasonable lowering of the hydrostatic pressure. This tends to freeze the full utilization of a valuable resource. In recent years the courts have tended to modify their position in this matter and have stated that the right of the individual must be balanced against the public good in seeing that all water is put to beneficial use and that groundwater users do not have an absolute right to hydrostatic pressure. It is hoped that legislative action will be taken to amend this portion of the water law. Second, slow court action has pressured water users to consider costly alternatives; legislative attention should be given to the establishment of water courts so that water cases may be speeded up.

This study has not elaborated upon the federal involvement in the planning and development of the water resource or its influence on state and local institutions. However the Bureau of Reclamation itself has imposed several restraints to effective development of water projects. These exist in the long term contracts required by the Bureau and in the limitation of irrigation water to 160 acres or 320 acres if jointly held. Other constraints are that the contractee is responsible for full payment for the specified amount of water whether he uses it all or not. The stipulation that he cannot sell or rent the unused portion is contrary to efficient use of this resource. The conservancy district cannot contract with an individual for more or less water than the quantity set by the Bureau based upon land use classification. This assumes that when farm land is taken for urban development the new owners will use the same amount of water as the previous owners. This could lead to waste if the same amount of water is allocated as urban users tend to use less water than agricultural users.

The water conservancy district would appear to have all the elements necessary to operate as a successful water institution. It has a sufficiently broad tax base to provide the necessary financing; the best of technical knowledge; it operates over a wide area to take full advantage of basin-wide planning; and it is a multiple purpose project. However, the main purpose of the Bureau has been to provide water for irrigation. In order to provide for the repayment of construction costs on large projects the Bureau has attempted to make the project more attractive to other users.

Without the financial assistance from these it would be impossible for irrigation interests alone to support such undertakings. Nonetheless the Bureau has continued to make project water available to irrigation at an extremely low cost, resulting in higher costs to municipal and industrial users. Consequently in the case of the WBWCD much of the higher priced water remains unsold, as potential water users have chosen to develop cheaper alternate sources of water. Thus these unequal charges impose a serious restriction on the efficient management of the water resource.

As in other areas of Utah, Weber County has numerous water institutions created to serve a single purpose. These agencies often fail to take into account other water uses or what effect their actions and decisions may have upon them. This singularity of action has been a serious constraint to efficient planning for comprehensive water development. This has been the result of legislative directives loosely defining their duties and authority and the institutions restricting their functions. More realistic legislative action is necessary for the efficient planning and development of the waters of Utah. Statutes creating these agencies have implied that they are authorized to make plans for water development in their areas but have not provided any means for the coordination of plans between agencies or for any method of communication.

This investigation has revealed that there is a lack of coordination between institutions on the same level and between those at state and local levels. Thus it is necessary that the legislature provide a means of horizontal and vertical coordination and cooperation between all water institutions in the state. The Division of Water Resources has been

given the authority to develop a state water plan. It is hoped that when such a plan is approved by the legislature provision will be made for the creation of an entity responsible for all water planning in the state. However, this should not restrict the planning of local institutions which are more intimately concerned with and more aware of local areas and problems. Rather it is hoped that such a state planning unit will serve to insure that the planning of local institutions does not conflict with comprehensive plans for the entire state.

This matter of coordination and communication has been accomplished informally among institutions. The Division of Water Resources has met with other agencies on the federal, state and local levels. The original legislative directive to this division implicitly gave it the authority to consult with and to advise the Utah Water Users' Association and other water users' associations in the state. However it must be remembered that the membership of these users' associations is largely composed of those primarily interested in irrigation. The Pine View Water System is rather unique in that it represents all types of users and provides an informal arrangement for the presentation of all views. It is hoped that other users' associations will make the effort to see that all water institutions are represented in their membership.

Another restraint to the development of a water resource lies in the wide powers of condemnation given by law to the majority of

these institutions. These agencies may condemn, for their own purposes, sources of water supply for their own particular use. Municipal and private water companies authorized to construct and operate works for the providing of water to cities and towns may come in conflict with institutions providing only irrigation water. This conflict of interest will have to be resolved by the planning agency or the courts. Legislative action is needed to clarify the jurisdiction and responsibilities of any water institution engaged in planning and development of water resources.

This study has revealed several instances where there is possible overlap of authority with regard to territorial jurisdiction, powers of condemnation, planning and development and conflicts in use and functions. Conflict of interest may arise when two agencies decide to exercise their authority in the same area.

In addition, the study has shown the influence that water institutions have on the development and management of the water resource. Restrictions to the effective and efficient development have been imposed by legislative action in the allocation of authority and in powers given to these agencies. Constraints have also been imposed by the agencies themselves through their by-laws and actions.

Though this survey has been made by an engineer, it is felt that this is just and proper due to the civil engineer's historic interest in the area of water development; the majority of the water planners and managers in the field are engineers. It is also recognized that important contributions have been made in this area by economists,

sociologists, lawyers and natural scientists. It too is realized that only through the cooperative efforts of all these disciplines will any real progress be made toward the most satisfactory and beneficial planning and development of the water resource.

Recommendations

General recommendations have been made throughout the body of this report. The more important recommendations are presented here.

1. Establishment of a state planning agency with the authority for the comprehensive planning for all the state's water resource. This agency should be given the power to review, revise or reject the water plans of the state and local institutions. This would provide for the vertical integration of all water planning and also for the necessary coordination among local institutions.
2. Amendment of the present law governing lowering of hydrostatic pressure to permit a reasonable lowering of the static head. This would do much to avoid wastage of water and put to beneficial use the greatest amount of available water.
3. Review of all statutes concerning water institutions for the purposes of providing coordination and communication among all such institutions and avoiding jurisdictional overlap and duplication of effort. Any new agency having a wider service base that overlaps a smaller area should have the authority

to absorb the older agency into its system if outmoded and prevent the duplication of services and the consequential wastage of water.

4. Provision for a reasonable water charge for the use of the state's water. Water is the state's major resource that is allowed free development. The primary objection to the appropriation doctrine is that it allows perpetual use of a valuable resource. It seems reasonable that if an industry or municipality is responsible for controlling its pollution an individual water user should also be responsible in the same fashion. Irrigation water has been polluted to some degree upon returning to the water stream.
5. Allowance for the state to take over and manage, under local control, all of the major water projects of the state. This would allow the state to assume responsibility for the repayment of the reimbursable funds due the government. The state would have the same guarantee of repayment as is required now; however, this arrangement might open the door for more effective use of the waters of the state. The state could remove some of the restraints imposed by the Bureau of Reclamation upon the efficient development of the water. This would also provide for easier transfer of water between areas and there would be no hindrance by

jurisdictional boundaries. The state would only act as an intermediary between the districts and the federal government. Local control of the institution should still be retained.

6. Authorization of the Power Service Commission to regulate all the water utilities in the state. This would serve as a check on municipal water companies and provide for a more equitable arrangement of water charges throughout the state.
7. Removal of restraints imposed by the Bureau of Reclamation. The water conservancy district is an excellent vehicle for the development and management of the water resource if these restraints could be lifted. It has the wide area of authority to provide for development on a basin-wide scale. It is flexible in operation, is not restricted by use priorities and is in a position to impose the realistic pricing of water.
8. Provision for the consolidation, rehabilitation or dissolution of small water institutions that do not have the finances or technical capacity to provide for the efficient use of water. The cost of water has been so low as to promote wastage in the system.
9. Removal of restrictions on transfer of water. Many of the institutions could improve the efficiency of water use by removing such restrictions.

Suggested areas for further study

1. Research into the degree of federal involvement in the water resources of the state.
2. Determination of the magnitude and seriousness of restraints imposed by federal agencies upon efficient planning and development of the water resource.
3. An in-depth study of water institutions in the state from the viewpoints of other concerned disciplines.

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