THE TYRANNY OF NON-DECISION AND SAMLL DECISION

Jody Emel*
Elizabeth Webb**

A big problem with water markets is the indefiniteness of the transferable right due to "third party" impacts. Buyers and sellers cannot be certain about what can be transferred before transfer arrangements are researched hydrologically, ecologically, socially, and economically. This means that transaction costs are high in many transfer situations, particularly where water is transferred or diversion points are relocated. If the rhetoric of market proponents regarding the social welfare necessity of fully pricing or valuing all impacts of such transfers is to be taken seriously, transaction costs should be high.

Despite exhortations to treat water as simply another resource commodity like coal or oil, the "water is different" theme persists. It persists because it is historically validated The hydrologic cycle plays a major biogeochemical role. Water is a controlling influence on climate and weather; it is a critical factor in soil formation and erosion; it is the major transport medium for many other elements; it is perhaps the most important physical aspect of the ecosystem. In both marine and terrestrial environments, the quality of water and its rate of movement determine the primary characteristics of the ecosystem. Water is different also because it is a means of production which can only be limitedly substituted for in irrigated agriculture. To sell this means of production thus entails the discontinuation of farming (reversion to dryland is often not physically, economically, or culturally possible). As Nunn and Ingram (1988) have argued, the loss of farms through agricultural-to-urban transfers may have significant social impacts that remain largely uncaptured by market transactions.

If we have learned anything from the efforts over the past twenty years to get us to pay attention to environmental and social impacts of economic growth, we should be arguing for greater articulation of the ecological, social, and long-term economic effects of market transfers of water. As things stand at present, we have made only marginal progress toward protecting extra-market values in the economic development process. This failure results largely from the tyranny of non-decision-making and what Odum (1982) aptly called the "tyranny of small decisions."

Non-decisions About Growth and Water Supply

Water supply does not develop in isolation from economic growth and the exercise of power. Growth generates the demand and power supplies the political ability to secure water through government or private action (Walker and Williams 1982). The literature on industrial location and regional development is divided on the importance of water, but in general, water is not a major cost item for industries. What is at issue is water sufficiency for the residential and commercial developments that serve industries (broadly defined). Housing developers obviously have a great interest in securing water service. But though it is a basic requirement for development, water is not necessarily a determinant of development. In other words, its initial presence or absence does not mean much because water is such a relatively minor cost in urban development; it is unthinkable that lack of supply should stand in the way of the immense profits to be made in manufacturing, commerce, or residential development (Walker and Williams 1982). For this reason, water supply is not left to chance. Political power is exercised to see that

*Assistant Professor, Graduate School of Geography, Clark University
**Graduate Student, Graduate School of Geography, Clark University

water resources are developed in anticipation of or to meet existing demand.

These days, the water supplies of many major metropolitan areas in both arid and humid parts of the United States, need augmenting because of population growth, economic growth, water quality deterioration, and so forth. Large-scale, long-distance transfers have become too unpopular and expensive, and the most easily developed supplies were long ago dammed and diverted. As a result, sustained economic development has required periodic, if not continual, demand management in many places (i.e., Arizona, California, New York, and Massachusetts), and many small-scale rural-urban transfers. Clearly, the relationship of urban growth and water supply development is becoming more important.

What does non-decision-making have to do with this? Non-decision-making is a process by which the political agenda is controlled (perhaps not even intentionally) by "confining the scope of decision making to relatively 'safe' issues" (Bachrach and Baratz 1962, 378). Given the embeddedness of water supply development within the regional economic development matrix, one would think that the water-growth issue would be on the political agenda. In our experience in Arizona and Massachusetts water management, however, that relationship is never ever overtly examined in a public forum - at least not seriously, and not for very long. For example, when a recent groundwater supply management strategy was circulated for comment in Arizona, a Sierra Club representative wrote comments asking the state agency to examine the water management - growth control issue. The state bureaucrat chiefly responsible for the plan took these comments to be too "negative" to be taken seriously. The growth control - water supply relationship is on the minds of many and certainly implicit (if not explicit) within some state's legislation, however, within the government agencies managing water, it is verboten to mention it. Thus, no real analysis is done to determine what the explicit tradeoffs should be between development and protection of environmental and social values not favored by new urban growth.

Decisions about allowable impacts of transfers on ecological systems, instream flows, or other parties may increase (and possible decrease) the amount of water available for new development.[1] These are small decisions, often never reviewed seriously by the public or even by the people making them within state and local agencies. Yet they may potentially add up to significant losses in terms of riparian vegetation, wetlands, and other attributes of place that are environmentally and socially important. Thus, non-decision-making means that the hidden conflicts between economic growth, profits, and extra-market values are addressed only within the arena of these seemingly insignificant, but cumulatively important, small decisions.

The Role of Nomnarket Institutions in Protecting Extra-market Interests

A partial explanation for the failure of water agencies and others to address the deeper conflict in water supply development and transfer is the entrenchment of the ideology of growth in water legislation and agency tradition. Water allocation policies in the United States have been geared to promote growth at least since the nineteenth century (Horwitz 1977). During the beginning of the nineteenth century, American legal conceptions of property in land and water resources began to change from the static, exclusionary posture of English common law to a more dynamic and instrumental orientation compatible with fostering economic expansion. During the early stage of expansion, capital and labor were relatively scarce. The Appropriation Doctrine promoted the security of investment

[1]Demand management decisions fall into this category as well.

necessary for development under such conditions. As capital became more abundant and pressure on water resources increased, the hue and cry rose up for permission of more injury or greater risk (less protection) and less "waste" in order to sustain economic development.

A growth ideology pervades the dialogue among persons and agencies involved in water supply and management. Public and private water suppliers are dedicated to serving all customers and the necessity of meeting "water needs" whatever and wherever they may be. There has been no shortage of local enthusiasts pushing various water schemes. The overall unity of purpose even across rural-urban lines has been remarkable (Walker and Williams 1982; Nunn and Ingram 1988). Even demand management schemes implemented to control "waste" of water also reflect a growth promotion orientation, particularly when new development is not precluded.

There are a number of reasons why the pro-development (low water-at-any-cost) posture has not been more seriously challenged. Theorists of non-decision-making suggest three explanations for the passivity of the groups which are the "victims" of this type of political control (Blowers 1984). First, an issue may not be challenged because it is anticipated that nothing will come of the challenge or the consequences of action may be undesirable. Second, whether due to apathy, pessimism, lack of resources to expend on challenge, or other reasons, groups may simply not wish to become involved - they may wish to spend their time, money, and personal resources doing other things. Third, people may not challenge because they are not mobilized to do so. As Nunn and Ingram (1988, 477) point out, "the widely shared, diffused impacts which leave no identifiable group perceivably better or worse off than any other group are far less likely to generate activity." Also, people may be simply unaware of their interests in the outcome. Wetlands, riparian vegetation, rural community stability, and other similar kinds of concerns have not been as successfully promoted for as long a time as have ideas such as "waste not, want not," "your job depends on growth," or "growth is good for everyone." The call to reduce resource "waste" is used to justify all sorts of actions that benefit relatively few rather richly. For example, it is just short of criminal to leave water resources that could benefit urban development interests in the hands of nefarious irrigators. Howe et al. (1986, 439) state that "[it] is ludicrous that Southern California should incur a cost in excess of $450 per acre-foot for additional water while irrigators in the Central Valley continue to irrigate thousands of acres of crops which are in surplus nationally." Ludicrous for whom and under what criteria? The public (most of whom gain very little personally from supply or demand management) is lulled by this combination of anti-waste and pro-growth ideology into believing that water development and transfer is a compelling need that must be satisfied with haste.

Thus, the agency responsible for protecting third party impacts is operating under an explicit or implicit water-for-growth mandate. The political pressure on state water management agencies who oversee water rights transfers is heavily weighted in favor of those who stand to directly gain from such transfers. Social and environmental values are not actually part of the larger decision agenda. Rather, they are addressed in the small decisions that are made within the agency. The manner in which social and environmental interests lose out in the small decisions made by agencies is discussed using an example from Massachusetts.[2]

Contradictions and Small Decisions

Massachusetts has a new water management act which became effective in March 1986

[2]This is in no way intended as a criticism of Massachusetts DEQE. They have handled the public input into water management remarkably well given the resource constraints under which they operate.

(see MGL Chapter 21G). It authorizes the Department of Environmental Quality Engineering (DEQE) to regulate the quantity of water withdrawn from surface and groundwater, and to ensure adequate water supplies for current and future water needs. The Water Management Act mandates the water resources commission to adopt principles, policies and guidelines designed to "protect the natural environment of the water in the commonwealth; to assure comprehensive and systematic planning and management of water withdrawals and use in the commonwealth, recognizing that water is both finite and renewable; and to allow continued and sustainable economic growth throughout the commonwealth and increase the social and economic well being and safety of the commonwealth's citizens and of its work force." Once all existing users register their uses in subbasin, the DEQE will have some idea as to how much water remains for permitting of new uses. If no water above what is defined as "safe yield" is available, water right transfers are expected to occur.

In adopting regulations establishing criteria and standards for obtaining permits (and for approving transfers), the Act requires the department to assure that the following factors be considered:

(1) the impact of the proposed withdrawal on other water sources which are hydrologically interconnected with the water source from which the withdrawal is to be made;

(2) the anticipated times of year when withdrawals will be made;

(3) the water available within the safe yield of the water source from which the withdrawal is to be made;

(4) reasonable protection of water uses, land values, investments and enterprises that are dependent on previously allowable withdrawals;

(5) the use to be made of the water proposed to be withdrawn and other existing, presently from which the withdrawal is to be made;

(6) any water resources management plan for any city or town in which the affected water source is located;

(7) any state water resources management plan adopted by the commission;

(8) reasonable conservation practices and measures, consistent with efficient, utilization of the water;

(9) reasonable protection of public drinking water supplies, water quality, wastewater treatment capacity, waste assimilation capacity, groundwater recharge areas, navigation, hydropower resources, water-based recreation, wetland habitat, fish and wildlife, agriculture, and flood plains; and

(10) reasonable economic development and the creation of jobs in the commonwealth.

This is quite a large order for state agency personnel to fill. To actually do the kind of weighing that the Act seems to require would take enormous resources in terms of time, talent, data, methodology, and knowledge. Of course, the actual implementation process is quite different than one might envision from reading the statute. Five people are assigned to the implementation of the Water Management Act within the DEQE at present. One person is in charge of surface water, another is in charge of groundwater, two are working largely on conservation issues, and the fifth person is wearing several hats including supervisor and political interference runner.

The tyranny of small decisions becomes apparent when we examine a simple case of wetland protection (see [9] above) and groundwater withdrawal (either from right transfer or for new development). The regulations are not finalized for permit evaluation at the time of writing, but a possibility is that permit applicants may have to submit pump test data if the point of development is within 1,000 feet of a wetland or an existing registered user. At this time, the

person doing the application review happens to be a hydrogeo!ogist. As such, we will know very well how to interpret pump test data. Nevertheless, there is an art to such interpretation because many factors influence cone of depression expansion during pumping. If the pump test is run during a "wet" season or year, the drawdown may not reflect what happens during dry periods. If the pump test is run during the winter, it may not reflect the greater seasonal use of other pumpers in the warmer months. Unlike very large alluvial systems, fractured rock and surficial geologic media do not necessarily exhibit uniform behavior that can be expected to continue into the future. Then there are the small decisions that have to do with the 1,000 feet guideline and with the "safe yield" criteria. Why 1,000 feet? There may be many instances where impacts can be measured outside of that circumference. Safe yield will be defined most likely by selecting a probability of flow from streamfiow histograms. Although an advisory committee and others will make recommendations regarding these decisions, the agency will be largely responsible for the final determinations. These final determinations will reflect the personal biases and experience of agency personnel, and the resource constraints of the agency in general.

Now, given that our permit application reviewer is a hydrogeologist and not a wetlands expert, how can we be certain that there is reasonable protection offered such habitat and the fish and wildlife dependent upon it? The relationships between groundwater, surface water, and wetlands are not very widely known or researched, and in at least three of the most popular introductory hydrogeology texts there is no mention of wetlands. The first small decision that the evaluator wants to make is to require that an applicant for permit only concern herself-himself with wetlands that are mapped. We do not have much experience with wetlands mapping but we suspect there are many in Massachusetts that are not formally mapped. Unless some private citizen or public group is particularly vigilant, then, the unmapped wetlands will not receive any protection from the state. Second, the department will have to determine what the criteria are for reasonable protection of a wetland. Does this mean one foot of decline over a specific period of time given the special conditions under which the pump test data were collected?[3] Will it mean no water level decline? Will it mean lowering only during dryer• years? This is a serious problem because the lowering of the groundwater level would radically change the nature of any wetland.

Wetlands can be divided into four main categories: bogs, fens, swamps, and marshes. Bogs and fens are peatlands. Their soil consists of partially decomposed or undecomposed organic matter, particularly sphagnum moss. Fens occur at or around groundwater discharge sites or downslope of discharge sites - anywhere that slow moving water is trapped and held before escaping through a small outlet. Fens, because they are more nutrient rich and less acidic, contain highly diverse plants, including, sphagnum moss and other plants found in bogs as well as unusual orchids and other plants. The vegetation in a bog is isolated from surface and groundwater receiving its moisture only through precipitation. A fen may develop into a bog when the living and dead organic matter accumulates to such a degree that the living vegetation is isolated from ground and surface water. Bogs also occur in basins, such as kettle holes, where there is no outlet. The vegetation of a bog consists of a floating mat of leather leaf, sphagnum moss and other plants that are able to survive the highly acidic, nutrient poor environment. Eventually the organic matter fills the basin and conifers capable of colonizing acidic, nutrient poor soils invade and the bog becomes forest. Bogs contain a unique biota, including the famous carnivorous plants.

[3]The agency is currently seeking information from the state wetlands division to aid in criteria design.

Swamps and marshes have more water movement. Their soils are partially or completely decomposed organic matter mixed with mineral soils. The vegetation of a marsh is grasses and floating leaved plants. Swamps contain trees and shrubs. A marsh contains standing water. The soil of a swamp is always saturated and may contain pockets of standing water. The biota of swamps and marshes is much more diverse than that of bogs and fens. Marshes and swamps are nurseries for fish and breeding and feeding grounds for waterfowl and other birds. They are inhabited by small mammals such as mice and voles and utilized by large mammals such as moose and deer. Some are created and utilized by beaver. There are few ecosystems that contain as diverse an array of life or are utilized at some point in the life cycle of so many animals as swamps and marshes. Lowering the groundwater level could isolate fen vegetation from groundwater, thus leading to reduction in species diversity and the development of a bog. It may have the same effect on a bog as the filling in of the basin with organic matter leading to the loss of the unique bog biota and the development of forest. Lowering of the groundwater level could cause a marsh to shift to a swamp and a swamp to shift to forest.

Even if every effort is made to understand and protect these complex ecosystems, administrative criteria are by nature under- and over-inclusive. While 1,000 feet may not be inclusive enough, 2,800 feet may be over-inclusive. It may be that we shouldn't be looking at feet from a conflicting use at all. Perhaps we should be looking at microbes and hydrogenase production in relation to wetlands preservation (Deevey 1970). The point is that all of these small decisions can add up to large effects in the long-term over large areas.

Prognosis

The whole idea of moving water from one place to another or moving a diversion point from one place to another for the purpose of economic development is troublesome because it means further disruption of ecological and social patterns that are generally not accounted for adequately. Conservation of biogeochemical cycles is a developing theme among international conservation groups. Species conservation has been replaced by habitat conservation which is now being replaced by ecological process conservation as a philosophy (see, for example, International Union for Conservation of Nature and Natural Resources 1984). Sustainable development is a concept in common currency for third world development theorists (Redclift 1987). And though the increase in environmental awareness and institution building during the seventies and eighties has seen the incorporation of environmental criteria as part of the reallocation process, concerns of this nature tend to be very much addenda to the main decision variables. Many students of resource management are aware that resource allocation decisions should capture environmental and social concerns. But, in fact, we have a long way to go to ensure the law and its administrators oversee protection of such interests.

The reasons for the exclusion of these interests in reallocations of water (i.e., the inability of the "public' to know or articulate their interests, the lack of knowledge about hydrologic and ecologic systems, the lack of data about the same, the difficulty for public groups to defend the claims they do identify) and the tension that belies the government's dual role as facilitator of economic expansion and protector of "third party" interests, are not likely to evaporate in the near future. Forces of inertia are deeply intrenched in socio-economic and political structures. We can turn the tyranny of small decisions and the tyranny of non-decision into an open discussion only by the slow and painful process of critical evaluation and interest articulation. Transaction costs should be high; we should be very cautious about what we trade away for urban growth and its beneficiaries.

References

Blowers, A. 1984. The triumph of material interests - geography, pollution and the environment. Political Geography Quarterly vol. 3,49-68.

Bachrach, P. and M.S. Baratz. 1962. Two faces of power. American Political Science Review Vol. 56, 947-952.

Deevey, E.S., Jr. 1970. In defense of mud. Bulletin of the Ecological Society of America Vol. *51,5-8.*

Howe, C.W., Dr. R. Schurmeier, and W.D. Shaw, Jr. 1986. Innovative approaches to water allocation: the potential for water markets. Water Resources Research Vol. 22,439-445.

Horwitz, MJ. 1977. The Transformation of American Law, 1780-1860. Cambridge: Harvard University Press.

International Union for Conservation of Nature and Natural Resources. 1984. Conservation of ecological processes. Commission on Ecology Papers No.8.

Nunn, S.C. and H.M. Ingram. 1988. Information, the decision forum, and third-party effects in water transfers. Water Resources Research Vol. 24,473-480.

Odum, W.E. 1982. Environmental degradation and the tyranny of small decisions. Bioscience Vol. 32,728-29.

Redclift, M. 1987. Sustainable Development: Exploring the Contradictions. London: Methuen.

Walker, R.A. and MJ. Williams. 1982. Water from power: water supply and regional growth in the Santa Clara Valley. Economic Geography Vol. 58, 95-119.