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# Melding Private and Public Interests in Water Rights Markets

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## *Abstract*

The debate over privatizing and water markets has moved back and forth for decades between the "I" and the "We" perspectives. Rather than either/or, a balanced "I&We" view of water institutions is needed. West is meeting east in water law. Public interest needs must be satisfied in appropriate decision forums, but marketing may prove a social improvement when used as a supplement. Balancing an "I&We" institution involves establishing an acceptable or tolerable level of interference through judicious mixing of state, common and private property regimes. Third-party effects are eliminated as mutual gain arises in a variety of decision forums.

**Key Words:** property, interference, interdependence, water institutions, water marketing

At least since the 1950s and perhaps much earlier in this century (Lasky), there has been in the literature a debate over which is the most socially appropriate water allocation institution. Those who would apply market theory emphasize increasing water value and opportunity for mutual gain (Trelease 1965; Anderson 1983a,b). Prior appropriation water law is often seen to represent the best way to achieve these goals. Riparian common law facilitates increasing the value of water through judicial interpretation of reasonableness, but does not provide well for mutual gain since transfers may be compensated only by judicial decision (Rose; Sax). Public interest theory found quite dominant in both riparian and administrative law systems emphasizes equitable distribution among future as well as current users not well represented by market processes (Lasky; Ciriacy-Wantrup 1956, 1967; Johnson 1971; Brown and Ingram; Swaney).

At core, this debate is ultimately centered on the appropriate balance of the "I" (the self-interest, the private interest) and the "We" (the

community-interest, the public interest).<sup>1</sup> At the extremes of this debate, the "I" position calls for complete individual volition through privatizing and marketing (Anderson 1983a,b; Howe et al. 1986; Milliman). At the other extreme, the "We" position calls for controls over individuals, generally through government administrative systems (e.g., Maloney et al. 1972; Utton). In the "We" view, water is far too important to be evaluated exclusively in terms of economic welfare (Brown and Ingram, p. 38). Water is a need and plays a central role in "the fabric of the very concept of community" (Utton, p. 992).

We indicate the main themes underlying and in the water marketing literature with the intent of helping to direct future research and discussion about privatizing and marketing southeastern water. We draw on Saarinen and Lynne (1993a). Most writers tend to take either an "I" or a "We" position. We prefer the analytical position in socioeconomics (Etzioni) that the "I" does not exist without a "We," but then neither can the "We" exist without many viable "Is": we propose that all future water

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allocation research and discussion be framed on an "I&We" perspective.<sup>2</sup> The discussion draws on the western U.S. experience. To set the stage, we briefly return to 18th century America and England, at about the time of Adam Smith.

### Historical Perspective On the "I" and "We" Views

Modern discussion about alternative ways for organizing a society can easily be traced at least back to the 1700's (see Etzioni, esp. pp 6-8). The radical individualism (the "I" view) popularized by the Whigs developed "in opposition to an authoritarian monarchy and a tightly woven society that imposed its moral code via the established religion (Gutridge cited by Etzioni, p. 6. See also Chalk)," in response to severe controls of individuals far beyond mere influence. Extreme versions of this "I" view are apparent in the call for privatizing and open water marketing by contemporary economic whigs including Howe, (Delworth) Gardner and, especially, Anderson (1983a). Howe et al. (1986, p. 444) temper their arguments somewhat, even though arguing that markets best meet all six of their criteria.<sup>3</sup>

Expression of the "We" view can be traced back at least to the Tories in the 1700's and probably relates to medieval social institutions. Individual rights are subservient to the tribe, motherland, church and society (Etzioni, p. 7). The "We" view suggests organizing a society around one set of ultimate values and a strong state to express and reinforce these values (Etzioni, p. 7). Significantly, contemporary economic Tories opposed to privatizing and marketing water are difficult to find: the view is simply inconsistent with the philosophy built into the mainstream (largely neoclassical) paradigm. It is easy to find Tories with other discipline backgrounds, e.g., Brown and Ingram; Mumme and Ingram; Maloney 1970.

Back to the debate: it rests on rather basic differences in social philosophy. The Tory view presupposes that people are born knaves, and just naturally prey on each other: thus the need for collective control. In contrast, the Whig view presupposes that people are born nobles who will

ultimately interact in harmonious ways arising from a spontaneous order with no need for collective control: thus individuals need to be free to choose.

We now present in turn the "I" and the "We" perspectives. A reviewer of an earlier draft of this paper suggested we were creating strawpeople<sup>4</sup>, which we could then easily knock down with our "I&We" paradigm. Our motivation is different. Rather, we believe writers should make underlying beliefs and values (i.e., philosophies) explicit, and that we should debate especially the value issues head on rather than indirectly through ideological assertions. This is a way to insure progress in the debate.

### A Liberal Social Order, "I," and Water

What values, beliefs and philosophies underlie the pro-market rhetoric? We draw on Hayek (1967, Chp. 20, in Nishiyama and Leube) and Anderson (1983b). We review the 12 main elements of the "I" view.

First, the "I" view represents the belief that it is impossible to know *ex ante* how to order social relations (i.e., it is impossible to know the social welfare function), so we cannot intentionally design water institutions to elicit specific behaviors. Rather, the evolution toward markets is spontaneous and natural, as long as we remove "impediments" (Gardner 1987).<sup>5</sup>

Second, while rules defining what individuals *are to do* are impossible to formulate, the community is to define what individuals *cannot do* in mutually agreed coercion. These "thou shalt not" rules evolve in a spontaneous moral order (Buchanan) in the common law, not from legislation. Government functions best under the common law.

Third, the "I" view puts great importance on access to water by entrepreneurs with new ideas through entry/exit (Anderson 1985, p. 897). This access idea is reflected in riparian law, illustrating that the influence of this view is far wider than just in economics. In the late 1700's and early 1800's, U.S. courts were prime movers in insuring economic development by reallocating water away

from the landed gentry to the innovative industrialist (Tyler v. Wilkinson (1827) and Webb v. Portland Manufacturing Co. (1838), see Horwitz; Rose). This adaptability in the search for mutual gains may be the most important criterion for choosing one institution over another (Ciriacy-Wantrup 1967).<sup>6</sup>

Yet, the "I" view also recognizes that too much access can be counter productive. Butler (fn. 13, p. 102) argues that a prime reason for replacing riparianism with prior appropriation in the western U.S. was to limit access in order to insure viable individual economic units. Senior appropriators represent that set: ironically, while most writers with the "I" philosophy tout the prior appropriation system with its perpetual rights, a main feature of successful common property arrangements is also a set of rules for excluding and controlling the number of users of the resource (see Ostrom; Bromley 1992). The "We" also needs viable "I's."

Fourth, under the "I" view property rights would seemingly be defined in the productive capacity of the aquifers, lakes and rivers to produce water, analogous to property in the productive capacity of land to produce crops. Economists know the John Locke story about the necessity of fencing the commons. Fifth, capacity rights insure geohydrologic independence (*no interference*) among water users. In fact, the "thou shalt not rules" insure individuals are independent, as in the microeconomic textbook assumption, i.e., no interdependence, no jointness and thus no interference. With no interference, we get the sixth feature of mutual gains, i.e., economic efficiency, during all transactions, and seventh, that individuals have the freedom to seek individual goals (maximizing, or satisficing, whatever it is they do). Volition and mutual gain insures opportunity costs are paid. Eighth, conflict vanishes because *everyone* gains.

Ninth, each individual has a moral obligation to accept the outcome of what the water market brings. When it is no longer profitable to irrigate corn, sell your water permit. Yet, tenth, even in the "I" view, when the economy treats you really badly, some minimal support (welfare) will be provided (Hayek, in Nishiyama and Leube, p. 378).

Eleventh, the "I" view presumes that the market transmits all relevant value information through prices back to the resource users. Take the extreme, textbook view for the moment. Assume buyers of Florida strawberries in Atlanta in January are conservationists and would like to see Florida farmers conserve water. In the extreme "I" view, these consumers could express their conservation values at the Atlanta supermarket (with appropriate product labeling, maybe this is possible) to get Florida farmers to use drip irrigation. These conservationists presumably would pay a premium price for drip-irrigated strawberries. Another way to state this "I" belief: there are no other legitimate decision forums for transmitting values about use of conserving technologies. An administrative rule-making process in a Florida water district as decision forum, attended by the Atlanta conservationists representative from a national conservation group, which results in drip-irrigation, or a soil-conservation drip-irrigation cost sharing program arrived at in the legislative decision forum, and influenced by the Atlanta conservationists congressional representative, would simply not be legitimate ways to express conservation values. Private and public values can be expressed only in the market forum (although Buchanan, who is in the "I" camp, recognizes value expression in other forums).

The twelfth is that of the assumed ethical (i.e., no knaves) and knowledgeable population. With such individuals, there is no need for an agency to specify the best rate and timing of pumping to reduce salt water intrusion in a coastal aquifer. In fact, with every ethical "I" having all relevant knowledge, the only issue is if s/he is willing to pay for sustainability. If not, others may be willing. These others will enter the water market, buy the water right and pump the source at the aquifer sustaining rate.

We could end the paper here. It is easier to take this philosophical stance and then work toward privatizing and water marketing without all the messiness of ideas like public interest, public values, and the "We." Maybe that is why so much of the economic literature stops here without discussing these values and beliefs directly. Yet, it

seems it is about these very beliefs and values, that we should debate. Also, we favor economic analysis addressing actual life experience.

### **A Community Presence, "We" and Water**

One useful way of understanding what composes the "We" view is to step through the looking glass and to look back at the "I." The mirror image suggests institutions can be intentionally designed under the assumption that the complexity of social relations and the social welfare function can be understood *ex ante*, state property is preferred to individual property, not only "thou shalt not" but "thou shalt" rules are needed, mutual gain is the exception rather than the rule, social order can be attained only with control, adequate information is virtually never transmitted through the market place (so there is a strong need for other decision forums in addition to marketing, see Nunn and Ingram), and educational processes are not adequate to the task of ensuring that all individuals will be knowledgeable (and noble) enough. The "We" view is concerned with the public interest, the shared values, the public goods, and is especially concerned with long term (intergenerational) distribution issues which are beyond the "I"/discount rate based decision-making.

Most importantly, the "We" view recognizes the general impossibility of becoming independent, one from the other. We are inherently interdependent and thus there is usually interference. Giving even only a modicum of credibility to this view implies the need to shift the focus to finding an acceptable or tolerable level of interference. As Bromley (1989, p.207) notes, collective choice involves mediating interference. We call it "tolerable interference" here and see its mediation and definition as the necessary precursor to starting a water market.

### **Tendencies In Water Law Favor An "I&We" Perspective**

There is already a "We" embedded in water law (see, e.g., Lynne and Burkhardt, esp. pp. 1061-65). Trelease (1961, p. 1152) argues that "The law belongs to the people; it represents the value judgments of the majority as to desirable courses of conduct that may be taken." Ciriacy-Wantrup

(1967, p. 398) notes that "Most of the content of water law relates to establishing a normative framework for the economic behavior of individuals and groups with respect to one of their most pressing economic wants." Often this water law reflects the judgment that any threat to water is a threat to the communal enterprise (Brajer and Martin, p. 38), which includes far more than the economy. Water is perceived as "being too important to be evaluated exclusively in terms of economic welfare (Brown and Ingram cited in Brajer and Martin, p. 38)." Courts often view water this way, where beneficial use means far more (or far less) than profitable use.

Tarlock (1991) has pointed out that water marketing based in prior appropriation in the west has been hard on public values. Such values cannot be completely transferred through market prices (Utton, p. 991), and are often better transferred through other decision forums (Utton; Nunn and Ingram). Representing the public values has become a big challenge in the west.

Most western states have some type of decision forum reflecting the "We" embedded in law underlying or supplementing the market (see Colby et al. 1989). In New Mexico, the state engineer (Johnson et al., p. 284) reviews all proposed transfers for impacts on public values. Recently in Montana, three levels of public interest criteria were added to all local transfers (Thorson 1989, p. 482). The California Supreme Court decision in *National Audubon Society v. Superior Court (Mono Lake)* set the stage for an important integration of the public trust doctrine and prior appropriation throughout the west. The doctrine was expanded beyond traditional navigation, commerce and fishing concerns to include ecological preservation, open space maintenance and scenic and wildlife protection (Thorson 1986, p. 75). The public trust doctrine has been used to express public values in several other western states as well, including Idaho, New Mexico and North Dakota (Thorson 1986, pp. 73-74).

In contrast, contemporary eastern riparian law (also in contrast to its flavor in the late 1700s, early 1800s) gives overwhelming attention to the public interest. Abrams has suggested this spells doom for the riparian doctrine: we believe it also

could mean doom for the Florida administrative system unless ways are found to express the private interest (Saarinen and Lynne 1993b).

We are seeing, then, some meeting of the west and the east, of the "I" and the "We." Maloney et al. (1972, 1979) argue west has already met east in their Model Water Code (on which the 1972 Florida Water Resources Act is based). The public trust doctrine is apparent in the Code, as it puts the highest priority on the public interest (e.g., hydrologic integrity and intergenerational fairness, protection of water related ecosystems, domestic water needs). It creates administrative forums for mediating interference (e.g., by facilitating negotiation over maximum pumping rates consistent with minimum stream flows, long term sustainability of aquifers, as well as maximum drawdown of potentiometric surfaces, surface waters and groundwater tables for neighboring uses). Unfortunately, once tolerable interference in each of these cases is mediated, the Code does not specify any privatizing and marketing to facilitate the private interest.

The need for a variety of decision forums for mediating tolerable interference level suggests the need to evolve state, common and private property regimes side-by-side (also see the legal literature, e.g., Rose). The private *vs* open access (often mistakenly called common) property idea should be changed to the state *and* common *and* private property regime(s) idea (Bromley 1992, p. 4). The many successes in state and common property regime situations (see Bromley, 1992) should be recognized. Fair is fair, however: open market successes also exist. Markets represent one of the best ways to bring in the opportunity costs, but be careful here.

True, we are aware of no empirical evidence that collective, governmental entities can adequately account for all private and public opportunity costs. That may go without saying, but it sets the stage for saying there is also no empirical evidence that markets will adequately do so either. In fact, the evidence in the western U.S. is to the contrary: many public opportunity costs are not represented in water markets (Saliba et al. 1987, esp. p. 623). At the same time, many public opportunity costs are represented by government,

e.g., "thou shalt not overpump the aquifer" essentially says the opportunity costs are infinite to do so (see Lynne 1989, p. 423; Lynne and Burkhardt). We embed opportunity costs in law. Unfortunately, many opportunity costs are not reflected in either law or in government decision forums. In Florida, for example, water districts have the power to take a permit from one user to give it to another without compensation, even though both permits may pass the public interest test. A mix of property regimes and the associated mix of decision forums arising therefrom will insure opportunity costs of all types are represented.

### **Toward an "I&We" Water Institution in the Southeastern U.S.**

The first general point arising from our assessment of the literature is that we should avoid the approach of a butcher by calling for wholesale replacing of all time-honored decision forums with markets. The western experience suggests this approach will never work. Rather, we will be more successful if we use our economic scalpels to carefully insert institutions for water markets into the institutional structure that underlies all the judicial, administrative, legislative decision forums already operating. We must recognize that new rules evolve in the context of old rules and that past institutional choices may severely limit future ones (Ostrom, p. 202).

It is clear western water markets are diverse in the role they play in different settings (Colby Saliba 1987) which we can expect in the Southeast. It is equally clear there is no deterministic, value-free way to specify the optimal mix of property regimes, which is the reason we reviewed the inherent belief and value positions in the "I" and "We" views. Privatization will make a lot more sense in areas where the people are highly individualistic (Bromley 1992, p. 8). Someone must measure how these positions are viewed by southeastern water users. The intrinsic features of water do not dictate the optimal mix of property regimes. We are faced with choice, which means we must study values and find ways to facilitate the expression of values in a variety of decision forums. Are southeastern citizens/water users ready for this? Does anyone know, i.e., has anyone systematically

studied southern values and philosophies pertaining to water allocation processes?

What will happen in the southeast? Randall believes markets will evolve in a maturing water economy, characterized by increasing interdependency (arising from scarcity) and increasing opportunity costs. Is the southeastern U.S. water economy entering middle age, or is it still but a babe? At least in some areas of Alabama, Georgia, Florida, Texas and Virginia, certainly we have entered middle age. Opportunity costs are not zero.

Water marketing in the Southeastern area may be inevitable. Ground water, for example, has been defined a commodity for interstate commerce through *Sporhase v. Nebraska (ex rel. Douglas, 458 U.S. 941 1982)* (Chan) so it likely is only a matter of time before water is bought and sold across state lines (DuMars; Howe 1985). The southeastern states should look to Colorado and New Mexico for the most well developed groundwater rights (see Tarlock 1985, for discussion, esp. p. 1760). With groundwater already a commodity, it seems only but a short time for similar recognition for surface water.

### Analysis of Property Regimes

In the spirit of the neurosurgeon rather than the butcher, we now suggest some specific areas for consideration. The property right framework is borrowed from Bromley (1989, pp. 187-191). Balancing the "I&We" must go on in many different dimensions.

We draw on actual western experience as documented for operating water markets in Arizona, California, Colorado, Idaho (leasing), Montana (short term sales and leasing), Nevada, New Mexico, Utah and Wyoming (negotiated prices) (Saliba and Bush; Wahl and Osterhoudt). We use insights from proposals for Hawaii (Anderson 1985), Georgia (Wright and North), Florida (Kiker and Lynne 1976; Lynne and Burkhardt), Illinois (Eheart and Lyon) and Virginia (Batie; Johnson; Shabman and Cox), as well as in other parts of the world, e.g., the Middle East (Wolf and Dinar). There has been some market experimentation in Australia (Dragun and Gleeson; Randall).

Unfortunately, space precludes discussing how each actual proposal handles each dimension, but see Saarinen and Lynne (1993a) for more detail.

### *Balancing the Right to Possess*

Throughout the entire U.S., the natural storage and transport capacity is held in the state property regime, consistent with civil and common law based public trust doctrine (see Thorson 1986, p. 74). Neither common nor private property regimes usually involve capacity ownership (with the exception of some western companies owning distribution facilities, see Colby Saliba and Bush). We do not see that this deeply held tradition will change any time soon.

Yet, this tradition of state property for capacity may simply be due to our ignorance, e.g., not knowing how aquifers function (see Brajer and Martin, p. 264). Recall the move to private ownership of western rangeland was due in large part to invention of barbed wire (notice the intrinsic feature of the common range changed with this new knowledge). While it may not be as easy to "fence" an aquifer, it is not impossible to specify its characteristics and limits, and we continue to learn more about aquifers. It would be quite easy to define private and common property in the productivity of a lake or the transport capability of a river subject to precipitation uncertainty.

Research should be directed at examining the possibility of common property for capacity ownership by groups of individuals organized in various types of "appropriator organizations" (Ostrom's term): the mutual irrigation companies in the west are examples. Private property might be best in specific instances, e.g., aquifer storage and recovery systems (see, e.g., Dudley and Musgrave on developing private property in reservoir capacity).

### *Balancing the Right to Use*

Water rights throughout the entire U.S. are usufruct rights. Initial access to these use rights is largely first-in-time, first-in-right, either by being the first to acquire riparian land or a water permit from the state. Numbers of new entrants are restricted under all systems, either by number of

permits (and the withdrawal restrictions) or by restrictions on the size of land tracts that give rights to riparian water. As the Southeast moves to water markets, access (numbers, size of withdrawals) will still have to be controlled in other decision forums.

The western experience suggests the importance of separating water use rights from land ownership, as in Florida (see Colby Saliba et al. 1987, for discussion of both types of systems used in Arizona). For efficiency purposes, water must be available to those with expertise and new ideas for its use, who may or may not be the land owner.

Specificity and flexibility is necessary to insure opportunity costs are accurately revealed, no matter what the decision forum. Use rights must be defined on the basis of both withdrawal and consumptive use (volume and flow rates), quality of the water in the right, point of diversion (location), export restrictions to other watersheds or aquifer systems, timing, quality and quantity of water leaving the site of use (e.g., return flows in surface irrigation), and by type and priority of use. The idea under all permit systems that water can be used anywhere as long as it is beneficial use should be retained, and the riparian idea dropped.

Uncertainty will have to be addressed. Seemingly, permit quantities with varying hydrologic certainty might be created which would command varying prices. Users could hold an investment portfolio with rights of varying certainty, which is essentially what happens in western states having water markets (Wahl and Osterhoudt)

The decision forums used in the Florida administrative process for expressing public values should be studied for possible transfer to other southeastern settings. These forums arise under the Model Water Code, which is a good place to start for all eastern states with respect to insuring the public values are represented (Trelease 1974, esp. p. 213).

Public decision forums need water to allocate, so some water will have to be held out of the private markets. This could be handled by having some proportion of all permits return to state property each year (Kiker and Lynne 1976, p. 60). These could be auctioned to generate public revenue

for water management or held back to satisfy public values.

Some base quota should be provided for every citizen and held in the state property regime. In fact, there is no need to create a private property regime for every drop of water.<sup>7</sup> Howe et al. (1986) have suggested the need to market only a "tradable margin": as little 10-20 percent of the water would have to be allocated under the private regime to give substantial gains in efficiency.

### *Balancing the Right to Manage*

The task is to balance private and public management which is intricately intertwined with the property regimes. In fact, a state property regime may be needed to appropriately manage at one level, while a common property or private property regime may be better at another level. Unfortunately, there is a tendency for public managers to go too far into the micromanagement of firms. In Florida, for example, we have limited-flow shower heads and mandated irrigation system technologies, and are even told what hours the irrigation systems can be operated (and how to design corner fence posts for containing dairy cows away from rivers). Other southeastern states should avoid the unfortunate experience of micromanagement in Florida.

A fascinating area for research is to explore the large middle ground between state and private property regimes, within common property regimes. Could Floridians, for example, improve water management by extending the current right of local governments to create water supply authorities (which hold water permits) to farm groups, environmental groups, or any other common interest group? The west addresses water management through a wide variety of common property entities, represented in irrigation districts, water districts, mutual stock companies, mutual irrigation companies and water user associations (Colby Saliba et al. 1987).

Related to the management problem is the information problem. Good management presupposes accurate, relevant and reliable information. Hydrologic information for supporting management systems both at point of use and globally is costly. Water markets would require



vast quantities of high quality information regarding how much water of what quality is located where and when. Agricultural food markets, for example, rest on a large and stable foundation of market information provided by state and federal agencies. A similar foundation would be needed to support water markets (see Curie; see Ostrom, p. 212, in describing the success of groundwater markets in California based on information from public agencies). Information costs (and other transactions costs) will be a factor in deciding on mixes of property regimes.

Importantly, the hydrologic market information problem may be reduced somewhat by the physical plumbing for transfer. Market information is needed only where transfer is physically possible such as within a particular watershed, or within a groundwater basin.

#### *Balancing the Right to Capital and Income*

Clearly the mix of property regimes not only affects the capital formation (economic development) process, but also who gets the income from the capital. While not a new call, economists still do not put enough effort into understanding distribution. Once we enter into research on property regimes we clearly have to face the distribution issues.

Private and common property would also facilitate leasing/rental, e.g., Indian reservations in Montana lease water to local ranchers, and thus a sharing of income. Once water is assigned to individuals in private and common property regimes, it becomes essentially a capital asset to be used as these individuals and appropriate organizations see fit. For the portion of the water retained under state property, the state might consider leasing the water until public needs increase, while earning income for public services.

#### *Balancing the Right to Security*

The property regime "... allows the formation of expectations in dealings with others....(Emel, p. 662)" and thus enhances both security and predictability of outcomes. While appropriation provides the greatest security of the three institutions, it is this very security that may not lead to investment in new water saving

technologies (Angel, p. 1176, Shupe). What is often overlooked in such commentary is that if conserved water could be sold, there would likely be adequate investment. Southeastern water use rights should allow sale of conserved water.<sup>8</sup>

Abrams (1989, p. 1395, in citing Horwitz, p. 251) notes that in the early years riparian doctrine (1800s in U.S.) encouraged economic development by disguising the changes in the complexities of technical (riparian) legal doctrine and thereby giving the illusion of security, when in fact there was little security. Abrams (1989) suggests riparianism is currently heading toward a collapse on this front because of the tendency to provide security for established uses, which may not support (p. 1403) "...the entrepreneurial activity on which the American economic system depends." This is largely the matter of access in different clothing.

#### *Balancing Transferability*

Easy transfer is necessary for mutual gain, but all transfers would have to be regulated and reviewed to insure no damaged third parties (and, thus, mutual gain for everyone). Colby (1990b) argues that state water policy representing community values (pertaining to return flows, area-of-origin impacts, instream flows) have improved market transfers in the west (also see Metzger).

Transaction costs could be high (Colby 1990a; Lynne et al. 1991). Yet, market transaction costs will likely be less than the costs that will occur under central government controlled allocation process. In fact, it may simply be impossible for government to find enough money ever to accomplish the information gathering task faced in central allocation (see Lynne 1988, esp. p. 100).

#### *Balancing the Duration/Term*

Australians market one-year permits, while westerners market perpetual permits. Florida currently gives usually a seven-year permit. A mix will likely be best in a market process with some returning to the state each year (Kiker and Lynne 1979). State, common and private owners could hold a variety of durations in their investment portfolios. Shorter duration permits would cost less, which might also facilitate entry of new, capital

short entrepreneurs with new ideas: the state might also give a few of these away each year as well, to encourage innovation.

### *Balancing the Prohibition of Harmful Use*

The problem in water law is to define which acts to allow and which acts to prohibit (Singer, pp. 1021-1023) and to define what requires compensation and what does not, i.e., to define tolerable interference. The evolution of reasonableness under the riparian doctrine has been characterized as "enlarging the range of noncompensable injuries" (Horwitz, p. 259) to facilitate economic development. The challenge in institution building is to find ways to reduce the possibility of all external effects, third party and otherwise, by redefining the content of (our tolerable interference idea) *damnum absque injuria* (see Singer, p. 1026) which means "damage without legal wrong". This is riparianism at its allocative best (Abrams, p. 1396): "imposing legal constraints on individual riparian owners only when their self-interested actions threaten the larger community's beneficial use of a common pool resource." Under administrative law and regulatory systems, use is defined for specific standards of interference, e.g., a five-foot aquifer potentiometric draw down at a neighboring well.

The area-of-origin problem has been especially troublesome in the western U.S. from transfers of water out of farming to urban areas (Howe et al. 1990; MacDonnell and Howe; Tarlock 1991). The city of Mesa, Arizona, e.g., makes cash payments to Pinal County to offset the property tax losses due to water being taken out of the private sector (Colby Saliba et al. 1987).

Downstream user protection will be an issue. Water quality issues could arise in transfers, although private property regimes will require that water be defined in quality terms as well as quantity. The tolerable interference for all these cases will have to be worked out in the various decision forums functioning both behind and with the market.

### *Balancing the Liability to Execution and to Residuary Character*

When ownership rights lapse due to abandonment or death, there must be rules established for disposing the property. Under both prior appropriation and riparian law, the water right is handled similarly to land. With administrative law, permits revert to the state. This may be another opportunity for giving access to new entrepreneurs.

### **Conclusions**

Water markets can play a role in "constructive institutional reform" (Swaney) for the good of a community. Such markets should be administered. Trelease (1965, p. 37) has noted the need for thinking in terms of "regulated *laissez faire*" with respect to water markets. Even if regulated, markets will give another means for southeastern residents to express their values. Markets also do not have to carry the entire valuing burden. Markets should be inserted among the other decision forums.

In considering the general question of moving toward privatizing and water marketing, we were reminded of Trelease's comment that (1961, p. 1152) water law will be changed in that direction "if and when the people are convinced --- perhaps by economists --- that things [water transfers, efficiency] blocked by law are in fact desirable...." This puts a responsibility on us as economists to make our value presumptions explicit as we work to convince. Also, it appears we may have already moved beyond the question of "if" to "when." Anderson and Leal have suggested that water markets are inevitable throughout the U.S. because of the conservation-conservative coalitions that will push for them. Economists will be important in that transition.

Alas, lest we become too smug, DuMars and Tarlock (1989) (cited in Gardner 1990, p. 1208) have noted "While a society fashioned solely by economists might be very efficient, it is unlikely that one would choose to live there." We believe they are correct if economists stick with the strict

version of the "I" view. It seems we may be able to overcome this criticism with socioeconomic rather than strictly economic research, analysis and

discussion focused on helping the evolution of balanced "I&We" water institutions.

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## Endnotes

1. The distinction is possibly more often phrased as the balance between market and regulatory approaches, or the tension between market forces and broader social values. We choose here to deal with more fundamental, and more easily definable, concepts.
2. This proposal is based on research in an ever more convincing literature. As Etzioni (1988, pp. 8-9) reasons: "...if individuals were actually without community they would have very few of the attributes commonly associated with the notion of an individual person...such isolated individuals have little in common with the level-headed maximizers assumed by the Whigish neoclassical paradigm. The I's need a We to be." This is the socioeconomic, in contrast to the neoclassical economic, view of human behavior. We prefer the former.

3. Interestingly, they use "I" view criteria, and then conclude the "I" view based market process is the most appropriate of all possible processes, which is at best circular reasoning. This methodology is applied often in the water literature, suggesting its ideological nature.
4. We appreciate David Mulkey's comment: it caused us to state our views more strongly and clearly.
5. Which seems to us inconsistent in that the act of "removing impediments" in itself is also intentional? What are we missing here?
6. The riparian doctrine meets this criterion of adaptability well, but the transfer of water rights is not voluntary and may be compensated only if the court deems the damage beyond tolerable interference.
7. In fact, markets will not even clear for very small amounts of water essential for life because the marginal values are essentially infinite. Markets do not work well for essential needs. The discussion about water markets should be shifted to discussing allocation among the marginal uses.
8. This position is not without controversy. Some believe the use of conserving technology is an ethical issue, so why should users benefit from being wasteful? The usual ban on sale of conserved water in the west (except in Oregon) reflects this view.