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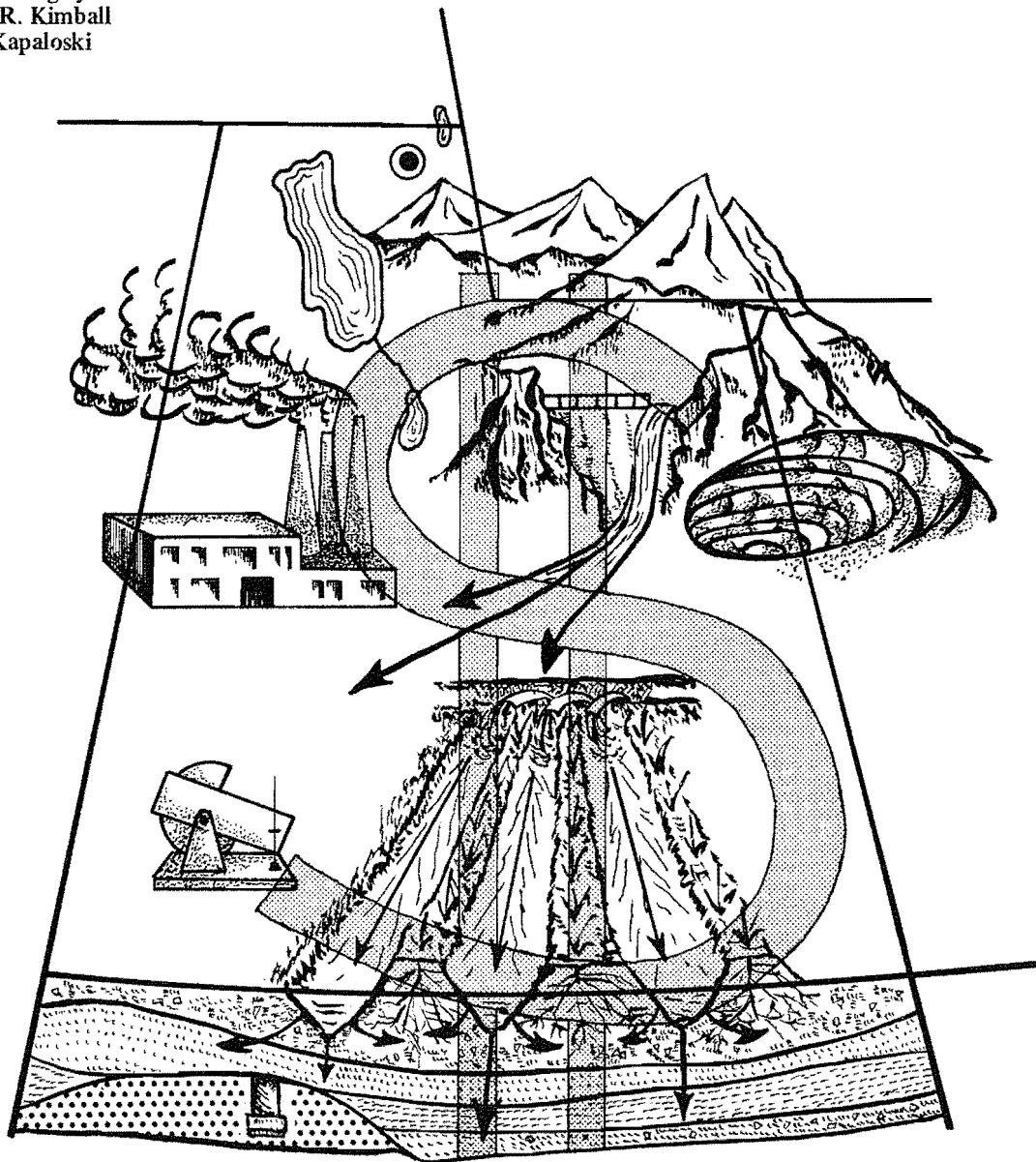
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Feasibility Study of Establishing a Water Rights Banking/Brokering Service in Utah

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Utah State University
Logan, Utah 84322

June 1980

WATER RESOURCES PLANNING SERIES
UWRL/P-80/02

FEASIBILITY STUDY OF ESTABLISHING A WATER
RIGHTS BANKING/BROKERING SERVICE
IN UTAH

by

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ABSTRACT

Changes in water use patterns are an inevitable consequence of relentless social transformations taking place. Especially where waters have been fully appropriated, the needs of a dynamic society must be met through transfers in water ownership. Yet, there are a variety of factors that may operate as impediments to the shifting of water according to social preferences as expressed through water markets. As a mechanism for facilitating water transfers, exchanges, or rentals, the concept of "water banking" and "water brokering" may be fruitful. This report appraises the potential for initiating and operating such a service within the legal, institutional, and organizational framework prevailing in Utah.

Questions addressed are: What are the special characteristics of water rights and water right owners that constitute important elements of the market arena? How would a banking and/or brokering service effectively deal with the mix of marketable water right equities ranging from the "general corporate right" (exercised in satisfying an unlimited variety of individual uses at the pleasure of the corporation, i.e. municipality, conservancy district, etc.); the individual proportion or "share" of a mutually owned right; to the individually owned water right? How would the water banking operation be coordinated with the State Engineer who must approve all changes in use? What are the organizational alternatives for establishing a water bank? Should such a service be sponsored and operated as a public or private activity? What are the legal considerations that must be addressed? Are there constitutional, statutory, or procedural considerations that seriously constrain the operation of a water banking/brokering service? Can such a service be made to complement present institutional structures and whatever forms of banking and brokering they may currently provide? What are the economic considerations in the creation of a water banking/brokering service?

It is concluded that a water bank could be effective in facilitating cost-effective and resource efficient matchups of buyers and sellers of water. There are no constitutional, statutory, or regulative elements in Utah water administration that would seriously hinder the operation of a water banking/brokering system. However, there are some institutional peculiarities and debt encumbrances that may limit the market potential of particular water right equities. The protection of third party interests to any water rights transaction is a central consideration in arranging water transfers, exchanges, or rentals. Therefore, the water bank must be staffed by individuals having technical understanding of the hydrologic and legal impacts and the economic externalities that accompany particular water use changes.

An appraisal of existing Utah organizations capable of assuming a water banking/brokering service suggest the Office of the State Engineer (public) and the Utah Water Users Association (private) as the two most likely candidates. It is recommended that the evaluation of these two organizations now be made in more detail with respect to suitability of the new banking/brokering service to basic mission, current operating policies and programs, organizational structure, and fiscal and budgetary framework. Decision to initiate the concept should probably begin with a limited level of service, adding more comprehensive and more professional elements as justified by operating experience.

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GLOSSARY OF TERMS

Water Right - The entitlement to use surface or underground water for a beneficial purpose as evidenced by a certificate of appropriation, by a judicial decree, or by diligence claims. May be transferred by deed in substantially the same manner as real estate. May be represented by shares of stock in a corporation.

Water Appropriation - The process whereby unappropriated public waters of a state are acquired for private use upon application to the State Engineer. The appropriation must be for some useful or beneficial purpose, and appropriators have priority among themselves according to the dates of their respective appropriations. Proposed use of the applicant must not impair existing rights, interfere with more beneficial uses, nor prove detrimental to the public welfare. The proposed plan of use must demonstrate economic and financial feasibility.

Equity Interest in Water - A legal term for ownership or partial ownership in a water right.

Water Banking - Connotes a proprietary management of a "pool" of water equities with discretionary authority to accept individual "deposits" of water entitlement and make individual lease or purchase arrangements for waters "held in trust." Managing a "stock" of water to the satisfaction of individual water borrowers and lenders or buyers and sellers of equity interests.

Water Brokering - Connotes a negotiated transferring of a specific property

right between two or more parties. Requires that particular buyers and sellers, lessors or lessees, both agree to the terms of the transfer. Broker has no proprietary control over water right's equities involved but serves as a go-between.

Water Allocation - The distribution of water use entitlements among applicants under the prior appropriation doctrine and through the appropriation process. Allocations continue over time according to economic market forces subject to State Engineer tests of beneficial use, impairment of existing rights, public interest, etc.

Hydrologic Externalities - Refers to the changes in flow characteristics that result external to the site where a particular change in water use or management is initiated. Because of the interconnection of all surface and subsurface waters of a river basin, moving in a downhill direction, the effects of diversion, regulation, or treatment at a particular point are transmitted into flow characteristics at downstream locations. The projection of hydrologic externalities are the basis for determining the impact on existing water rights resulting from any proposed change in water use.

Conditioning Costs - Costs commonly entailed in shifting water from one use to another in addition to the purchase price of the water right itself. In converting from one use to another the quality, quantity, timing, and locational characteristics may need modification or conditioning to make them conform to requirements of the new use.

I. INTRODUCTION

Social Dynamics and Water Reallocation

Economic and social change give rise to changes in water supply and use patterns. New uses with different quantity, quality, timing, and location requirements entail modification/expansion of delivery systems and/or transfers, shifts, or exchanges in resource ownership. When fully appropriated in a socially dynamic environment, water can continue to serve its role as an essential ingredient or catalyst in the attainment of social well-being goals only if it is convertible or transferable to uses according to contemporary priorities. Thus, providing an easy and advantageous transfer of water to emerging higher valued uses is essential lest water become limiting to the achievement of economic and social goals. In general, the market is the process by which water transfers are accomplished.

A variety of legal and institutional factors are generally perceived to impede the transfer of water through market forces. Similarly, the peculiarities of the water marketing arena and possible weaknesses in marketing mechanisms have been identified as explanations of sluggishness in water transfers to a steadily growing array of higher value users and uses.⁽¹⁾ The concept of "water banking" and "water brokering" offers potential for improving the water marketing function by providing a centralized source of information about specific water availability and specific water needs such that market participants have better recognition of options available. Such an informational repository presumably would also provide a better derivation of the social value of water.

For any given water rights transaction, private legal or engineering advice may be sought by one or both parties to provide assurance that the transaction is physically sound and legally correct. However, such aid is usually without the complete informational base to expose the full array of alternate supply options and provide advice concerning selection of the one best suited to the expressed need. Hence, a water brokering service may be a useful device for assembling information about water availability and water need and making such information broadly available for the use of those wanting to buy, sell, or rent water.

⁽¹⁾ Angeledes, Sortiros, and Eugene Bardach. Water Banking: How to Stop Wasting Agricultural Water. Institute for Contemporary Studies, San Francisco, Calif. 1978.

Water law in Utah is sufficiently flexible to permit orderly shifts of water from one use to another. Subject to the administrative controls of the State Engineer, water rights can be bought and sold to achieve water reallocations among competing demands. Each buyer makes his own canvas of potential sources of supply and proceeds to negotiate the terms of procurement for the supply believed to be most readily adapted to the intended use. The State Engineer must approve any resulting water rights transfers and is thus in contact with buyers and sellers of water providing a public "water brokering" service of sorts. However, the State Engineer's role in most water transactions is more that of a "referee" than that of an "arranger" such as a realtor or broker of real estate. His primary concern is to ascertain the hydrologic and legal consequences of any proposed transfer so that potential conflicts between and among water right holders can be mitigated before the transfer takes place. Buyers and sellers of water generally do not view the State Engineer as an informational storehouse about water markets. The State Engineer is generally not directly involved in the initial private negotiations between buyers and sellers. He examines transfer agreements between willing buyers and sellers to insure conformity to legal requirements and prevailing administrative policy and procedure once an official change application is submitted. He hears and considers comments and protests from all parties who have an interest or feel their water rights may be adversely affected by a proposed water transfer. However, as a quasi-judicial officer, the State Engineer does not participate directly in the water marketing process.

Water Banking/Brokering as a Means of Expediting Water Transfers

The term water banking/brokering, as employed in this study, represents a centralized mechanism for expediting the transfer of equity interests in water. Many different kinds of equity transfer and equity exchange situations would be included in this concept.

The "water banking" concept would apply where there exists a "proprietorship" over a water "pool." For example, if assets or negotiables of the bank consist of subscriptions for water deliveries, with the proprietorship having discretionary authority to supply all kinds of users within its corporate boundaries, then the operation fits the description of a water bank. Such operating

flexibility, constrained only by the physical limitations of storing and conveying water to the satisfaction of customers within its operating territory, should allow subscribers to place entitlements on deposit for possible use by others who can afford the "rental fee." Individual lessors and lessees would need only deal with the bank. The subscriptions themselves and obligations associated with them could remain intact. However, the bank might repossess the subscription outright if a particular subscriber has outlived its need. The important distinguishing feature of a water bank would be that it manage a "stock" of water dealing with both borrowers and lenders, buyers and sellers, separately and individually. Managing a kind of corporate water supply would offer flexibility to tailor amounts and locations of supply according to market demand. Since the stock of water under the jurisdiction of the proprietor is not internally encumbered in the transfer process by constraints on the place and nature of use and point of diversion as with individual water rights, it would be possible to operate in a banking mode. Tests of beneficial use, forfeiture, and third party impacts that pertain to transfers of the right itself are not operative for transfers taking place internal to a corporate right.

Water brokering, on the other hand, connotes a negotiated transfer of a well defined property right between two or more parties. The broker is not a participant in the transaction and buyers and sellers must both be satisfied with terms or the transfer will not take place. Unlike the situation where individual users are supplied out of a single large water right in the name of the corporate entity, transactions regarding individual water rights cannot avoid considerations of third party impacts to the transaction.

In actual practice, there are large numbers of individual rights interspersed throughout the domain of larger corporate water supplying entities (such as water conservancy districts). While the brokering concept could be applied quite generally throughout regions and the state as a whole, the banking operation would be limited to situations where a proprietorship opportunity exists. The basic distinction between water banking and water brokering lies in the proprietorship feature. Unless an entity has some entrepreneurial authority over a supply serving large numbers and varieties of retail users it could not operate as a water bank in the sense that the term is used in this study. While it is necessary to keep in mind the differences between water banking and water brokering, it is also necessary to recognize that any given region in Utah will contain a mix of banking and brokering opportunities. Therefore, much of the discussion pertains to either or both of the concepts and distinctions are not rigorously emphasized.

Water transfers can be expedited by making water availabilities more generally visible to prospective buyers, providing analytic reviews and assurances, and advising on physical and legal preconditions to be met before needed official approval of any proposed transfer is obtained. As a central clearinghouse of information about water availability and water need or demand, a water bank or broker may help in organizing water rights "packages" to meet specifically expressed needs.

The justification for water banking/brokering services must be found in demonstrated advantage to the public in 1) increasing the level of information and awareness between entities desiring to purchase or sell water interests; 2) reducing the transfer costs involved in such water interest transfers (i.e., legal fees, search costs, etc.); 3) fostering a better accommodation of public interest criteria and standards so that the social utility of water use is upgraded in each transaction with lessened likelihood of speculative or monopolistic advantage at public expense or subsidy; and 4) utilizing the transfer process to correct existing imperfections in older water rights awards to bring their definitions in line with present standards of description and water duty. Therefore, a primary role of a water banking/brokering service would be to provide, a "brokering" service for water equities somewhat analogous to a realtor in arranging transfers of real estate equities.

Obviously, a water banking/brokerage function would find more application in areas of rapid demographic transition (urbanizing areas). In isolated and stable agricultural areas where water users have a close acquaintenship with one another and where water ownership transfers can only occur between shareholders on an intra-company basis, a regional or statewide water banking system would be of limited value. In such situations, a bank (broker) could not materially improve the awareness of potential buyers and sellers as to availability and need. Nor could a centralized bank do much to lessen the costs of making an intra-company water rights transaction. On the other hand, a large new enterprise (i.e., energy development) proposing to locate in an otherwise water stable area, may induce very substantial, complex, and far reaching economic, social, or environmental impacts requiring utilization of a range of services a water bank/broker could provide. Such service might be of advantage not only to the immediate and affected parties, but to the entire state as well. For episodic changes in water use, wherever proposed, all parties to a water transaction may benefit from the services of a water bank operated in close liaison with the Office of the State Engineer and the Division of Water Resources.

It is quite possible that a banking service, formally and appropriately coordi-

nated with the Office of the State Engineer, could keep that office continuously updated regarding stirrings in the water market. Current knowledge of interest in buying or selling water could provide the State Engineer (and the state in general) with some advance indication of water transfer potentials with which he may ultimately have to deal. The bank could serve a useful purpose in alerting parties to a transaction early in the negotiating stage of conditions that must be met for the transfer to be acceptable to the State Engineer. Where the State Engineer is asked to approve a water rights transfer whose terms have been painstakingly worked out between the parties involved but which turns out not to meet the necessary conditions for State Engineer approval, a painful adjustment may be imposed upon the negotiators.

There appears to be some opportunity to make short term rentals of "surplus" water through the auspices of a water bank/broker. Growing communities, for example, must plan and build ahead of actual water needs. Communities normally strive to provide ample supplies so as to minimize the necessity of imposing use restrictions while awaiting completion of system enlargements. For example, through the operation of the Metropolitan Water District, Salt Lake City has been able to provide water to county users until such time as supplies are needed for city purposes. Some major water using industries require a firm water supply so that operations will not be jeopardized during drought periods. Consequently, they hedge against hydrologic variations and hydraulic system limitations by acquiring a water supply whose flow in extremely dry years will be sufficient to meet normal needs. Most water entitlements under such water rights would be commonly in excess of actual need and the "surplus" water could be rented most years--certainly on an interruptible basis. While such water may have a relatively low rental value, the bank/broker service may be instrumental in placing this "insurance" water in more economically productive interim use than may otherwise be possible without such a service.

Clearly, the value of a water banking/brokerage service must be measured in terms of profit in the eyes of clients who employ the service. Generally, bringing more buyers and sellers into a centralized "auction" should not only reduce the individual cost to search out prospective buyers or sellers but also increase the likelihood of finding the "highest bidder." For the purchaser, a centralized broker service should provide a greater array of supply options from which to choose, thereby improving the chances for obtaining the most cost-effective solution to a water acquisition problem.

Specialized personnel and possession of a large informational base would tend to reduce costs associated with completing a

water transaction. Certification of the validity of the water right being conveyed (similar to title insurance in real estate transactions) might be provided as a part of a banking/brokering service. Uncertainty of validity or status of a water right oftentimes creates major delay to a potential transfer.

In many instances, a major obstacle to the expeditious transfer of a water right is the lack of knowledge of who buyers and sellers are and the high information costs associated with obtaining this market knowledge. This lack of centralized source of information on water transactions is painfully evident to a large enterprise that must accumulate water from numerous individual sources in order to obtain its required supply. Having a large information base about buyers and sellers of water, water brokerage would be well-suited for putting together "packages" of water rights to suit specific needs of buyers, or conversely, for dispersing a large water right among a disaggregated set of users. Industrial or commercial enterprises, unfamiliar with water markets and the complexities of making water right transfers, may find the services of a bank/broker system most useful. Net efficiency in water resource and capital utilization should then be increased through the ability of the service to achieve improved matchups between water availability and water need.

In short, if a water banking/brokerage service could foster a more cost-effective and resource efficient matchup between buyers and sellers of water; and lessen market distortions that occasionally occur when information about supply options and user potentials is limited; the water bank would fill an important void. In addition, real value to the entire state in the form of increased social benefit resulting from more "optimum" transfers would result if the brokerage system facilitated more systematic consideration of the public interest issues involved in transfers.

Special Characteristics of Water Rights and the Market Arena

Since water rights are treated much as real property under the Utah law of appropriation, their transfer or exchange can be fitted into the conceptual construct of water banking and brokering as described above. However, there are some very significant differences related to physical mobility, third party impacts, and public interest concerns pertaining to transfers of a "resource in common" that temper the comparison with other highly liquid property transactions (money, commodities, stocks, etc.) These factors must be carefully considered in analyzing the operation of a water banking/brokering service.

A water right embodies a "commodity" dimension (like a bushel of wheat or a

kilowatt of electricity) but it also (generally) connotes a continuing entitlement to draw on the common supply in perpetuity. Thus, it is not just the corpus of the water that is bartered in a water market. Singular focus on the commodity dimension has led to common allegations that water pricing is wrongly outside the market framework. If this were true, the idea of a water banking/brokerage service would be seriously flawed. It is the legally protected water use right that justifies long term investment in the various enterprises to which water is essential. Investment costs (incurred on the basis of long time certainty of a water supply and required for placing water in beneficial use) become integral parts of the water rights value. Succeeding transfers of water rights necessarily include original and subsequent nonseparable development capital values. When all the investments which have productive value and marketability only so long as water is available are properly capitalized into the transfer price of a water right, then water transfers really do occur in a market arena. Thus, water transactions do fit the general property construct and conceptual framework to which a banking/brokerage function could operate.

In emphasizing the notion that water rights transfers do conform to market principles when properly perceived, mention should be made of one other feature of water right ownership that complicates the transfer process somewhat. Individual water rights differ greatly in terms of the kinds of use allowed, amounts of water involved, etc. Some water rights are identified with individual users. Others are identified with a "corporate" entity which, in turn, allocates water to individual users within the corporation giving them valid proportional entitlements to the corporate right. However, these individual portions are not a matter of

record with the the State Engineer--only the corporate body. The State Engineer is not generally a party to intracompany transfers of equity interest. Yet these "internal" transfers are common and may wish to employ the services of a bank or broker to expedite the transaction. Thus, a banking/brokering system would have to be knowledgeable about these "hierarchical" differences among water rights; appreciate how they affect the resolution with which the State Engineer "sees" the impacts of water transfers within the framework of a given water right (and hence the necessity of his permission to make a transfer); and understand how the operating latitude of the banking/brokering service may be influenced by these differences.

Purpose and Scope of Analyses

This study examines some significant physical, legal, institutional, economic, organizational, and operational elements that need to be considered in determining whether or not a water banking/brokerage service should be established in Utah. The intent is to make an objective assessment of how a banking/brokering system would have to fit within existing legal and institutional structures. The specific objectives are to 1) identify any legal-institutional impediments which would prevent or severely limit implementation of a water banking/brokerage system in Utah; 2) within the limitations imposed by such impediments (or the possible removal of them) identify possible systems of water banking to include organizational options and administrative composition to manage such a service; and 3) identify existing organizations which either have, or could readily adopt, those operating attributes that would appear to be essential for successfully sustaining the water banking/brokering purpose.

II. OPERATIONAL, ADMINISTRATIVE, AND ORGANIZATIONAL CONSIDERATIONS

The operational, organizational, and administrative framework would be pivotal in the ultimate success or failure of a water banking/brokerage service. If the service is to achieve and maintain the focus and incentive for voluntary negotiations between willing buyers and sellers, its operating interactions with 1) state water administrators, managers, and planners; 2) the hierarchy of local water management organizations; and 3) individual appropriators would have to be uniformly consistent and mutually constructive. Perhaps a discussion of the operational, administrative, and organizational considerations should proceed from an outline of some of the important attributes or operating criteria of a water bank, such as:

1. Utilization of services should be voluntary.
2. Operating policies and procedures should be consistent and compatible with existing statutes governing the transfer and change in use of water.
3. Functions and authorities should be compatible with, and complementary to, those of relevant state agencies.
4. The operation of the bank should result in a net positive social benefit (benefits greater than costs of providing service).
5. The bank should be free from any encumbrances or commitments that could compromise objectivity in assisting clientele.
6. The bank should have no responsibility or authority for formulating state water policy (procedural emphasis).
7. There must be adequate public accountability in the operation of the bank.
8. There must be adequate fiscal accountability in the operation of the bank.
9. The bank should have a mutually constructive operating interaction with existing water management and water service organizations.
10. Service should apply to all kinds of recognized beneficial uses and per-

tain to all sources of supply (groundwater, surface, etc.).

11. Services should be available on a statewide basis.

If the above requirements are valid, it is clear that a banking/brokerage service should not be expected to replace or disrupt the free operation of markets for water. On the contrary, the bank would need to function so as to facilitate or supplement the normal functioning of the market process. Authorities and operating rules of the bank would have to mesh and synchronize with those of the State Engineer. There would have to be adequate political, legal, fiscal, and professional accountability in the operation of the banking service. This chapter examines some of the important operational, administrative, and organizational issues relating to a water banking/brokerage service.

Operational Considerations

Activities and Services

The primary activity of a water bank in Utah would be in providing information needed by buyers and sellers of equity interests in water rights so that transfers could be expedited. Thus, the operation of the bank/broker service would center around the transfer process, aiming to make transactions as efficient and orderly as possible.

In addition to facilitating transfers of equity interests in water, a bank may be a useful mechanism to expedite exchanges of equity interests, where clients would be benefited in so doing. Also, the bank might become a useful device in helping clients devise ways to integrate the use of storage rights and direct flow rights and to "package" rights in ways to coordinate the use of surface and groundwater rights.

Often water transactions are too complicated for buyers and sellers to work out without assistance. A knowledgeable water banking entity accustomed to the water negotiating process, may be able to mediate and counsel in the development of coordinated plans which upgrade the value of water rights and the efficiency of water service among users. A banking/brokerage system lacking any vested or direct equity interests in the negotiations would be especially effective in expediting water transfers that involve complex physical and ownership situations.

While the above activities relate more to the brokering side, the service might acquire water rights in its own name which it could hold in trust for reallocation through sales or subscriptions. Under this kind of operation it may be possible to evaluate the water right in the resale process and correct defects of ambiguities that might otherwise continue to cloud the validity in terms of relative standing with other water rights in the system. Also, the State Engineer might find it easier to impose public interest conditions in approving water transfers out of public trust ownership than if the transfer is being negotiated between individual parties with strong vested interest concerns. Any holding of water rights in trust would have to be consistent with the present "banking" or "holding" of approved filings practiced by the State Water Resources Board and the Water and Power Resources Service (formerly the Bureau of Reclamation). It may be plausible for a state authorized banking/brokerage system to integrate such holdings into its more generalized operation. On the other hand, there would be less vulnerability to criticism about regulating or manipulating water markets to suit its own ends if the bank served strictly as an arranger in water transfers between negotiating parties and not as a participant in the market itself.

The most significant role of a water banking/brokering entity might be that of a realtor who obtains listings of water rights available for sale or lease to prospective purchasers or lessees. The entity might also find it practical and feasible to serve as a broker of water right options. During the period the bank/broker held an option or a listing of water to be purchased or sold, the owner could, of course, continue to use the water. As with a land realtor, the water realtor would not become an owner of any water right interest. Where the role is primarily a market facilitator and not a market participant, the buyer and seller determine the price and other conditions of the transaction.

Candidates to Provide a Banking/ Brokering Service

Under the current legal framework for water rights ownership and transfer in Utah, entities which have legal standing as "persons" and are entitled to appropriate water, and who would thus represent the potential water banking clientele, are identified as follows (see Section 73-3 of the Utah Water Code):

- a. Individual persons or associations of persons
- b. Nonprofit corporations
- c. Cities and towns
- d. Metropolitan Water Districts
- e. Municipal Improvement Districts
- f. County Improvement Districts
- g. Special Service Districts

- h. Irrigation Districts
- i. Water Conservancy Districts and Subdistricts
- j. Certain agencies of the State of Utah
- k. Certain agencies of the United States Government
- l. Indian tribes

Under the enabling laws and procedures set forth, each of the above named entities (with the exception of individual persons, agencies of the federal government, and Indian tribes) is governed by its own bylaws and regulations as to authority, powers, discretion, and other matters pertaining to the subsequent management and reallocation of the water rights.

To the extent that federally reserved water rights or Indian water rights are quantified and transferable or exchangeable, the banking/brokering service could foster transactions which may include such water. However, the question of applicability to a Utah water banking operation is not addressed in this study.

Coordination with State Engineer

Under Utah law the State Engineer is to approve all water transfers which fall under the category of "change in use." This includes not only changes in nature of use, but changes in place of use and point of diversion as well. The State Engineer examines the nature of the transfer with particular concern for detrimental impacts that may result to third party water users.

Procedural requirements for making water transfers are explicit and require formal application with the State Engineer. He informs interested public about the proposed change, hears protests from any who feel threatened by the change, and then approves or rejects the request. The water bank/broker service would have to operate in conformity with these statutory requirements. The implications of doing so are analyzed in a subsequent section on legal feasibility considerations.

Organizational Alternatives

The operational requirements and activities of a water banking/brokering service as discussed in the previous section mark out the kind of organizational framework needed to effectively perform the outlined functions. If the needed capability, authority, operating freedom, and infrastructure are available (or readily adaptable) within an existing organization, there would be little advantage in creating a new entity for operating a banking service. Consequently, an assessment of the practicality of locating the banking/brokerage function within an existing organizational entity is a logical first consideration.

Existing organizations that may be prospective candidates for the water banking service are examined and compared with respect to certain important credentials and/or operating criteria shown in the summary tabulations of Table 1.

The comparison demonstrates that only a few existing organizations possess the breadth of geographic coverage and the inclusiveness of responsibility for the various uses and sources of water supply needed for a statewide banking operation. Many have long term encumbrances or commitments which could temper or constrain their objectivity in operation. It would be important for a broker to maintain strict impartiality in arranging water transfers.

Evaluation of Existing Water Management Organizations

All 16 of the existing water management agencies or organizational forms shown in Table 1 are capable of performing a kind of limited water banking function, and most do so within the framework of their water right entitlements. In order to compare their potential effectiveness as a statewide water banker/broker, criteria for evaluating qualifications for assuming the water banking/brokering role are presented in question form in the first column. To be a viable candidate does not mean an agency should presently possess all of the desirable features (some are significantly more important than others). However, deficiencies in the more important areas, would seriously subtract from an agency's capability to provide an adequate water banking service. Perhaps of particular importance would be fiscal and political accountability to an electorate; a breadth of water supply activity which is, or could be, readily expanded to be statewide in scope; and readily subjected to the state water management policy.

An analysis of Table 1 indicates that only seven of the established water management agencies analyzed possess the desired potential for providing a water banking/brokering service (Special Service Districts, the State Division of Water Resources, the Office of the State Engineer, multicounty Water Conservancy Districts, and three agencies of the United States Government). However, most of these agencies have one or two critical drawbacks.

Special service districts have limited geographic and functional constraints that would be difficult to modify so as to cover a statewide area. While water transfers will be generally confined to the same basin, there would need to be a statewide organizational framework. Even in areas of limited water trading, the possibility of rather massive enterprises booming on the scene would suggest a banking/brokering framework that is in a state of readiness to perform in any area of the state.

Multicounty water conservancy districts, with already broad functional authorization and extensive geographic jurisdiction, may be readily expandable to a statewide coverage. However, such entities may lack the desired levels of political and fiscal accountability to elected political bodies that would seem desirable in a state water bank.

Three federal agencies possess the technical qualifications for operating a water banking/brokering service and offer much experience in information collection and general water management. However, any federal agency would be oriented to broad national policy mandates and could not be confined to operating within the policy guidelines of the state. Though federal-state coordination and a close working relationships are possible (and have been achieved in the past), there is no clear justification for federal operation of such a service involving state water rights exchanges.

The Utah State Division of Water Resources and Division of Water Rights (Office of the State Engineer) possess the necessary qualifications to incorporate a water banking service within their scope of responsibility.

Ideally, a water brokering organization should be an independent, objective facilitator of the market process; a facilitator with no vested interest to protect and not a participant in the market activities related to the water supply or consumption. The Division of Water Resources possesses valid filings on unappropriated water for prospective projects with which it may be involved. Further, since the Water Resources Division may sponsor its own projects under the 1977 Water Resources Conservation and Development Program and may become a water entrepreneur in its own right, it may have difficulty maintaining the desired image of objectivity and impartiality.

The Division of Water Rights/Office of the State Engineer appears to be the most eligible candidate for a banking/brokering service from among the established water management agencies. To assume such a service would, of course, entail a broadening of the mission of that agency; however, there is significant justification for that expansion in light of the strong functional ties between the Office of the State Engineer and the proposed water brokering activity.

Alternative Organizational Structure

The preceding section examined existing water management entities. Among those entities was the nonprofit corporation as embodied in private water companies and mutual irrigation companies. In such organizational forms, the nonprofit corporation lacks the potential to be expanded to a

Table 1. Comparisons of existing water management organizations in Utah with respect to qualifications for assuming a water banking function.

	Individual persons or groups of persons	State Water Users Association	Mutual Irrigation Companies	Cities and Towns	Municipal Special Improvement Districts	Metropolitan Water Districts	County Improvement Districts	Special Service Districts	Irrigation Districts	State Division of Water Resources	Office of the State Engineer	Water Conservancy Districts	Multi-County Water Conservancy Districts	United States Bureau of Reclamation	United States Soil Conservation Service	United States Geologic Survey
Does the sphere of activity currently cover a statewide area?	No	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No	Yes	Yes	Yes
Does the sphere of activity currently include a broad range of water management activities?	No	N/A	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No
Is the entity presently free from obligations to market or act as a distribution agent for other entities?	Yes	Yes	No	No	Yes	No	Yes	No	No	No	Yes	No	No	Yes	Yes	Yes
Is the entity currently involved with a wide variety of water uses?	No	Yes	No	Yes	No	Yes	No	N/A	No	Yes	Yes	Yes	Yes	Yes	No	Yes
Is the entity currently involved with a wide variety of water sources?	No	Yes	No	Yes	No	Yes	No	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Do the activities of the entity currently require a broad concern with water quality?	No	Yes	No	Yes	No	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Does the entity currently have a staff capable of making third party impact studies?	No	No	No	No	No	No	No	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes
Is the entity currently free from the constraint of a narrowly defined mission?	Yes	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	No	No	No
Is the entity (financial) fiscal policy currently subject to review and modification by any independent political body?	No	N/A	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Are the general management policies currently subject to review and modification by any independent elected political body?	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Is the management perspective currently independent of contractual obligation to any non state or local entity?	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes
Could the sphere of activity be readily expanded to cover a statewide area?	No	Yes	No	Yes	Yes	Yes	No	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes
Could the sphere of activity be readily expanded to cover a broad range of water management activities?	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Is it prudent and logical to expand the sphere of activity to cover a statewide area?	No	Yes	No	No	No	No	No	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes
Does the entity currently possess discretionary powers that could facilitate a broad range of water transfers?	No	No	No	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No
Subject to jurisdiction of state policy and law	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No

water banking/brokering service. The structure and function of a nonprofit corporation are not, however, restricted to the two existing forms analyzed.

A nonprofit corporation could be created and specifically tailored to meet the organizational needs of a water banking/brokering service. The legislation defining the nonprofit corporation (Chapter 16, Section 6 U.C.A. 1953) applies to "mutual irrigation, canal, ditch, reservoir and water companies and water users' associations" for the purposes of "water development, diversion, storage, distribution or use." They "may acquire, own, hold, improve, use and otherwise deal in and with real or personal property, or any interest therein, wherever situated."

The enabling legislation concerning nonprofit corporations is very flexible. Clearly, the articles of incorporation may be structured to meet any peculiar or unique need provided only that other laws and rights are not violated in so doing. The mutual irrigation companies and private water companies are just two examples of this flexibility.

There would appear to be sufficient opportunity to incorporate political or fiscal accountability into the corporation since the articles of incorporation or the bylaws may provide for the election or appointment of trustees to the governing board. Thus, the general public could be provided with an input and an effective check upon the operating policies of the water banking/brokering function.

One existing nonprofit corporation that could provide a water banking/brokering service is the Utah Water Users' Association. The Association would, of course, need more organizational manpower to provide the services envisioned, yet it possesses the breadth of water concern and statewide organizational coverage that would be desirable, and enjoys freedom from vested interest which could compromise objectivity. Water users statewide would naturally be interested in the efficient and productive use of the limited water resource. The water users' association holds no water rights or interests in such rights. The governing board of such an association, acting as a banker, would have to be at arms length from actual transactions so that there would be no conflict of interest. The Utah Water Users' Association is presently a rather loose knit and low profile organiza-

tion, but may have the basic framework to which a water banking/brokering function could be successfully attached.

Administrative Considerations

The administrative structure of a water banking/brokerage organization would need to promote operating effectiveness in the range of activities in which it would be engaged. In order to maintain public and fiscal accountability, as well as state agency liaison, the bank would need a governing board whose composition reflected these concerns. This would be true whether the bank became an appendage of an existing organization or whether an entirely new organization were to be created. Some members of the governing board would properly be ex-officio and charged with correlating banking/brokering activities with administrative agency missions and assuring the kind of legislative monitoring and oversight that would be desirable. Regional as well as sectoral water use representation would be important for balanced public accountability. Balanced political affiliation on statewide boards is customary and perhaps should be a requirement. Other considerations which are routinely included in the organizational bylaws regarding appointments, selection of officers, etc., would require attention.

The bank would need an executive officer to manage day to day affairs under the guidance of the board. The manager and other professional personnel should be selected on the basis of their special knowledge and familiarity with water management in general, water transfers in particular, and the institutional mechanisms that are pertinent. Individual capabilities required would depend on the breadth and depth of banking or brokering services provided. The marketing of water rights would require emphasis on those activities that make information about water availabilities and water needs broadly available. This may include various means of advertising, soliciting, and personal contacts to locate buyers or sellers of water rights and to make them aware of market possibilities.

If public monies are used to support the banking/brokering function, good records and documentation of activities would be needed so that the public value of the bank could be assessed. It would be important to know whether the bank actually facilitated the water transfer process and whether it accomplished its mandate in a cost-effective manner.

III. HYDROLOGIC/ENGINEERING IMPLICATIONS

Water Transfers and Third Party Impacts

Typically, the transfer of water to a new use will entail a different complex of physical facilities to manage the water supply in conformity with the new use requirements. Since waters of a hydrologic system constitute a unified and interrelated flow system, a physical modification at one point is likely to induce modification in the quantity, quality, or regimen of flow available to downstream locations. Uses vary greatly in what they do with and to water in the use process. Thus, a change in use may cause trivial or major effects on other water users who draw their entitlements from the common hydrologic (river basin) system. The investments of all legitimate water right owners must be protected from injury caused by capricious manipulation of the common supply. Therefore, water equity transfers--the central activity of a water banking/brokerage service--must entail a projection of the physical impacts of any proposed water transfer. Accurate physical projections require an understanding of the interconnection of all surface and subsurface waters; an appreciation of the interlinking character of the various flow subsystems of which a river basin is comprised; and a knowledge of technological options and their cost-effective application in the management of water.

The key question in evaluating any water transfer or change use situation is: will the proposed transfer of equity interests have significant detrimental impacts on existing holders of water rights? Since the State Engineer must make all water uses a matter of legal record and provide protection of those legally established rights, he must be convinced that a proposed change in use 1) causes no injury or harm to other water users, or 2) that hydrologic (or monetary) compensation has been made to the satisfaction of third parties for any injury sustained. Since such tests are a legal prerequisite to any water right transfer, the State Engineer seeks good "hydrologic" and "engineering feasibility" appraisal capability to support his decisions. Water rights transactions arranged under the auspices of a water banking/brokerage service would be contingent upon resolution of any third party impact problems. The service would have to have capability to predict such impacts from proposed water transfers to the State Engineer's satisfaction or this assessment would have to be done by the Office of the State Engineer, as at present.

Detrimental third party effects stemming from a water use change may be in terms of quantity, quality (physical, chemical, biological, or temperature alterations) or timing impairments. Consequently, it would be necessary to project the water quality and timing consequences of any proposed change of use as well as the quantity impacts that are generally given more attention in water right transfers. While the State Engineer has statutory responsibility "to prevent waste, pollution, or contamination of waters of the state" which would cause injury to other users, the Division of Health, together with the Water Pollution Control and Safe Drinking Water Committees, has been given the major regulatory responsibility over water quality maintenance. Thus, while the water right would be the normal medium of exchange in the operation of the water banking/brokerage system, and while water rights are the clear province of the State Engineer, water transactions through a water broker would have to be in conformity with water quality management regulations and programs as administered by the Division of Environmental Quality and its Committees on Water Pollution Control and Safe Drinking Water.

Hydrologic Unity and Water Use Inhomogeneity

To function successfully, the operating policies and procedures of a water banking/brokerage service must be properly harmonized with hydrologic and engineering reality. While this may seem a trite statement, hazy or incorrect notions about water use dynamics are quite commonly responsible for decisions and program initiatives which turn out to be inconsistent and incongruent with physical reality. Some of these faulty hydrologic notions create unnecessary obstacles in working out the terms of a water transfer.

Perhaps the root cause of most of these incorrect ideas about water is in the improper characterization of the water resource system and the perception of water uses in the same conceptual framework as non-water resource uses (such as coal or oil). One major difference between water and most non-water resources is in the nature of the system "residuals." When resources such as coal or oil are "used" (i.e., for energy production), the output or residual products have an entirely different molecular makeup than the original substance. The original compound is never reconstituted. However, water does not change its molecular composition in use. It may change its state (solid, liquid, or vapor) and its quality (in terms

of associated chemical, biological, or physical constituents) as it circulates through natural or man-made systems, but it still remains H₂O. Thus, the finite quantity of water associated with the earth remains constant and all uses are in fact reuses from a supply in endless circulation. Water is often referred to as a "renewable resource," meaning that hydrologic cycles are statistically repetitive so that input quantities to particular use entities are renewed as prior input quantities course through and are discharged in various ways from any given system. Outputs from one geographically or geometrically described system become inputs to another. However, the quantity-quality-timing characteristics of the incoming supply undergo transformation in the use process so that effluents, or residuals, are characterized by changes in one or more of these basic characteristics. In accordance with the principle of hydrologic unity, a change in use pattern at one point has an inevitable ripple of influence to downstream user entities. This "hydrologic externality" gives rise to "economic externalities" in water development and use. To ignore, or incorrectly presume boundaries and boundary conditions that pertain to interesting portions of interconnected flow systems leads to poor definition of the flow residuals which may constitute critical elements of supply for subsequent users. Thus, the meaning ascribed to such terms as "water use efficiency," "water losses," "water conservation," "water savings," etc. are commonly misleading and often give erroneous manifestations of what can be expected to happen when a water entitlement is transferred from one use to another.⁽¹⁾ Thus, the assessment of third party injury associated with a proposed water transfer is often frustrated in having to overcome certain widely held but erroneous presumptions.

It was previously noted that water uses vary greatly in what they do "with" and "to" water in the use process. Some uses are consumptive (meaning that water is converted to a vapor and expelled to the atmosphere, i.e., irrigation). Others are nonconsumptive

⁽¹⁾See for example "Water Banking: How to Stop Wasting Agricultural Water" by Soterios, Angeledes, and Bardach, Institute for Contemporary Studies, San Francisco, Calif., 1978, page 1.

(meaning that essentially all the intake water is discharged back into the system in liquid form, i.e., hydro-power and industrial cooling). Some recreational uses such as swimming and boating merely make contact with water in the use process. Obviously, this lack of homogeneity-in-use impact on both the diversion and effluent side of a water using system presents some significant operational differences in making water transfers from one use to another and from one place to another. Water transfers between nonhomogeneous users will generally require adjustment in the flow specifications of the right so that third party entitlements remain unaffected. The nature and extent of the adjustment is a hydrologic/engineering determination.

Although water rights are much more explicit about diversion allowances, every right has some implicit limitations associated with the discharge or return flow side as well. Whether points of diversion and places of use are moved upstream, downstream, or out of basin, and whether management measures employed in the original and new use create different influences on flow patterns and characteristics are also important factors to consider.

To summarize, central to the concept of water banking/brokering function is the advantageous transfer of water equities. Water transfers and changes in point of diversion, nature, and place of use require the State Engineer's approval. That approval is based on whether projections of the physical impacts on other water rights is injurious. If detrimental impacts on third parties are projected as result of a proposed transfer, then some kind of mutually satisfying compensatory arrangement must be made before the transfer can take place. The determination of what constitutes equitable hydrologic compensation, as well as what the specific hydrologic impacts might be, requires a good hydrologic evaluative capability. If an agent bank/broker provides the full range of professional services that may be called into play in any given water transaction, this evaluative capability would have to be available through staff or on call arrangements. Unless an agreed upon water transfer is backed up by a definitive evaluation of third party impacts, it is likely to encounter bothersome and time consuming re-negotiations as third party complaints are registered with the State Engineer.

IV. LEGAL FEASIBILITY CONSIDERATIONS

The intent of this section is to objectively identify potential legal limitations, conflicts, or constraints to implementation of the water banking/brokering concept. In addition, suggestions are made for possible ways of dealing with these limitations, conflicts, or constraints where appropriate. These suggestions might be useful in considering the implementation of a service but should not be construed as advocating the adoption of the banking or brokerage concept.

This legal analysis is limited to the current water law in Utah; however, many of the observations are applicable to other states which operate under the so-called prior appropriation doctrine.

Throughout the analysis, the various alternative mechanisms of banking/brokering discussed elsewhere in the report are considered in a comparative fashion in order to distinguish the differing manner in which the laws limit or constrain each alternative.

Constitutional Implications of Water Transfers and Exchanges

There is only one portion of the Utah Constitution which explicitly relates to the transfer of water rights. Section 6 of Article XI imposes a blanket prohibition on all "municipal corporations" against all forms of transfer of water rights except for exchanges of "equal value."⁽¹⁾

While this provision appears prohibitive of any permanent transfer, the Utah Supreme Court has interpreted the provision to allow

⁽¹⁾Article XI, Section 6, reads thusly:

No municipal corporation, shall directly or indirectly, lease, sell, alien or dispose of any water works, water rights, or sources of water supply now, or hereafter to be owned or controlled by it; but all such waterworks, water rights and sources of water supply now owned or hereafter to be acquired by any municipal corporation, shall be preserved, maintained and operated by it for supplying its inhabitants with water at reasonable charges: Provided, That nothing herein contained shall be construed to prevent any such municipal corporation from exchanging water rights, or sources of water supply, for other water rights or sources of water supply of equal value, and to be devoted in like manner to the public supply of its habitants.

municipalities to sell excess waters as long as such sale is not an obligation in perpetuity. In a 1938 case involving the sale of water between towns, Judge Wolfe states: "A city may sell its excess water to outsiders. Such is not a sale of its water sources or water rights but water from its system in the manner it sells to its citizens."⁽²⁾

The implication of this opinion by Judge Wolfe is that so long as there is no transfer of the title, or more correctly, the water right, a transfer of a physical quantity of water (if determined to be excess) is permissible. It seems logical, therefore, to assume that any municipality could market its "excess" water through a water brokerage operation with clear provisions that such participation does not constitute a transfer of water rights. Municipalities would most likely have authority to make their own determinations of what water is in fact "excess." Court intrusion into this determination would likely occur only if the actions of the municipality were deemed to be arbitrary or capricious under the doctrine of usual judicial deference to administrative determinations. In other words, so long as the city or town does not abase its power by making arbitrary determinations and so long as the citizens of the city and town are supplied with sufficient water at "reasonable charges,"⁽³⁾ the city or town can market the excess physical supply for certain limited periods. Most cities and towns have good historical use records and can combine operating data with available stream forecast information to determine whether and how much excess waters might be offered to others on a year by year basis. Some cities have kept so well ahead of demand that they enjoy perennial surpluses.

Most cities try to provide supplies in advance of need. In meeting steadily increasing demands by periodic quantum increases in supply, a city experiences periods when delivery capacity and water supply exceed demands. Water could be made available to others during such periods. Making availability known would increase the relative marketability of the water to

⁽²⁾Genola Town v. Santaquin City, 96 U.88, 80 P. 2d 930, rehearing denied 96 U 104, 85 P. 2d 790, 935. See also Hyde Park Town v. Chambers, 104 P 2d 222 (1940).

⁽³⁾Constitution of Utah, Article XI, Section 6.

potential buyers. The municipalities would not, however, be able to participate in any banking or brokerage of water rights wherein the ownership of the right is in fact transferred.

Exchanges are a category of transfers which is much more permissive under this constitutional constraint. Under the constitutional allowance for exchanges by municipalities, there are two criteria or conditions which must be met by any exchange. The first condition is that the exchange must be of "equal value." The second is that the exchanged water "...be devoted in like manner to the public supply of its inhabitants."

The requirement of "equal value" was liberally held by the Supreme Court to mean equal use value. In holding thusly, Judge Wolfe states, "It is agreed that the word 'value' in Sec. 6, Art. 11, does not mean equal money value or equal value on the market, but equal use value to the community attaining the waters given in exchange."⁽⁴⁾

The value of a water right is determined largely by quantity, quality, timeliness, and certainty of availability factors. One kind of use may place higher premium on some of these characteristics than would other uses. For example, it may make little difference to an irrigator whether his supply contains 300 ppm or 600 ppm of dissolved minerals. However, it would make a great deal of difference to a municipality with drinking water standards mandated at no more than 500 ppm total dissolved solids. Thus, if an irrigation right of 300 ppm dissolved solids were to be exchanged for a municipally owned source containing 600 ppm (all other factors equal) it could be of great advantage to the municipality and result in minor detriment to the irrigator. Yet, such an exchange would probably not take place without some compensatory recognition of the loss in quality to the irrigation right. That compensation might be in terms of dollars or in improved quantity, timing, or certainty as an offset to the acceptance of lower quality. However, an exchange could likely be worked out so that both parties end up with a net gain in the exchange process.

Actual use value of water involved in an exchange between owners depends upon many complex but often site-specific factors. Therefore, the courts have deferred, and will probably continue to defer, to the good judgment of the municipalities involved in deciding if an exchange proposal is of equal use value.⁽⁵⁾ The implication seems to

⁽⁴⁾80 P. 2d 930, 936.

⁽⁵⁾Judge Wolfe sums this concept by stating, "Who can say that under such circumstances the use value may not be equal? It is somewhat like appraising the use value of a cow as compared to a horse on a farm, where both are necessary." 80 P. 2d 930, 936.

be that so long as the water obtained by the municipality in the exchange is of some use or necessity to that municipality, the exchange is legally valid and not in violation of Section 6. This does not mean, however, that a city or town may make capricious exchanges without judicial scrutiny. It merely means that so long as the municipality exercises reasonable judgment, the exchange will be acceptable. In relation to the brokerage or banking concept, such liberal allowance for exchanges would likely make possible the exchange of water rights based on such factors as time of use, point and cost of delivery, treatment costs, and relative priority of the rights themselves.

The second constitutional criteria for exchanging water, that it be devoted to a "like manner" use, has also been given liberal interpretation by the Utah Supreme Court. In the first case on this issue, the Court allowed Salt Lake City to exchange nonpotable, relatively low quality irrigation water from Big Cottonwood, Millcreek and Little Cottonwood Creeks.⁽⁶⁾ This ruling was later endorsed by the court and expressly stated that, "...the water given need not be fit for all the uses of the waters obtained."⁽⁷⁾

In summary, given the liberal interpretations of the Utah courts, there does seem to be a potential for municipalities to participate to a limited extent in banking or brokering of water. Where a municipality has an obvious excess of supply almost every year and where the most likely or logical buyer(s) are not always evident in advance, it could "deposit"⁽⁸⁾ the call-bid option in the bank wherein any user could bid for the use for a specified period of time depending on its needs and willingness to pay. Where a city or town desires to increase its water supply seasonally while experiencing surpluses at other seasons, the municipality may advantageously "deposit" surpluses in the brokerage stipulating that it is available on an exchange arrangement.

Other entities which own water rights (e.g., water companies, metropolitan water

⁽⁶⁾State ex. rel. Ellerbeck v. Salt Lake City, 29 Ut 361, 81 P 273.

The power and authority of the city to thus contract for and exchange its...water, which is of inferior quality...for a superior quality of mountain water is expressly conferred by section 6 of the Constitution, unless it can be said that the transfer and exchange of water as contemplated would fail to vest the city with ownership and control of the water received by it in the exchange.

⁽⁷⁾80 P. 2d 930, 936-937.

⁽⁸⁾This deposit would not in fact be a transfer of the water right itself, but merely an announcement of availability.

districts, etc.) have no comparable constitutional prohibitions on water rights transfers, and would therefore be subject only to the constitutional requirement of due process. The due process clause of the Utah Constitution⁽⁹⁾ coupled with the United States constitutional counterparts, while not directly constraining, must be considered in the operation of a water banking concept.

The State of Utah holds all waters of the state in trust.⁽¹⁰⁾ However, the courts and subsequent law have construed a water right itself to be a form of property right.⁽¹¹⁾ Because of this interpretation, any transfer of water will be subject to the usual tests of due process. The due process concern most directly related to water rights is the general requirement that all potentially affected parties with legitimate rights have proper and timely notice of the proposed action with adequate opportunity to be heard.⁽¹²⁾

Under current Utah law, these due process concerns are generally accounted for by the appropriation and the so-called change-of-use procedures of the Utah State Engineer.⁽¹³⁾ If the creation of a banking or brokerage system required revision of any appropriation or change-of-use procedures, due process safeguards would have to be included.

Statutory Considerations

While many statutes and rules and regulations will inevitably affect how a banking/brokerage system functions, this section considers only those statutes which directly constrain or limit key attributes of the system. If the major potential

(9) Constitution of Utah, Article I, Section 7: "No person shall be deprived of life, liberty or property, without due process of law."

(10)UCA § 73-1-1: "All waters of 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."

(11) See e.g. Ronzio v. Denver & Rio Grande Western R.R., 116 F. 2d 604. (10th Cir. 1940): "While the corpus of the naturally running water belongs to the state in trust for the public, the law recognizes a property right in its flow and use, known as the usufructuary right or the water right." at 605. See also generally Wiel on Water Rights, Vol. 1, 3rd Ed, p 304.

(12) See generally Christiansen v. Harris 109 Ut 1, 163 P. 2d 314. Specific to water rights see Mosby Irrigation Co. v. Criddle, 11 Ut 2d 41, 354 P. 2d 848.

(13)UCA § 73-3-2 to 73-3-18.

statutory impediments to initiating a banking or brokerage system can be resolved, subsequent focus on the more detailed law can iron out secondary problems. Thus, only those statutory provisions having potential for major impediments are identified here with some appraisal of how they may affect the desirable operating objectives of a water bank as considered in Chapter II.

Limitations on Speculation

The normal market place is characterized by an element of risk and opportunity for speculation. For capital to be invested in the purchase of water rights, there must be an expected economic return, and the investment is speculative in the sense that the amount of return is not precisely known in advance.

There is a statutory prohibition against speculation in water rights which stems from a concern that individuals not have opportunity to monopolize water in ways that result in some unreasonable private windfall gain to the public detriment. The statute governing the approval or rejection of applications for unappropriated water requires the State Engineer to determine whether, "... the application was filed in good faith and not for purposes of speculation or monopoly."⁽¹⁴⁾ If the State Engineer determines that an application is for speculative purposes, then the application must be rejected. The legal issue then becomes what is judicially defined as speculation by the courts.

The first Supreme Court case to directly address this issue involved an application to appropriate irrigation water to lands in which neither the applicant nor the protestant held any form of legal interest at the time of the application.⁽¹⁵⁾ The court framed the question to be: "May an application be made to appropriate water for a beneficial purpose so contemplated in the future?"⁽¹⁶⁾

The answer of the court was not definitive, but does seem to accept the practical realities of certain water developments by allowing such applications if done in "good faith." The court's specific language illustrates the uncertainty,

We confess that the question is open to debate and is not free from doubt. We have, however, with some hesitancy, reached the conclusion that such an application

(14)Utah Code Ann. § 73-3-8(4).

(15)Sowards v Meagher, 37 Utah 212, 108 P. 1112 (1910). cf: State v Corder, 78 NM 312, 431 P2d 49 (1967). Compare Goodwin v Tracey, 6 Utah 2d1, 304 P2d 964.

(16)108 P. 1112, 1116.

may properly be made when it is made in good faith and with an actual bona fide intention and a present design to appropriate the water for a beneficial use, though contemplated in the future, and when it is not made for the purposes of mere speculation or monopoly.(17)

The reasoning of the court weighed heavily on the political endorsement of water development and implied a recognition that at least some "good faith" speculation is necessary for such a policy to be carried out. In the context of this reasoning, the word "mere" from the *Sowards v. Meagher* decision quoted above may be of significance. By using the qualifying word "mere" before the word speculation, the court appears to openly endorse some speculation as long as the application is not for the sole or exclusive purpose of speculation or monopoly. This allowance for some speculation then begs for some threshold to be identified wherein any less existence of "good faith" speculation would be grounds to reject the application. The court did not clearly identify such a threshold; however, it did identify certain speculative actions which appear to be acceptable under the law.

One such action which the court endorsed, and which relates directly to the water brokering concept, is where an applicant appropriator,

... may comprehend a use to be made by or through another person, and upon lands and possessions other than those of the appropriator. Thus the appropriator is enabled to complete and finally establish his appropriation through the agency of the user.(18)

In other words, appropriations can be approved for individuals acting essentially as agents for the ultimate users.

The nearest the court gets to outlining criteria for determining the legally acceptable degree of speculation is the statement that, as long as

... it fairly is made to appear that when ... work prosecuted with reasonable diligence and dispatch ... and the water applied to the beneficial purpose for which the appropriation is proposed, we see no good reason why the application should not be received and the

(17) Ibid.

(18) 108 P. 1112, 1116-1117 citing directly *Nevada Ditch Co. v Bennett* 30 or 59, 45 P. 472.

applicant protected in his inceptive right.(19)

The real caution in making inferences from this case to the banking/brokering concept is that the court focused upon an application to appropriate and did not consider applications for a change of use which would be the predominant situation under the brokering system. To infer that this ruling would directly apply to change-of-use applications may be somewhat presumptuous.(20) There remain some gray areas in the judicial interpretations regarding the statutory prohibitions on speculation or monopoly which may pose potential legal constraints on at least any de facto speculative applications for a change of use. However, the requirement of "due diligence" in placing the water in question to the intended use can do much to discourage speculation unless it is too liberally interpreted or laxly administered.

A different line of reasoning which considers the extent of the speculation or "expectation value" of a water right has evolved from the early water condemnation cases.(21) In these cases, the issue revolved around what is the true market value of the condemned water right. More specifically, is the right only for that quantity and/or quality of water necessary to satisfy the existing beneficial use, or does it also include in addition the highest possible use of that quantity and/or quality of water despite the fact that there has been no formal application for a change of use? In the above referenced condemnation cases, the view has been that there is some type of "inchoate right."(22) The confusion underlying such reasoning has been what Judge Wolfe called "... a more fundamental failure to keep in mind the true nature of

(19) Ibid, 1117.

(20) This is some judicial support, albeit in a dissenting opinion that the provisions of this appropriation section applies to change-of-use applications. "It should be noted that in a case of an application for a permanent change as compared to a temporary change the procedure shall be the same as is provided for in applications to appropriate water." In *Moyle v Salt Lake City*, 111 Utah 201, 176 P2d 882, 895 (1947). (Wolfe, J, dissenting in part.)

(21) See e.g., *Shurtleff v Salt Lake City*, 96 Utah 21, 82 P2d 561, (1938); *Sigurd City v State*, 105 Utah 278, 142 P2d 159 (1943); and *Moyle v Salt Lake City*, 111 Utah 201, 176 P2d 882 (1947).

(22) Wolfe, J, dissenting in part in *Moyle v Salt Lake City*, 111 Utah 201, 176 P2d 882, 895.

the right which an appropriator has."⁽²³⁾ These cases viewed the property right to be in the water itself and did not properly perceive the implied or explicit relation to other users of the same system. As noted in previous sections, transfers from one use to another may alter the flow relationships among the set of users such that existing rights are affected. Judge Wolfe's view was that the "... right to change the place of diversion [or use] is not an absolute or vested right, but is only a conditional or qualified one."⁽²⁴⁾ An early U.S. Supreme Court case recognized this reality in stating, "The appropriation does not confer such an absolute right."⁽²⁵⁾ Judge Wolfe sums up his view by stating,

The right to the use of water which an appropriator carves out from the general pool of public property is one for beneficial use only and not for speculation or traffic and such beneficial use is the basis, the measure and the limit of the right.⁽²⁶⁾

With our present ability to assess the potential hydrologic consequences of a given water right transfer, it is doubtful that any effort to obtain a "higher or better" use via the change application process could constitute an uncontrollable speculative threat. Therefore, the possibility of enlarging opportunity to speculate in water rights does not seem to be of significant consequence of a water brokering service. Only if the banking/brokering service were chartered to participate in the market as an owner of water rights could its operation interject added potential for speculation and monopoly.

Due Diligence and Use Requirements

An important requirement in any appropriation or change of use application is that the water described in the application be continued in a "beneficial use." The statute is very clear that the State Engineer has the discretionary power to fix a date by which the water must be put to beneficial use.⁽²⁷⁾ The State Engineer may allow extensions of time for up to 14 years upon a "proper showing of diligence or reasonable cause for delay." (Extensions of time can be

granted beyond 14 years, but they must be advertized and comply with the rule of diligence.) Extensions of time to prove beneficial use relates to the issue of speculation in that certain extension requests are based on unfulfilled expectations. In the context of a water banking system, if unperfected but approved appropriations were marketed through the bank, there may be some legal constraints imposed. In a similar case on the issue of due diligence and the conditions allowed for extensions, the Utah Supreme Court placed a high standard of showing on any applicant seeking an extension, thusly by requiring a "... high type of convincing evidence" supporting such requests for extensions.⁽²⁸⁾

Forfeiture and Abandonment Implications

Neither the forfeiture nor the abandonment processes appear to be significant constraints upon the operation of a banking system. The Utah Supreme Court has clearly distinguished between forfeiture and abandonment. The key case on this issue quotes Kinney in stating that

While upon the one hand, abandonment is the relinquishment of the right by the owner with the intention to forsake and desert it, forfeiture upon the other hand, is the involuntary or forced loss of the right, caused by failure of the appropriator or owner to do or perform some act required by the statute.⁽²⁹⁾

Under current law, the only way in which a forfeiture will occur is if the appropriator does in fact "... cease to use water for a period of five years."⁽³⁰⁾ It is very unlikely that any appropriator would so cease the use of water while listed or deposited in the banking/brokering system. Therefore, barring unusual circumstances, forfeiture itself does not appear to pose any significant legal constraint to the operation of a water bank.

Abandonment, on the other hand, has no definite time period but is proved by a showing that the appropriator did in fact "... intentionally release or surrender such

⁽²³⁾ Ibid, 896.

⁽²⁴⁾ Ibid, 895, citing United States v Caldwell, 64 Utah 490, 231 P. 434, 439.

⁽²⁵⁾ Atchison v Peterson, 20 Wall. 507, 87 US507, 512.

⁽²⁶⁾ 176 P2d 882, 901. See in re water rights of Escalante Valley Drainage Area, 10 Utah 2d77, 348 P2d 679(1960).

⁽²⁷⁾ Utah Code Ann. § 73-3-12.

⁽²⁸⁾ Carbon Canal Co. v Sanpete Water Users Assn., 19 Utah 2d6, 425 P2d 405, 407 (1967).

⁽²⁹⁾ Hammond v Johnson, 94 Utah 20, 66 P2d 894, 900 (1937). See in re Drainage Area of Bear River in Rich County, 12 Utah 2d1, 361 P2d 407 (1961) citing 2 Kinney on Irrigation & Water Rights (2d Ed) p. 2020, 1118.

⁽³⁰⁾ Utah Code Ann. § 73-1-4.

right to the public."⁽³¹⁾ Further, the court has held the term "abandon" to mean "to desert or forsake."⁽³²⁾ In other words, there must be a clear intent to totally relinquish the right. Renting and leasing water entitlements is very common in Utah. Water stock in an irrigation company can be rented or leased for an indefinite time without any threat of loss by forfeiture or abandonment. It appears very unlikely that "deposits" in a water bank would be construed as abandonment.

The Discretionary Authority of the State Engineer

The administrative aspects of water right appropriations and transfers have been statutorially delegated to the State Engineer.⁽³³⁾ The State Engineer has been granted the very important administrative responsibility to "...make and publish such rules and regulations as may be necessary from time to time fully to carry out the duties of his office, and particularly to secure the equitable and fair apportionment and distribution of the water."⁽³⁴⁾ According to the respective rights of appropriations with this rule making power, the State Engineer can then develop any system of water rights transfer which complies with the statutory framework governing transfers. Of course, his decisions will always be subject to judicial review with respect to compliance with the law and especially in terms of the above-mentioned due process requirements under the Constitution.⁽³⁵⁾ In other words, the grant of discretionary powers to the State Engineer would not in and of itself constrain the development of a banking or brokerage system because the framework or limitations on this grant of discretionary power came from the laws governing transfers. Therefore, to identify possible constraints, these transfer statutes must be analyzed.

Initial Appropriation Conditions

Any valid appropriation must meet certain basic requirements that can be viewed as limitations on the extent of the right. There must be 1) a diversion from a natural channel or lake, 2) a recognized beneficial use for the water, 3) the application of that water to said beneficial use (on a particular parcel of land) in a

reasonable time,⁽³⁶⁾ 4) a stated quantity or flow of water associated with the use, 5) a specified period or time of use during the year, and lastly, but perhaps most important, 6) a finding that the use will not interfere with other valid water rights

These conditions constitute a permanent part of the water right description. If a transfer in ownership is contemplated and the new use entails a change in the stated conditions set forth in the original appropriation, then such changes would need approval of the State Engineer. Where the right is held by a mutual water company or irrigation district, any individual transfers within the company's described area of application can be made at the discretion of the shareholders in those companies. These "share" rights are sometimes referred to as nonappurtenant rights as distinguished from individual rights identified with specified lands in the original appropriation. However, water rights in Utah are generally not thought of as appurtenant in the sense that water cannot be sold separate from the land to which it was originally appropriated. Devoid of the encumbrance of tight geographical and physical limitations, there is freedom and/or flexibility under Utah law for transfers suited to a water banking/brokerage concept.

Water shares of a mutual irrigation company can be bought, sold or leased without a change of use procedure as long as the transfers are within the constraints of the original primary appropriation to the corporate entity.⁽³⁷⁾ There may be little need for adoption of a water bank or brokerage service for such intra-company transactions of small organizations. However, where the regional jurisdiction is rather large and composed of a large number of widely separated shareholders, a central coordinating and information service could be useful. In most cases, the management of these mutual irrigation companies is well suited and, in some instances, provides a form of brokerage or central clearinghouse for shareholders in the companies. Therefore, there appears little need for imposition of a banking or brokerage system into intra-company transactions of small organizations.

The Change-of-Use Procedure

It follows from the previous discussion that the predominant legal element which may constrain the operation of a banking or brokerage system relates to whatever limita-

⁽³¹⁾ 361 P2d 407, 409.

⁽³²⁾ 66 P2d 894, 899.

⁽³³⁾ UCA 73-2-1.

⁽³⁴⁾ Ibid.

⁽³⁵⁾ See especially American Fork Irrigation Company v. Linke, 121 Ut 90, 239 P. 2d 188 (1951).

⁽³⁶⁾ Sowards v. Meagher, 37 Ut. 212, 108 P. 1112 (1910).

⁽³⁷⁾ The rule that intra company transfers between shareholders are not changes of use under the law was clearly declared in Arnold v. Huntington Canal and Reservoir Ass'n, 64 Ut. 534, 231 P. 622.

tions the change-of-use procedures imply to the voluntary transfer of water rights.

Substantive Factors. Generally speaking, the statute (section 73-3-3 of the Utah Code) and the subsequent court interpretations have been fairly liberal in allowing use changes. However, strict adherence has been required to the procedural aspects.

The Utah law provides that "Any person entitled to the use of water, may change the place of diversion or use or may use the water for other purposes than those for which it was originally appropriated" (Section 73-3-3). Both permanent and temporary changes of point of diversion and place or purpose of use of water are permitted. Therefore, the basic change use process would in no way constrain the development of a banking or brokerage system. The most important potential constraint is that: "No such change (of use) shall be made if it impairs any vested right without just compensation" (Section 73-3-3). In a fully appropriated stream system, strict observance of a policy prohibiting hydrologic impairment may limit opportunities to transfer water equities. The courts have used tests of "reasonableness" in facing the impairment question recognizing the necessity of balancing the vested rights with the changing socio-economic conditions demanding shifts in water use and distribution.

In a relatively recent case, the Supreme Court focused on the "onerous" burden of a rigid application of law. In reviewing a protested change-of-use application, the Court stated:

We recognize plaintiff's [applicant for a change] duty to prove that vested rights will not be impaired by approval of their application, but we also recognize that such duty must not be made unreasonably onerous to the point where every remote but presently indeterminable vested right must be pinpointed.(38)

The Court also drew upon the statutory policy of beneficial use to decide whether the change-of-use should be allowed noting that where the possibility of impairment of vested rights were somewhat speculative and where the resulting use is of more net benefit to

(38) American Fork Irrigation Co. v. Linke, 121 Ut. 90, 239 P. 2d 188 (1951), 191. See also Tanner v. Humphreys, 87 Ut. 164, 48 P. 2d 484, and Eardley v. Terry, 94 Ut. 367, 77 P. 2d 362.

the state than the previous use, then the change is justified.(39)

Further and more comprehensive recognition of the necessity of balancing vested rights against the state policy of progressive development of water was made by the Supreme Court in a recent case involving a change of an underground water use by moving and enlarging a well. The Court, indicta, builds support from the paraphrasing of the statutory policy on water development(40) by stating:

Because of the vital importance of water to this region both our statutory and decisional law have been fashioned in recognition of the desirability and of the necessity of insuring the highest possible development and the most continuous beneficial use of all available water with as little waste as possible.(41)

In support of this policy, the Court then declared that where changes of use are being considered, the State (through the State Engineer) must balance the vested interests involved against the policy of development and highest beneficial use:

(A)ttempting to carry out the overriding purpose of our water law, of seeing that all available water is put to beneficial use, and at the same time preserve the rights of individual users to a particular flow of water, presents a problem which is perplexing indeed. Though there is no precise answer, this writer believes that the best approximation of an answer is to be found in recognizing the necessity of analyzing the total situation and the balancing of individual rights in relationship to each other in a reasonable way under the circumstances which will

(39) 239 P. 2d 188, 191: "And we cannot turn a deaf ear to every request which reasonably appears designed for a more beneficial use of water not impairing vested rights, by saying...that the proposed change could interfere substantially with the vested rights of others." (Emphasis added.)

(40)UCA 73-1-3: "Beneficial use shall be the basis, the measure and the limit of all rights to the use of water in this state."

(41) Wayman v. Murray City Corporation, 23 Ut. 2d 97, 458 P. 2d 861 (1969).

best serve the above stated objective. (42) [Emphasis added.]

This stated policy of the Court can be interpreted to mean that the requirement to protect vested rights is a constraint, but not an overwhelming one, to the development of some form of banking/brokering service established to facilitate water transfer where changes of use might be the norm. In light of these above quoted cases, it would appear that the statutory requirement to protect vested rights is a constraint on certain transfer schemes, but not a prohibitive constraint. Further, it appears that the more "beneficial" the proposed new use is, the more burden the State Engineer and the Courts will place on the protestor to show an impairment.

It seems logical to assume that the concern for impairment of vested rights is more benign when a temporary change is proposed as opposed to a permanent change. Therefore, the degree to which impairment must be determined precisely will usually be less for temporary changes. In both types of change, however, the State Engineer must make an investigation and a finding of no impairment. If there is an impairment, the parties may arrive at a form of compensation whereby the State Engineer would permit the transaction to proceed.

Procedural Factors. While the substantive law does not appear to be significantly restrictive in allowing changes in use to take place, the procedural encumbrances could not be avoided in the operation of a banking/brokerage system. Under current law all changes of use must have a 1) formal application filed with the State Engineer,

(42) 458 P. 2d 851, 864. While this case is limited to an underground water table, the principle would seem to apply for all changes from the court's view. Indeed, the court directly quoted in support of its decision a U. S. Supreme Court case dealing with surface waters and holding no priority appropriator is absolutely entitled to preservation of his original stream flow if it becomes "inefficient." Schodde v. Twin Falls Land & Water Co., 224 US 107.

2) a publication in the media (one publication for a temporary change or three successive weeks for a permanent change), 3) a 30-day protest period, and 4) the approval or rejection of the application by the State Engineer. At the absolute minimum, this process requires 60 days and (because of the inherent delays), at least 90 days should be considered the minimum. One of the potential advantages of a banking/brokering system would be its ability to expedite water rights transactions. However, the processing time for examining the third party consequences of that transaction is largely set by law. Therefore, it may be desirable ultimately to reexamine the statutory and procedural elements which govern water right transfers and changes in use with reference to whether revision would facilitate a banking/brokerage operation without loss of public awareness and opportunity to be heard. A possibility may be to utilize the "temporary change" procedure which allows a change use to proceed without delay while necessary supporting data and evaluations can be thoroughly conducted. Unless the banking/brokering system were incorporated into the State Engineer function, that agency would be leery of delegating authority to the bank for making provisional transfers. Even though third party impacts seem clear and undisputed, it is not uncommon for some unforeseen challenge to crop up. Therefore, any separate procedure for provisional approval of a transfer under banking/brokering auspices would be questionable as a device to speed the transfer process.

Public Interest and Water Quality Factors

Certain other statutory conditions pertain to any appropriation of a water right and apply generally to water transfers. Consequently, they deserve mention as potential constraints applicable to the banking/brokerage concept. For example, water transfers and changes in use must consider public desirability and concern. Also it is becoming increasingly important to consider the quality related aspects of any water right transfer. Any "conditioning" costs associated with the transfer because of water quality requirements may certainly affect the freedom to barter as well as influencing the negotiated price of a water right.

V. INSTITUTIONAL CONSIDERATIONS

Water Ownership Hierarchy

In addition to the complication that the inhomogeneity of uses introduces to the water transfer process, there is a kind of institutional variation among water owning entities which creates some significant implications for the water banking concept.

Water rights are awarded to many different kinds of entities (see page 6) ranging from individuals, groups of individuals, cities and towns, various kinds of districts, agencies of local, state, and federal governments, etc. The geographic domain of the entity to which a water right pertains may vary from less than 1 acre to several counties. There is also great variation in the range of uses permitted under a particular water right award.

Water rights of an individual are quite specific in terms of the nature, place, timing, and amount of use. This same degree of precision commonly applies to the whole of the water right of a single purpose organization such as a mutual irrigation company. On the other hand, water rights owned by municipalities or water conservancy districts allow a multitude of uses leaving the agent owner free to make and to manage the individual allocations for water use between and among constituents over time. Where water rights vary so greatly in terms of geographic extent, allowable uses, and the size, character, and operating latitude of the appropriator, it is clear that the resolution with which the State Engineer sees third party impacts to a particular water transfer differs vastly from one water right to another. Where the water right is issued to an entity acting as an agent for a large set of water users, that agent becomes the referee to individual user allocations and water transfers between and among users making up its constituency. So long as these impacts are presumed to be "internal" to the corporate water right, the State Engineer, who is concerned about impacts between rights, does not normally get involved.

In mutual irrigation companies, the water right is (in effect) apportioned to individual ownership through issuance of water stock representing proportionate shares of the collective water assets. Thus, the equity interests, represented by certificates of water stock, can be bought and sold for uses and places consistent with the company charter without requiring State Engineer approval. However, where sales represent a physical transfer of water to different uses

and places whereby the likelihood of a third party impact is increased, objections may be raised requiring the State Engineer to determine whether or not the proposed transfer is appropriate.

Municipal water utilities do not identify equity interests in their water rights to customers. The emphasis is on providing a safe, dependable water service much in the manner of an electrical utility. Pro-rata ownership of the water right is not recognized. Considerations for water transfer or exchange can only take place at the municipal government level. Certain constitutional restrictions apply to municipal water right transfers which are discussed in Chapter IV of this report.

Water Conservancy Districts represent large and important change agents in water development and distribution. As with municipalities, their water rights generally involve substantial "blocks" of water which can, in turn, be allocated under contractual arrangements to a variety of specific uses. Districts may be wholesalers or retailers of water developed under the blanket (block) water right. Subscribers of district water do not acquire a water right per se. Rather, they obtain a firm commitment to provide an agreed upon amount of water at an agreed upon price for some specific period of time. Water Conservancy Districts have wide latitude in how they may acquire, develop, and manage water.

The state or an agency of the federal government may acquire block water rights in anticipation of projects which may take many years to construct. Consequently, they are frequently given special consideration in satisfying due diligence requirements. (Ultimate reallocation of these state or federal agency water rights to some management agency may constitute some prescription of the State Engineer's function.) The point to be made here, however, is that there are a variety of institutional peculiarities which enshroud a water right which may place conditions on the ease of transfer of water and also the extent to which the proposed transfer requires State Engineer endorsement and oversight. Certain "internal" transfers and allocations take place continually whose social and economic impacts are very substantial yet do not require State Engineer tests of third party impact and public interest. This represents a kind of inconsistency that the bank would have to recognize and deal with until and unless legislative changes ironed out the variations.

Institutional Constraints to Water Marketing

Water institutions of various kinds are the mechanisms for transforming the physical and economic potentials into realities. Organized to perform specific functions or to achieve particular goals, institutions make the decisions, the commitments, and take the actions which result in the ultimate regulation, delivery, distribution, and disposal of water in accordance with specified needs. If poorly organized, staffed, supervised and managed; or, if inadequately coordinated and integrated with companion institutions; the effectiveness with which objectives are accomplished may be constrained. Any such limitations or impediments tend to reduce the value of water rights and retard free movement according to market forces. Institutional factors may work to impede or facilitate the water right transfer process, and hence, the brokerage operation.

Reference has already been made to the implications of institutional variations among water owning entities on water right transfers. Municipalities, Water Conservancy Districts, Special Improvement Districts, and all the rest have statutory restrictions limiting the geographic areas they can serve and their freedom to transfer, exchange, or otherwise manage their water rights. Institutions also have a variety of contractual commitments and indebtedness which may become a lien upon water rights and thus restrict their movement in a water market. For example, a water conservancy district having long term obligatory contracts of repayment with the federal government could only participate in a water marketing activity so long as transactions could be made compatible with contractual obligations. In certain cases, the contractual obligations will be significant barriers to water market transfers. In other words, if a market exists for the water right without any such contractual obligations but not with them, then the logical conclusion is that these encumbrances are in fact institutional constraints the market potential and thus, the operation of a water banking system. Ancillary to contractual arrangements are the loan or bond repayment arrangements which likewise must be considered as limiting the water market potential in certain cases. The situation is somewhat analogous to the real estate market wherein the mortgage obligations and conditions directly affect the marketability of a parcel of land. There is some difference, however, in that the obligations in the water resource are usually group obligations

encumbering many different water rights and holders.

In contrast to the kinds of formal constraints noted above, there are some informal constraints which are more difficult to identify and to assess in terms of impact on the water banking potential. A viable and successful bank must have an open negotiation atmosphere within which to operate. A pure open negotiation process is one in which all potential participants agree upon a uniform criteria for assigning values to the resource. In the water world, however, value perceptions are sometimes clouded with cultural and psychological biases. The perception of water as the "lifeblood" of an area may cause a distortion of the theoretical marginal value of a water supply. Or, if water is considered in the context of a "family heirloom" the market potential may be constrained accordingly.

This potential for distortion is compounded by the long existence of many independent water management entities throughout the state and which exhibit a reluctance to relinquish any vested institutional interests. Many mutual water companies, irrigation companies, municipalities, etc., view the water market singularly from an internal perspective. Sometimes these perceptions include a strong desire to maintain the existence of an organizational and operational structure notwithstanding any economic inefficiencies which might develop over time.

Willingness to buy or sell water within these entities can be limited, and at times eliminated by these cultural perceptions and biases. This conclusion is not an argument to remove these institutions. It is to be considered only as an observed potential institutional constraint on a market under a banking system. These barriers to free negotiation and interchange could exist both between two potential buyers, between two potential sellers, or between a buyer and seller.

Historically, the manner of organization and original intent of water management institutions have a strong influence on the disposition of the membership and managing authorities. This background can create an institutional inertia favoring or disfavoring certain types of water transactions. The degree to which these dispositions are compatible with the potential unencumbered market will determine the degree to which these institutions would be a constraint on a water banking system.

VI. ECONOMIC CONSIDERATIONS IN THE CREATION
OF A WATER BANKING/BROKERING SERVICE

The desirability of establishing a water banking/brokering service is in large measure determined by comparing the benefits of such an operation with the associated expenses. Could the information and expertise supplied by a banking/brokering entity significantly reduce the time and expense involved in negotiating and completing a water right transfer? What is the level of activity in water rights transactions in Utah? Would the existence of a centralized banking/brokering service actually stimulate more water marketing activity? These are some of the questions addressed in this section.

Market Information

The price attached to a water right reflects the social value of that right to the extent that the water market operates efficiently. The more information available, the more effectively and efficiently the market will function. Sellers need to know the prices that are being offered for water rights. Buyers need to know what it will cost to acquire and adapt a given supply to a different use. The capability to assemble and analyze all the information which both buyers and sellers would need in order to arrive at an appropriate selling price would be a principal *raison d'etre* of a water bank. The presumption of the rational economic actor is based on his possession of adequate information and the use of that information in the pursuit of his self interest.⁽¹⁾ The value of a water right varies greatly with its year to year or seasonal certainty, its location, its quality, and the complexity and costs of needed facilities and management measures to place it in use. The buyer of a water right needs more information than the seller--particularly about costs to "condition" any given supply to make its quantity, quality, and timing characteristics conform to the requirements of the "new" use.

The total cost of purchasing water is more than the cost of acquiring the water right at its current site of use. Additional costs are incurred to relocate or convey the water to the new points of use; possible treatment to bring existing quality to the desired level of quality; possible compensation to damaged third parties; and costs

(1) For a general discussion on price theory and social values see Friedman (1962) Price Theory 1962, Aldine Publishing Co. Chicago or Ferguson and Maurice (19) Microeconomic Theory.

(generally for storage facilities) to alter the timing of availability of the old point of use to times of need at the new point of use.

These added costs are only justified when the potential buyer can obtain commensurate returns.⁽²⁾ Since these "conditioning" costs get capitalized into the value of the water right, a steady upgrading in value of a water right takes place over time. New uses which can justify paying higher prices, commonly look to enterprises depending on low cost water (i.e. agriculture) for their supply. To the "raw water" costs at the site of current use are added the "conditioning" costs to obtain the characteristics needed for the new use. Professional assistance in evaluating the total costs of optional water supply sources could be a valuable service to some prospective buyers. Providing not only a centralized listing of available water rights but also providing the capability to appraise the physical and legal certainty of a right and to analyze the needed conditioning requirements for alternate transfer schemes would greatly improve the decision calculus of a potential buyer. For example, there seems to be a decided shortage of information about water marketing potential growing out of the urbanization process. Farmers whose agricultural lands have been subdivided are often unaware of possibilities converting irrigation water to urban supplies (either potable or nonpotable components). Subdivision developers commonly seek a potable supply derived from an entirely different water right (perhaps an organization owning and marketing water for domestic service). Thus nonoptimal allocations of water may be occurring because of the lack of market information that could be provided through a brokering service established to bridge that information gap.

Current Levels of Water
Transfer Activity

Despite informational deficiencies, there is considerable activity in the water rights market. An indication of the level of this activity is given by the data comprising Table 2. The number of applications processed

(2) See Herfindahl and Kneese, Economic Theory of Natural Resources, for a discussion of production and marginal cost analysis.

by the State Engineer to appropriate, change use, and exchange water rights indicates that individuals are finding new uses that require new supplies and that established supplies (rights) are being moved from their current uses to presumably higher valued uses. The market is working through the framework established by law.⁽³⁾

The information in Table 2 is, however, incomplete. It does not show how many more transfers might have taken place if the holders of the water rights had known of potential buyers for their right and had general market information that would have provided the incentive to place their right into higher valued uses (permanently, through sale, or temporarily, through lease). Nor does the information show whether the actual transfers represent the best match of

potentially usable rights to new demands. The information shown in Table 2 does not constitute a market analysis, by any means, but it gives some indication of the level of activity in water use changes.

It is not the province of the State Engineer's Office to determine that transfers of rights will result in greatest social utility. The State Engineer considers social utility but does not identify and evaluate alternatives and then allow only that transfer option where social utility is believed to be maximized. The State Engineer acts in the capacity of an impartial judge in evaluating whether a change use request should be allowed. To encourage or discourage the level and character of transaction activity might possibly compromise that position of impartiality.

Economic Feasibility of a Water Rights Banking Service

As has been previously mentioned, the principal justification for the establishment of a water banking service is based on the social benefits of the service exceeding the social costs. These social costs and bene-

⁽³⁾This may be in contradiction to the California experience where it is reported that owners "seldom transfer their waters" and that "water transfers almost never occur in years of normal precipitation" (Sotorius et al.).

Table 2. Applications received, processed, and action taken.

Year	1968	1969	1970	1971	1972	1973	1974
Applications received:							
Applications to Appropriate	534	588	599	659	795	1095	1167
Applications to Change	283	317	387	332	407	477	473
Application to Exchange	29	53	36	64	112	129	113
Application for Extension of Time to Resume Use	7	13	6	8	21	11	8
Application to Clean, Deepen, Repair & Replace	180	127	102	74	149	161	129
Total Applications Received	1033	1098	1130	1137	1484	1873	1890
Action Taken on Application:							
Applications Advertised	873	909	900	987	1327	1797	1707
Protested Application Hearings	155	114	94	192	198	218	210
Applications Approved	845	983	961	956	1020	1756	1495
Applications Rejected	111	102	89	41	84	36	79
Extension of Time Requests	1274	1256	1104	1380	1048	1174	982
Advertised Extension Requests	56	93	52	125	58	94	85
Extension Request Hearings	1274	253	178	313	113	134	101

fits have both public and private aspects. Those costs and benefits which accrue to current water right holders or to individuals placing water rights into private uses are rightly termed private. Additionally, because of the many external effects generated from the private use of the water resource, the public also receives costs and benefits without directly utilizing the water resource.

A cost-benefit analysis of the proposed water banking service would be difficult to perform because of the problem of estimating the net efficiency increase made possible through a better matching of water supplies to water uses. The impact of the water bank would probably not be measured solely by the increase in the number of water rights transfers; it would, rather, be in the increased hydrologic and economic efficiency of transfers made under conditions of improved information. This makes it additionally difficult to forecast costs and benefits throughout the entire social fabric. Thus, only a limited discussion will be attempted here.

Costs

The cost of creating and operating the water rights banking service depends primarily on the extent of the services provided by the bank. A bank offering only a "listing and bid" service would have considerably lower overhead than one offering the services of a professional investigative staff. Nevertheless, the minimum cost would include overhead for office and office supplies, expense accounts for advertising and travel, and salaries for the manager and other office personnel.

The manager must be a capable individual (perhaps specially trained in the engineering, economic, and institutional aspects of water management), since his personal knowledge of the water rights activity in the region would ultimately be a valuable marketable good. He becomes the key figure in the banking operation. Middle management and professional talent would likely be drawn from either the private sector or from the upper echelons of other governmental agencies.

Benefits

The benefits of the water brokering operation would accrue primarily to the immediate buyers and sellers. Water rights would move from lower valued uses to higher valued uses which generally serves the public interest. Sellers would benefit by receiving more from their water than they would receive by keeping that water in their own production.

The buying market for water rights would benefit by having an increased market of suppliers from which to choose the least cost

option for their own particular needs, and reduced acquisition costs.

Net benefits generated as a result of the water banking/brokering service through allowing the purchasers least cost option selection is, again, difficult to assess. The net benefit would be the difference between what the purchaser might have paid in the absence of the bank and what the purchaser did pay as a result of water banking/brokering operation. This varies from transaction to transaction and becomes often a function of the competitive market effect. Yet, the aggregate of these price differences becomes a net benefit of the water brokering operation.

Through the accumulation of very specialized information and council of an expert staff, there would be increased efficiency in the operation of the water market because of the reduction of informational search costs by individuals. For example, an individual attempting to acquire rights in a given area currently must advertise, make many personal inquiries, or commission others to seek out willing sellers. A limited knowledge of the water availability and the water right transfer process would probably limit search to the immediate area of intended use, thus ignoring potential supplies from other feasible transfer sources. Yet evaluation of multi-party exchanges or other potentials may result in a more satisfactory solution to the acquisition problem. Once the search has been completed and a seller found, it is common to obtain legal advice about the status of the water right and the appropriateness of any transfer documents. If the bank, by virtue of its accumulation of information about water rights, were able to provide this kind of examination and title verification to the potential purchaser at less than the customary cost, then the benefits generated by the banking/brokerage operation would be significant. Any foregone income to the legal profession as a result of this alternate service must, however, be counted as a social cost of implementing the banking service.

In addition to the private benefits, the public receives benefits as the water rights market operates more freely to place water into uses on which society places a higher value. In many cases, there is a multiplier effect as water availability paves the way for increased production or recreational opportunity. Private enterprise generates public benefits through tax revenues, employment, maintenance of a certain standard of living through economic security, and other positive external effects. However, the tracing of these benefit linkages from greater water use effectiveness resulting from changes in use is beyond the scope of this report.

Financial Feasibility of a Water Rights Banking Service

There exist three options in the financing of a water rights banking service. First, there is the self-supporting banking/brokering option. Under this approach, the users of the service would pay the costs of the bank's operation. There would be no outside funding, taxing capacity, or governmental appropriation. Among the arguments for a self-supporting operation are: 1) the benefits of such a banking service are primarily private and should be paid for by those who receive the benefits; and 2) if the business generated becomes insufficient to sustain its operation it would not continue as an unessential entity maintained at public expense. By adhering to a "user-pays" approach, if the bank received enough income through transfer activity it would continue to operate; if not, it would be discontinued as unnecessary. A seeming lack of interest by private "water consultants" at the present time may reflect either a perceived lack of market potential or a "high risk" element due to inadequate information. This "high risk" activity would not compete well with other less risky investments of the entrepreneurs time and resources.

The data from Table 2 on water rights change use applications provide some indication of the changes going on in water rights. However, many individual transfers and changes take place within the corporate water right which would not be visible to the State Engineer. Some of these transactions could seek assistance through a water brokering service if one were available. While the total activity in water rights exchanges is not indicated by the statistics in the Office of the State Engineer, it must be recognized that not all water rights transactions would seek the aid of a broker. Just as with real estate transactions, some buyers and sellers would prefer to work out the transfer arrangements and instruments privately. A crude indication of brokering potential might be obtained by presuming that the 130 change applications per year reported in the 1972-73 period for the Jordan River region might be a reasonable estimate of transactions funneled through a water bank servicing that region. If there were 130 transactions per year with an average cost to the buying and selling parties of \$150.00 each, this would represent income to the bank of \$39,000 from the Jordan River region. Quite likely, this would represent a marginal level of income to offset the expenses of operating the banking/brokering service. Also, it must be presumed that utilization of the service would build gradually over a period of years so that self-sufficiency could not be realistically expected overnight.

A second approach to the funding of the water rights banking service would be to support it with public funding. The bank

would, in fact, become an agency of the state government and would be funded accordingly. This approach assumes that so many of the benefits of efficient water use are public in nature and distributed in general but non-specific ways such that the public might properly subsidize the buyers and sellers in order to generate these benefits. In this case, private benefits would merely be a convenient by-product of the public benefits so generated.

A third approach to the funding question is a combination of the first two; that is, a mixed source of funding. Private parties paying for some portion of the benefits that they receive as a result of the bank's operation, and a public compensation to the bank on behalf of the general public for the public benefits received as a result of the banking operation. In the first two approaches, there is no need to separate and quantify the public and private benefits. All are considered either completely public or completely private for financing purposes. Yet, in terms of distribution of social costs and benefits and private costs and benefits of the water banking service, the mixed support may be most equitable.

The drawback of having an individual pay a fee to the bank based on benefits received from the transaction is in the determination of those benefits and the added costs entailed in the administration of the fee. There are of course, a variety of fee options. The bank could assess a fee based on any or all of the following criteria:

1. Volume of water transferred.
2. Flow rate of water transferred.
3. Costs incurred in investigating and facilitating transfer.
4. Value of water in past or new use.
5. Percentage of selling price.

As to whether the buyer or seller should be required to pay the necessary fee, it might be desirable to leave this cost allocation to the parties involved as part of the price negotiations. Such an approach is found in the real estate markets. In those markets, the participants to a transaction negotiate nearly all aspects of the transaction, including the basic costs of closing the transaction. The result is an allocation of costs based on mutual agreement rather than arbitrary assignment.

In summary, the decision concerning the level of public financing of the water banking service should be based on an economic analysis which would trace some of the public benefit multiplier linkages. It is difficult to define what factors are relevant in determining public benefits and hence public obligations. Some might see a public benefit in the same manner that the public benefits from the increased productivity of a new business concern or the efficient allocation of capital in the securities market, both of which receive some form of

indirect public subsidy through the taxing structure.

In conclusion, it is difficult to proceed with a legitimate economic analysis of the proposed water rights banking service until more information is developed concerning its role and structure of organization. Even then, there is no way to identify and

quantify a demand schedule for the services proposed. This chapter has merely served to identify some of the considerations of an economic and financial nature that might accompany the creation and operation of a water bank. Such considerations should receive extensive discussion and analysis before being used as a basis for establishing a water rights banking service.

VII. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

1. The evident and predicted rapid changes in the kind, location, and level of economic activity in Utah will result in increasingly active markets for water rights transfers. The urbanization process along with the establishment of a variety of large new enterprises will foster new water use patterns and the need to work out water rights transfers and exchanges. Facilitating water rights transfers, especially those involving users unfamiliar with availabilities and the complexities of transferring water equities, will be an important need.

2. A water banking/brokering system, could potentially provide a centralized and specialized source of information about water availability and water needs. A state of individuals having technical understanding of the hydrologic, economic, and legal impacts and economic externalities that accompany changes in water use, could be effective in negotiating cost-effective and resource efficient matchups of buyers and sellers of water. The bank/brokerage may provide any or all of the following:

- a) A listing or registry of water rights for sale or lease, the location of those rights, the asking price, and the physical characteristics of the entitlement available to the public market.
- b) A registry of potential purchasers of water rights shares or leaseholds, the use intended, the quantity, quality, and regimen requirements, and the location of proposed use.
- c) Information about local water institutions, their supply availabilities, their service areas, storage and distribution facilities, and potentials for participation or involvement in accomplishing specific transfer options.
- d) Analysis of the "conditioning" implications and constraints in transferring a particular right from present use to new locations and use situations.
- e) Clarification and possibly certification of legal status and title of water rights of interest to prospective buyers.

A low risk approach to initiating a banking/brokering service may be to begin with a minimum level of service and administrative structure and expand services and capability as justifiable. For example, three levels of banking/brokering services together with corresponding administrative requirements are shown in Table 3. It may be wise to initiate the service at a minimum level of investment risk and expand services in logical phases as justified by experience.

3. There are no constitutional, statutory, or regulative elements in Utah water administration that would seriously cripple or stifle the operation of water banking/brokering systems in Utah. Although municipalities and water conservancy districts would not be able to dispose of water rights outside their jurisdiction, they now commonly contract with outside users for delivery of water and participate in the lease or rental market with supplies for which they have no immediate use while awaiting increased demands of continued growth. However, institutional peculiarities and encumbrances may create differing influences on the ease of efficiency of transfer of water and also the extent to which a proposed transfer requires the approval of the State Engineer. Differences in debt status and contractual commitments associated with specific water holding entities may limit the market potential of particular water equities.

4. Procedural requirements pertaining to changes in water use, and growing out of statutory directives, pretty well dictate the minimum time frame within which a water rights transfer can take place. Those elements of the transfer process that require the acquisition and dissemination of information among parties to the transfer, and those relating to the preparation and processing of the various transfer instruments could be expedited through services the water bank/broker could provide. However, that part of the procedural process that pertains to the advising of parties that might be indirectly effected by the contemplated transfer, and provides for the registry and hearing of protests to the proposed transfer, would be outside the control of the banker/broker. Thus a broker service could do nothing to shorten that portion of the

transaction time critical path pertaining to third party inputs. Compression of the time path for completing a water rights transaction could only be achieved through legislative and procedural changes. Such changes would need careful evaluation before adoption to make certain that important public safeguards are not compromised.

5. The protection of third party interests to any water rights transaction is a central consideration in administrative procedures pertaining to water rights transfers and changes of use. Thus, water rights transactions arranged by a water bank/brokering service would be subject to third party impact tests performed to the State Engineer's satisfaction by the banking system or by the State Engineer, himself.

6. Many existing water organizations are engaging in de facto water banking/brokering in one form or another generally within rather restricted geographic domains. Of the array of water organizations and institutions operating in Utah which might operate such a system on an integrated statewide basis, the Office of the State Engineer (public) and the Utah Water Users Association (private) appear to best meet the

study's criterion for providing a general water brokerage service. In terms of present organizational structure (including regional offices), familiarity with the mechanics and legal requirements of water rights transfers and changes of use, professional qualifications of present personnel, and ready access to needed information, the Water Rights Division of the Department of Natural Resources appears to be well qualified to assume the water banking/brokering function.

Recommendations

1. This study has revealed no major legal, institutional, or other constraints to the conceptual feasibility of operating a water banking/brokering service in Utah at least for certain markets and areas. On a comparative and normative basis, two organizations, one public, the other private, have been identified as best suited to administer such a program if initiated. It is recommended that these two organizations now be examined in sufficient detail to confirm or counter this tentative conclusion. How well a banking/brokering system could be incorporated or adapted to either of these organizations should be examined with very

Table 3. Summary of water brokering and banking functions.^a

Function Levels	Administrative Requirements	Other Considerations
<p style="text-align: center;">LEVEL I</p> <p>Centralized Listing Service of sale and rental offers and purchase requests</p>	<p>Clerical/Non-technical</p>	<p>Contact and negotiation at initiative of potential buyers and sellers</p>
<p style="text-align: center;">LEVEL II</p> <p>Solicitation of sales and purchase offers and dissemination of collected information to selected agencies, water user groups, industrial promotion agencies and other parties; assist and advise in identification of water right record status and character, priority of right to other rights (not a legal opinion).</p>	<p>Clerical/Managerial with knowledge of local water conditions, information dissemination procedures, background/experience in water related administration procedures, and familiarity with Utah system of water rights management to assist with buyer and seller negotiations.</p> <p style="text-align: center;">Policy determined by an independent and disinterested board to insure public accountability.</p>	<p>Broker fees established by agreement; status identification according to State Engineer Determinations, Judicial Decrees, Adjudications, supplemented by correct right holder records and subject to the interpretation of State Engineer.</p>
<p style="text-align: center;">LEVEL III</p> <p>Preliminary identification of third party impacts of transfer or exchange and survey of mitigation or compensatory schemes for resolving transfer problems; preliminary analysis of water transfer conditioning costs; assemble and disaggregate "packages" of water rights to meet the needs of large and small users.</p>	<p>Clerical/Managerial/Professional providing capability in hydrology, hydraulic design, law, economics, and financial analysis with regional or statewide support staff possessing detailed knowledge of user needs and potential supply sources and ability to organize and coordinate large scale information exchanges between negotiating parties; experience in evaluation of water rights transfer impacts. Policy determined through a disinterested board to insure public accountability.</p>	<p>All transfer or exchange arrangements would still require State Engineer approval, third party right of protest, and right of appeal by all parties; services made available would be optional to, or supplemental to, private professional services. Work with water rights "packages" would be offered on an "as needed" basis to enhance competitive market forces through improved information availability to all concerned parties.</p>

^aAll activities subject to the requirements and limitations of Title 73 U.C.A.

specific reference to such factors as basic mission, operational mode, operating policies, organizational structure, fiscal and budgetary implications, and the public distribution of costs and benefits associated with the service.

1. If the Office of the State Engineer assumes the management of such a system, there would probably be some necessary statutory and resulting organizational changes in the office. Generally, these changes should clearly segregate the current adjudicatory functions and the banking/brokerage functions. This segregation would minimize the potential for conflicts of interest within the Office.

2. Should a decision be made to implement a banking/brokering service, it is recommended that, initially, the operation

give emphasis to the brokering role. This is the most readily justifiable component. In addition, brokering is not a major departure from current administrative practices. Decision to add the banking dimension could be guided by experience without risking significant up front resources in establishing a more comprehensive set of services.

3. If one or the other of the above organizations desires to initiate the banking/brokering service, it is recommended that some initial financial support funds be requested from agencies such as the Office of Water Research and Technology, or the National Science Foundation, who have incentive programs for trying out or demonstrating the worth of implementing innovative techniques for improving capability to manage water resources.

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