



Faculty Publications

1988-11-07

Removing Impediments to Water Markets

B. Delworth Gardner
Brigham Young University - Provo

Follow this and additional works at: <https://scholarsarchive.byu.edu/facpub>



Part of the [Economics Commons](#)

Original Publication Citation

Removing Impediments to Water Markets. *Journal of Soil and Water Conservation*, Vol. 42, No. 6, November-December, 1987, pp. 384-388. Also published in *Institute Perspective*, Institute of Political Economy, Number 7, 1988.

BYU ScholarsArchive Citation

Gardner, B. Delworth, "Removing Impediments to Water Markets" (1988). *Faculty Publications*. 3122. <https://scholarsarchive.byu.edu/facpub/3122>

This Peer-Reviewed Article is brought to you for free and open access by BYU ScholarsArchive. It has been accepted for inclusion in Faculty Publications by an authorized administrator of BYU ScholarsArchive. For more information, please contact ellen_amatangelo@byu.edu.

Institute Perspective

Institute of Political Economy

Utah State University

UMC 0725

Logan, Utah 84322

(801) 750-2064

Number 7

REMOVING IMPEDIMENTS TO WATER MARKETS

B. Delworth Gardner

Professor of Economics at Brigham Young University

INTRODUCTION

A few years ago it was mostly economists, notably those of a libertarian stripe, who were advocating voluntary market exchanges of water in the West. Now these exchanges, or transfers as they are sometimes referred to, are being unabashedly recommended by water users, politicians, bureaucrats, and even environmental organizations, who have come to see their value for achieving a more efficient water allocation. Water markets are an idea whose time has finally arrived.

The governors of the Western States have expressed their intent to "influence the outcome of trends which are shaping the region and the future of its people" (Western Agenda). Water efficiency was identified by the governors as one of the three target studies for 1985-86. This study looked at existing state, federal, interstate-compact, and international-treaty law and institutions to determine how they govern present practices, constrain change, and enhance or impede efficient use of water. The purpose was "to identify actions the governors can take to facilitate options for increasing efficiency, such as water transfers, salvage of water, and regulation of use" (Western Agenda).

The Fifteenth Annual Report of the Council on Environmental Quality (CEQ) (1985) contains an excellent chapter whose primary thrust is to support the development

of water markets: "When water rights and preferred access to publicly supplied water and water-based services have been recognized as negotiable private property, a freer market can function. More marketplace competition to determine the use and price of water can alleviate much, if not all, of the 'need' for extensive new project development" (CEQ).

Among environmental organizations supporting water markets, none has been more active nor effective than the Environmental Defense Fund, especially its Berkeley, California office. Its research in the Imperial and Central valleys has received much favorable publicity and has shown the broad economic and environmental gains that could result from market transfers from the Imperial Irrigation District to the primarily urban Metropolitan Water District of Southern California, and from the selenium-troubled lands of the Westlands Water District in the San Joaquin Valley to Southern California (Willey and Graff).

Perhaps most encouraging of all is the commitment to water markets that has been developing in the United States Department of Interior over the past six years since the inauguration of the first Reagan administration. Several excellent papers have been spawned in the Office of Policy Analysis. A recent memorandum states: "It is the policy of the

Bureau of Reclamation that while voluntary exchanges within states or within basin boundaries will be more easily approved, exchanges involving a larger geographic area will also be considered" (Department of Interior memo). Apparently Interior has decided that federal reclamation laws do not preclude support for and implementation of a voluntary water exchange policy. "Even if project-authorizing legislation seems to be in direct conflict, changes in such legislation will be supported if project purposes can be protected or changed to meet current conditions while protecting or compensating third parties. If existing water service or repayment contracts need to be revised to comply with this policy and the proposed water exchange, those changes will be made in a routine and expeditious manner..." (USDI memo).

To one, such as the author of this paper, who has been advocating water markets for over 25 years, this support from such a variety of actors in the public arena is indeed heartening. But advocacy is one thing, changing lethargic institutions to facilitate markets is quite another. I believe that we have given insufficient attention to the tremendous array of institutional factors that have proved to be barriers to the formation of functioning water markets. These barriers are still largely in place as they have always been. In this paper, I hope to identify some of these impediments and indicate what might be done about them.

EFFICIENCY-EQUITY TRADEOFFS

It must be realized that existing laws and regulations that presently impede free water transfers were established for good reasons. Primarily, the reasons center upon equity concerns, i.e., they protect the wealth positions, broadly construed, of: 1) existing water users, 2) those economic interests indirectly affected by existing water uses, 3) broad geographic regions, and even 4) taxpayers. This is why we have institutions such as area-of-origin laws, state statutory prohibitions against exportation of water believed to belong to a given state, protection against impairment of existing water rights, public-trust protection of "public-good" in-stream uses of water, and pricing and allocative rules that allegedly protect the financial interests of the

United States, a surrogate for the nation's taxpayers.

Barriers to efficient market exchanges would be much easier to eliminate if ways could be found simultaneously to mitigate these equity concerns. Unfortunately, this may be impossible and some equity may have to be sacrificed to obtain greater efficiency. If so, strong resistance to free exchanges of water can be expected to continue from some quarters. But this opposition will be countered by strong support from those who expect to gain from efficient exchanges and the greater output that will be produced therefrom.

Some impediments to flexibility in moving water to higher-valued uses are found in current water laws and doctrines, both state and federal, while others have evolved in the administrative practices of federal, state, and local agencies and organizations. It may be that the latter are easier to change than the former which appear to have been more formally and rigidly codified.

LEGAL IMPEDIMENTS

In our decentralized political system, whenever a change in the status quo threatens the wealth positions of entrenched interests, political activity occurs to change the rules of the game so as to protect those wealth interests. (Almost always these changes are legitimized in the name of equity.) One observes this "rent-seeking" activity at federal, state, and local levels, and in all branches of government: executive, legislative, and judicial. There are few better examples of this phenomenon than in the water field.

Statutory Barriers

With the public's perception that water demand will soon outstrip supplies, many regions have adopted defensive strategies to protect their perceived favored position by erecting legal barriers against market transfers of water to higher-valued uses. Since 1968, the federal government has by law been prohibited from even studying any potential water transfers into the Colorado River basin, a prohibition promoted by the Columbia River states, the most obvious source of such

water. The alleged purpose has been to head off any possible moves by Southern California, which is perceived to be desperately in need of shoring up supplies to accommodate future population and economic growth. Even basins, such as the Missouri River, where only a small fraction of current river flow is utilized, have encountered strong political pressure against potential diversions. An effort by South Dakota to sell unused Missouri River water to a coal slurry pipeline company floundered as a result of opposition from lower Missouri River Basin states, railroads, and barge companies (CEQ, p 321). Similar actions have occurred in Montana and Wyoming, where water needed for energy development and transportation was simply declared by state legislatures to be unavailable for any purposes that require it to be exported from the state (Gardner, 1986a).

Thus, even though the Supreme Court found in the *Sporhase* decision (*Sporhase v. Nebraska ex rel. Douglas*, 102 S. Ct. 3456 [1982]) that under the interstate commerce clause of the Constitution, the state of Nebraska could not prevent a farmer from moving well water from his property in Nebraska to irrigate crops on adjacent property in Colorado, it would appear that many state legislatures do not believe the decision has general applicability to all water transfers that cross state boundaries. It appears certain that this issue will be bitterly fought in the Courts over many future decades.

Interstate and International Treaties

There are similar questions about long-standing water allocations among states and nations incorporated in river compacts and international treaties. Prominent examples are the Colorado River Compact and the International Treaty with Mexico, both pertaining to allocating the waters of the Colorado River (Gardner, 1986a). The city of San Diego attempted to buy water from ranchers in Wyoming, located on the upper tributaries of the Colorado River. There can be little doubt that the value of water in urban San Diego is many times that for growing hay and small grains in Wyoming, and that terms could have been reached that would have

handsomely benefitted both parties. But any agreement would have violated the terms of the Colorado River Compact, at least as understood by those who opposed the transfer, and it was aborted.

State-Level Jurisdictions

I see no easy solution to these interstate and international problems short of the creation of unattenuated property rights in water that would permit unfettered market transactions, even those that cross state and national boundaries. But how do you develop these rights that will be recognized nation-wide? Traditionally, the states have had jurisdiction over water allocation law and administration, and some favorable developments have occurred as a result. Market activity is prospering in some states, particularly in New Mexico, Utah, and Colorado. Giving the federal government jurisdiction needed to establish water rights that would be recognized nationally would not likely produce the desired flexibility, since the most conservative states would likely hold out for a common set of rules that would protect their perceived interests. This would appear to be an issue worthy of attention by the Western Governors, who might use the prestige of their collective offices to bring pressure on recalcitrant individual state legislatures, who try to erect barriers to water export.

Still, it is encouraging that many state regulations that have governed water allocation and have made transfers difficult are succumbing to economic pressures to move water to more valuable uses. All Western states require that water be put to beneficial use, but it has never been very clear which uses are beneficial and which ones are not. Prioritization generally amounts to little more than an enumeration of acceptable uses. Forfeiture of rights is required only when water is not used at all or is deemed to be wastefully used.

California settled the legal issue of water transfers and beneficial use by explicit legislation. California Water Code Section 1244 states that water transfer does not constitute wasteful or unreasonable use and thus is not

subject to the forfeiture provision of appropriation law.

It appears that another class of historically legal issues are being gently transformed into administrative issues, and this will probably facilitate water transfers.

Federal-Level Jurisdiction

Technically, the Reclamation Act of 1902 provided that federally supplied water be "appurtenant to the lands irrigated," and required that the water user be "an actual bona fide resident on such lands." But subsequent legislation has negated or repealed these requirements.

There has always been a problem of whether or not water could be contracted by the Bureau outside of its designated project service areas. The Warren Act of 1911 permitted an extension of the irrigation service area of a project, but this must be done at the initiative of the Bureau. Under existing legislation, there appears to be no clear authority for allowing project contractors themselves to sell or lease water for uses and locations not envisioned in project authorizations by the Congress.

Another point of uncertainty is whether contracted water users can capture gains from the resale of water in the event that water markets existed. Obviously, such gains constitute the principal motive for making such exchanges. With the exception of the Warren Act contracts, there appears to be no explicit legislative prohibitions of this kind, although as we shall see later, existing administrative practice often imposes these types of restrictions.

A question might also be raised about who manages the water in federal projects when the project payout period has been completed? Does the Bureau continue to manage the project (and set the conditions of transfer) or does management pass to the district owners who have repaid their federal obligations? The 1902 Act provides for district management and operation of "reservoirs" by the government "until otherwise provided by Congress." Water transfers would clearly be easier for the owners of

water districts if they had clear title to project facilities. The Congress should seize the opportunity provided for in the 1902 Act and declare the federal government's intention to transfer all management authority to the districts upon payout, unless maintaining the facilities and bearing the liability cost in case of some natural disaster would appear to make such a move infeasible from a private point of view.

Another complexity in the marketing of federal water is the acreage limitation which is imposed by law. Because of reporting requirements in the Reclamation Reform Act of 1982, the Bureau will know which contractors are qualified to receive subsidized water and which are not. But will other water sellers be able to easily ascertain which potential buyers are qualified? How can even the buyers themselves know without investing in contracts, information exchange, and the process of approval with the Bureau? The stakes are great on most projects, particularly the new ones with the high-cost water. If the buyer does not qualify for the subsidized water price and must pay the full cost as required in the 1982 Act, negotiations over the sales price will be materially affected. It seems clear that this institutional baggage associated with the acreage limitation restrictions will greatly increase the transactions costs of market negotiations and will prevent many potentially efficient transfers.

I see little economic justification for differentiating between classes of federal water users, between qualified and limited water recipients as defined in the 1982 legislation, and between users in and out of the water service areas (Huffaker and Gardner). These distinctions are all reflections of outmoded equity concerns, and are inimical to the establishment of efficient water markets and should be eliminated as soon as possible.

Another legal issue causing great uncertainty in the West is the matter of Indian claims to water. This uncertainty is a strong deterrent to regional economic development, since no one knows how much unencumbered water will be available until the Indians

claims are settled. Most of the water in question is currently being utilized, but not necessarily in those uses or areas that it would be if the uncertainty about Indian rights did not exist.

The government should press hard for a settlement of this issue. If the tribes knew what water they had and what they could do with it, the situation would soon clarify. The Indian wealth position would likely be enhanced if there were few restrictions placed on the type and place of water use. It may be highly profitable for the Indians to sell their water to non-Indians at market-clearing prices.

ADMINISTRATIVE IMPEDIMENTS

Federal Issues

The standard federal water contract between the Bureau of Reclamation and its customer-districts reads: "The provisions of this contract shall apply to and bind the successors and assigns of the parties hereto, but no assignment or transfer of this contractor any part thereof or interest therein shall be valid until approved by the Secretary." Thus, the terms in these contracts give the Department of Interior the right to refuse district requests for reassignment (transfer) of water deliveries. No doubt one of the purposes of such terms is to assure that repayment for assigned water will be forthcoming.

It is obvious that a prerequisite for market transfers is an incentive structure that permits both buyer and seller to expect to benefit from the exchange. Two conditions are vital: 1) the rights to water use must be firm and transferable, and 2) there must be no constraints on the process of negotiation that would deter such a transfer.

Who actually holds the rights to federally-supplied water varies among the states in the West. They may be held by individuals (including partnerships and corporations), organized public water districts, or governmental agencies, such as the Bureau of Reclamation. The transfer negotiation and approval process will be greatly complicated if several entities are involved in the decision.

How decisions are made in the public districts especially is of critical importance, since a large fraction of water use occurs within these districts. Much depends on how the voting power is distributed: one-man one-vote, vote proportional to acreage, etc., and whether or not unanimity or simply a majority of votes is required to effectuate a transfer.

In California, the State Water Resources Control Board (CSWRCB) is required to issue permits to all nonriparian users of water. This means that governmental agencies involved in supplying water to districts, such as the Bureau of Reclamation and the California Department of Water Resources, must become permittees of the CSWRCB, and the agencies actually hold the rights. However, in other states the water rights to water supplied by the Bureau are held by the water districts receiving the water. It would appear that water transfers would be facilitated if the rights could be held by the users themselves, not the agency suppliers. (It is the users who know what the water is worth to them.) However, this appears not to be absolutely necessary. The market transaction could occur by simply allowing a water contractor to reassign his contractual deliveries, or some portion thereof, to another water user, conditional upon the approval of the supply agency.

The "rights" question is somewhat complicated because of the various ways that rights are denominated. Generally, the more modern rights are specified in terms of acre-feet of water per acre of land served, or some other way that fixes the quantity of delivered water. In contrast, many of the older rights are simply measured as a fraction of the water that exists in the water course at the time water is delivered for use. Thus, if the water is leased or sold, there is a question as to how much water is actually going to be moved. Only if rights were quantified in measured amounts would both buyers and sellers know the water quantities over which to negotiate. I see no technical reason why this cannot be done, although some history of water yield would have to be established for every water source so that expected quan-

tities available to be traded could be determined. Of course, storage facilities must be available to even out stochastic water yields due primarily to random weather.

The question of impairment to other existing rights resulting from water transfers has always been in the forefront of public concerns over market exchanges. It is the return flows from some rights that constitute the water supply for other rights. Thus, transfers of water could impair other legitimate rights if the full entitlement in the right were permitted to move. This outcome may be not be efficient, and certainly will not be equitable. For this reason, every state has some agency that must approve petitions for transfer in order to protect third-party interests that depend on return flow.

At least a partial solution to this problem has been recommended; confine the quantity transferred to the historic consumptive use of the seller. The return flows on which other rights depend would then be minimally affected and there would be little legitimate third-party resistance to market transfers.

The market would work most efficiently in inducing water movement to the most valuable uses if buyers and sellers were unconstrained in negotiating prices, and if the seller could capture the difference between what the water was worth to him and to the buyer, constrained only by the original repayment obligation to the supply agency.

The Bureau is already on record as to how it would prefer to handle the repayment problem (USDI Memo). For short-term exchanges (monthly or annual water rentals where the water entitlement remains where it is) the contractual repayment obligation would remain with the original contractee. For long-term exchanges, the contractual obligation may be moved to the transferee. Any additional costs associated with the transfer shall be advanced or repaid in a manner negotiated by the entities involved. One thing is made crystal clear in these terms recommended by the Bureau: the interest of the United States in project repayment will be fully protected.

But there are complications. The terms of repayment granted to the original class of water use may not, under law, be transferable to a different class of use. For example, repayment terms for irrigators (e.g., exclusion of interest during construction, exclusion of an interest charge on the outstanding obligation, the availability of repayment assistance from power revenues, or the limitation of the costs to be repaid to a specific percentage of separable costs) are not to be transferable to municipal and industrial users. If this rule were not enforced, exchanges between irrigators and municipalities could replace contracts between the Bureau and the urban users and reduce the total repayment to the Federal Government (USDI Memo).

The Bureau's position is that an exchange in which there would be a change in use from a reimbursable function to a nonreimbursable function will require negotiations. The purpose of this requirement is stated: "the intent of these renegotiations, under these situations, is not necessarily to achieve an accelerated repayment, but rather to achieve an equitable repayment of appropriate costs. To the maximum extent possible, financial or economic disincentives to the transfer or exchange are to be avoided" (USDI Memo).

Bureau of Reclamation contract terms vary between projects and areas. Some restrict water use to particular lands, usually within the district, others don't. Some restrict the end-use of water, some don't. Most limit the profit from water transfers, but a few have waived this rule. Some even permit recontracting. Some permit transfer of ownership of facilities to the water districts after repayment obligations have been met. Some contracts mention return flows, some don't. The most common contract language reserves the right to return flows to the US for project use.

The Bureau professes not to be interested in the terms of the exchanges between the negotiating private parties. "The financial terms negotiated between entities are stated not to be a subject of interest to the Bureau of Reclamation" (USDI Memo). This, however, contradicts actual Bureau practice.

In Idaho, transfers of Bureau water are routinely handled by permitting contractees to place their surplus water in a "bank" (Gardner, 1986b). But there is a bank-administered ceiling on the rental price of water far below its value. A policy adopted by the Bureau's mid-Pacific Regional Office in Sacramento is that within the Central Valley Project, water may be transferred from one district to another only at the project's established contract rates. This "no-profit" policy clearly removes much of the financial incentive for water trades. In contrast, in the Colorado Big Thompson project federally supplied water is routinely sold among water users at market rates, apparently with the Bureau's approval, which over time has allowed considerable profits to water users.

It is not clear whether this nonuniformity in Bureau practice is attributable to Bureau initiative to treat different customers in a variable manner because somehow Bureau administration is made easier, or results from effective pressures by powerful Bureau customers for lower water prices and other concessions deemed to be in their best interest. In any case, this nonuniform policy impedes market transfers because the Bureau's willingness to approve the terms reached between buyer and seller is not yet established policy. Thus, the Department of Interior should proceed in haste to match its policy with its current rhetoric of noninterference in market negotiations.

State Issues

It appears that state administrative policy in promoting market exchanges, at least in California, is lagging behind that of the federal government. Approval for water transfers among State Water Project (SWP) contractors rests with the Director of the California Department of Water Resources (DWR). The Director does not use a set of clearly established criteria for evaluating proposed water transfers (Curie). Rather, criteria appear to be constructed on an ad hoc, case-by-case basis. Further, even when a transfer is approved, existing SWP policy does not permit districts to negotiate a market price. A transferor is limited to collecting only a portion of his own water char-

ges from the transferee. Obviously, incentives for efficient exchanges are lacking.

Madalene Curie has developed criteria for DWR that she believes would lead to efficient market transfers. They make good sense for the feds as well. Proposed transfers must be submitted to the agency for a delivery feasibility check. The fixed project charges would remain with the district holding the original contract regardless of whether it becomes involved in transfer activity or not, but any additional costs associated with a proposed transfer should be paid by the participating districts. Market-transacted water may be used in any reasonable and beneficial way by the purchaser and its price would be determined by the purchaser and seller without interference by DWR.

Curie points out that there is an additional and significant barrier to the transferee in the SWP. In its administrative practice, the SWP acts as a user cooperative and tends not to approve a transfer without consent of all customer members. If some members expect that a proposed transfer will significantly reduce their own security in receiving water deliveries, they can object to the transfer and likely will be successful in blocking it. In most cases of potential transfer, it is the low-priority agricultural contractors who are now using "surplus" entitlement urban water at "low" prices that would be harmed if this water were to be sold in a market to the highest bidder. But since the agricultural users have not purchased entitlement in this surplus water, it is difficult to see why they should have what amounts to a "claim" upon it.

The remedy would appear to be simple. DWR should eliminate voting of contractors as one of the constraints on transfer. This action may not be popular with all contractors who may be reluctant to give up their blocking power in transfer decisions. DWR could mitigate these objections by being careful not to approve transfers that would jeopardize current permanent entitlement rights. Through time, contractors would see that with freedom to transfer entitlement, they actually have more security rather than less.

Summary Table

Water Market Impediments and Their Solutions

Impediments

Solutions

Legal Impediments

State-Level Jurisdiction

Unattenuated property rights through state law.

Federal Level Jurisdiction

Give Water district owners clear title to federal water project facilities.

Eliminate differentiating between classes of federal water users, i.e., qualified and limited water recipients.

Indian Claims

Government pressure to resolve Indian claims. Encourage Indians to take advantage of water market benefits.

Administrative Impediments

Federal Issues

Ownership of water rights by governmental agency suppliers

Allow water contractors to reassign their contractual deliveries to other water users, conditional upon the approval of the supply agency.

Complex "rights" questions

Clarify rights positions; quantify rights in measured amounts.

Impairment of existing rights resulting from water transfers

Confine the quantity of water transferred to the historic consumptive use of the seller.

Nonunification in Bureau treatment of different customers

Department of Interior policy to match the current rhetoric of non-interference in market negotiations.

State Issues

No clearly established criteria for evaluating proposed water transfers; criteria constructed on case-by-case basis

Development of effective criteria; elimination of voting of contractors as one of the constraints on water transfers.

CONCLUSION

The corner has been successfully turned; water markets are here to stay. But there are many remaining impediments to market transfers and some of them will prove to be quite durable. In the West, water is wealth and water transfers represent transfers of wealth as well as increases in wealth as water moves to more valuable uses.

Since the federal and state governments are playing increasing roles in water development and allocation, it is especially encouraging to see a philosophical commitment to

water markets by the Department of Interior. Vigorous efforts should be made now to bring law and administrative practice into line with the stated philosophy. It is not clear that all federal administrations will be so sympathetic to markets as this one apparently is, and we should strike while the iron is hot. State policy should be speedily brought into line with the emerging federal policy.

A version of this paper was presented at the annual meeting of the American Agricultural Economics Association, Reno, Nevada, July 28, 1986.

REFERENCES

- Council on Environmental Quality, "Water Resources for Power, Transportation, Irrigation, and Development", Chapter 7, *Environmental Quality*, The Fifteenth Annual Report of the Council on Environmental Quality together with The President's Message to Congress, 1986. pp 311-325.
- Curie, Madalene Mary "A Distinct Policy Which Forms a Market Within the California State Water Project," *Water Resources Research*, Vol. 21, No. 11, November 1985. pp 1717-1720.
- Gardner, B. Delworth "The Untried Market Approach to Water Allocation." Chapter 7, *New Courses for the Colorado River*, Edited by Gary D. Weatherford and F. Lee Brown, University of New Mexico Press: Albuquerque, 1986a. pp 155-176.
- Gardner, B. Delworth "Institutional Impediments to Efficient Water Allocation," *Policy Studies Review*, Volume 5, Number 2, 1986b pp 353-364.
- Huffaker, Ray G. and B. Delworth Gardner "The Hammer Clause of the Reclamation Reform Act of 1982," *Natural Resources Journal*, Volume 26, Number 1, Winter, 1986. pp 41-68.
- United States Department of Interior, Bureau of Reclamation, Memorandum to Secretary, from Commissioner Dale Dewald, February 11, 1986.
- Western Governors' Association, "The Western Agenda," January 9, 1986.
- Wiley, Zack and Thomas Graff "Water is a Commodity, So Let's Treat it as One," Los Angeles Times, February 5, 1984 Part IV, p 2.