

WATER & MORAL ECONOMY

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Abstract: *The moral-economic analysis of water is an increasingly popular form of inquiry, one centered on comprehending the fundamental normative principles that govern key social, political, and economic relations and practices. Findings vary based upon the model of moral-economic analysis employed and the type of region or community under examination. Building on Helen Ingram's research on the community and equity values in water, I describe a distinctly political version of the moral economy of water, especially as it is found in the arid American West. The principles of complex equity and due process define the moral economy of water in the West and clarify the basis for political conflict and reform.*

“The relationship between water and society is as complex an historical, sociological, and regional problem as any that can be imagined.”

—David Mosse (2003, 1)

“Understanding the community value of water requires a different kind of analysis.”

—Helen Ingram and F. Lee Brown (1998, 115)

Water is a relatively recent (circa 2001) addition to the growing field of moral-economic inquiry, a somewhat surprising time frame given the attention scholars paid to water and ancient hydraulic civilizations in the 1950s and 60s (Steward 1955; Wittfogel 1957). Today scholars increasingly recognize water as a cultural as well as material resource, one that permeates “practically all domains of social life, rural as well as urban” (Orlove and Caton 2010, 403). When applied to communities in arid or semi-arid environments, moral economy is the claim that water embodies a popular moral consensus. A “shared moral universe, a common notion of what is just,” as Scott (1976, 167) famously defined it, constitutes the moral economy of water as much as it does the more familiar moral economies of the crowd (Thompson 1971), peasants (Scott 1976; Edelman 2005), laborers (Posusney 1993; Li & Cheng 2013), or food (Bohstedt 1992, 2013; Orlove 1997). However, where traditional conceptions of a moral economy typically feature the moral universe of a pre or nonmarket society threatened by fast-developing, modern commercial forces (Arnold 2001), the concept developed below rests instead on an analysis of water's status as a complex social good, on the claim that water is a good deeply embedded in ongoing social relations and often the source for communal notions of legitimacy (Brown & Ingram 1987; Ingram & Brown 1998).

Water is a complex good for it symbolizes “widely varying” cultural as well as material values (Blatter, Ingram, and Levesque 2001, 51).¹ Although an undeniably crucial physical

resource, especially in arid regions, water is also the “focal point of community and culture building” (Ingram, Feldman, and Whiteley 2008, 277). Politically relevant conceptions of individual and especially collective identity flow from how a given community distributes, uses, and governs water (Brown and Ingram 1987). Community members judge water-related proposals, policies, and practices accordingly. In short, complex social goods constitute their own spheres of justice (Walzer 1983). With respect to water, the relevant moral economy is best viewed as a function of what water means to those who recognize it as a social good.²

The moral economy of water is not uniform. The fundamental normative principles at the center of any given moral economy of water differ in part due to various socioeconomic factors, including the number and kind of uses to which water is put, the type, size, and scale of the water control systems, and whether they are located in developing v. developed countries. Other factors are more theoretical in nature, among them the conceptualization of the kind of good or goods at stake, as well as how closely the moral economy of water is “anchored in the analysis of protest action or the relation to authorities” (Siméant 2015, 169). Given the above, most of the contemporary studies on the moral economy of water reflect what I call an anthropological model of moral economy. Water in the arid American West, on the other hand, reflects a much more political model.

An Anthropological Model of the Moral Economy of Water. A focus on small-scale, largely subsistence irrigation systems defines the anthropological model, especially as found in the work of its leading representative, Paul Trawick (2001a, 2001b, 2002, 2010, 2014). Although present in a number of countries throughout Asia, Africa, and South America, each with their own unique cultures, religions, and traditions, these largely “‘indigenous’ or peasant community system[s]” (Trawick 2010, 156) share a number of characteristics. The most significant characteristics are “intensive face-to-face interaction among water users” (Trawick 2002, 191) as well as “a high degree of cultural homogeneity, a limited range of stratification among households, and small farms with similar but not identical water needs” (Trawick, Reig, Salvador 2014, 104).³

Agriculture in arid environments is an arduous and uncertain enterprise. It is a social as well as physical challenge, especially for small indigenous communities. Irrigation easily—one might say ‘naturally’—prevails over the few other demands for scarce water. According to the anthropological model, the social relations of production found in the featured indigenous communities constitute a distinctive way of life, one “different from life in the First World or the West” (Trawick 2001, 373). “Equity in water sharing . . .” is the key to successful, long-term agriculture and it is “the moral foundation of village life” (362). Six operational principles define this version of the moral economy of water:

1. *Autonomy: The community has and controls its own flows of water.*

2. Contiguity: *During each distribution cycle, water is given to fields in a fixed contiguous order based on their location along successive canals, starting at one end of the system and moving systematically across it.*
3. Uniformity [one component of equity] among rights: *Within each sector of irrigated land serviced by a given source or canal flow, all plots of land are watered with the same frequency, so that the scarcity is shared on a single schedule; in technique: everyone irrigates in the same basic way.*
4. Proportionality [the other component of equity] among rights: *No one can use more (equity) water than the proportional amount to which the extent of their land entitles them, nor can they legally get it more often than everyone else; among duties: people's contributions to maintenance of the canal system must be proportional to the amount of irrigated land that they have.*
5. Regularity: *Things are always done in the same way under conditions of scarcity; no exceptions are allowed, and any unauthorized expansion of irrigation is prohibited (boundary maintenance).*
6. Transparency: *Everyone knows the rules and has the capacity to confirm, with their own eyes, whether those rules are generally being obeyed, and to detect and denounce any violations that occur* (Trawick 2010, 157-156; 2002, 192; brackets in the original).⁴

Of the six operating principles, uniformity and proportionality are the most important. Together they capture what residents of these communities “think that life and human society in general ought to be” (Trawick 2001, 373). In the anthropological model of water’s moral economy, the relevant notion of justice is largely a function of when and how the water is distributed across farmers’ fields (Trawick, Reig, and Salvador 2014, 105).⁵

The anthropological model’s interest in smallholder irrigation systems is practical as well as ethnographic. Indigenous irrigation communities illustrate, Trawick argues, how to successfully manage a commons without recourse to the tragedy of resource depletion or the hardships and social inefficiencies of water privatization or State ownership and control. The principles of uniformity and proportionality promote resilient and sustainable communities, and they represent a stark and promising alternative to the agronomic and technocratic model, including integrated water resources management (IWRM), that has guided government water policies throughout much of the world since the 20th century. They challenge “business-as-usual in irrigation, and . . . nearly all forms of national water law” (Trawick, Reig, and Salvador 2014, 105). The moral economy of water teaches us that irrigation, properly understood, “is about sharing a scarcity of water fairly among fields and households, not about providing optimal amounts of water to crops”; that “this kind of irrigation system can be built intentionally around an explicit set of rules, in a way that does produce somewhat predictable outcomes” (105). The prevailing agronomic model of irrigation errs, Trawick, Reig, and Salvador argue, in several ways. It assumes that “irrigation is about meeting the water ‘needs’ of crops”; it requires optimizing irrigation procedures “too complex for local people themselves . . . to oversee”; and it

presumes that enough water is always available (105). Given population growth and climate change, Trawick, Reig, and Salvador conclude that “the management of water resources in many parts of the world will not prove to be successful in the long run unless it is rebuilt on a moral economy foundation” (106).

A Political Model of the Moral Economy of Water. The arid American West presents a very different setting for the moral economic analysis of water. Unlike the small peasant villages of Peru, India, Sri Lanka, or the Philippines, water management in the American West, including irrigation, takes place across a vast territory and in many different ways. According to the U.S. Department of Agriculture, approximately 56 million acres of cropland and pastureland were under irrigation in 2012, three-quarters of that (approximately 42 million acres) in the 17 states of the American West. Of the 91.2 million acre-feet of water annually applied to irrigation, more than four-fifths of it is applied in the West (Schaible 2012). Two-thirds of the water withdrawn for irrigation in the arid West comes from surface water sources, the remainder from groundwater aquifers (Ibid.).

Irrigated agriculture in the American West is commercial in nature and it is not confined to small farms with similar water needs. Although a majority of the western farms that rely on irrigation average sales of \$250,000 or less (based upon 2008 data), those who farm 60% of the irrigated acres average sales of \$500,000 or greater. In just eight of the western states (Arizona, California, Idaho, Kansas, Nebraska, Oregon, Texas, and Washington), the largest farms account for 75% of the applied irrigation water, 85% of annual sales, and average “slightly less than \$2.4 million per farm” (Schaible & Aillery 2013).

An equally striking factor about water in the arid American West is the scale and complexity of the institutions for managing water, whether for irrigation, flood control, waste disposal, power generation, etc. In California alone, water management entities include 8 major federal agencies, 5 primary state agencies, and “well over a thousand special and general purpose local governments, water companies, and other organizations” (Hanak et. al. 2011, 107ff). Western water institutions include traditional communal associations like the *acequias* of New Mexico and Colorado; various districts for irrigation, conservation, municipal delivery, and groundwater management; numerous interstate compacts, watershed associations, and state water resources boards; and several federal entities, among them the Bureau of Reclamation, Army Corps of Engineers, and the Environmental Protection Agency.

The arid American West also differs in terms of the uses of water not directly linked to irrigation agriculture. Western water uses include significant withdrawals or reservations of water for, among other things, urban consumption, industrial production, recreation, eco-systems restoration, species diversity, water quality, preserving in-stream flows, etc. (Anderson & Woosley 2005). These increasingly competitive uses reflect an equally diverse range of values, among them economic, environmental, recreational, even aesthetic values (MacDonnell 2001). Community is an additional and essentially political value, a value not tied to a particular water use. Water-related senses of community frequently serve as the basis for judging the legitimacy

or illegitimacy of various water management practices or proposals. More so than in the anthropological model, the moral economy of water in the arid American West is directly linked to political, even protest action. The moral economy of water is inseparable from any given community's or state's keen appreciation of its relationship to other, often competing, political authorities.⁶

The senses of community found throughout the American West vary in terms of their degree or kind of "mutual dependence, common enterprise and joint responsibility" (Sax 1990, 17). Some senses of community are particularly strong. Examples include the Hispanic *acequias* of New Mexico and Colorado as well as some Native American tribes in southern Arizona. Defined by their respective ethnicities, native languages, and longstanding heritages, as well as by their poverty and rural, irrigation-based agriculture, they approximate some of the socioeconomic circumstances featured in the anthropological model of moral economy (Brown & Ingram 1987; Rodriquez 2006; Rivera 1998). Other senses of community, perhaps the most numerous, are defined much more by membership in larger, far more diverse political associations, whether cities, irrigation or conservancy districts, states, etc. Municipal in nature, the formal institutions and mechanisms for addressing water-related collective affairs establish or reinforce the relevant sense of belonging and shared identity.⁷

Water's value as a vital medium for social and political relations within and across communities is underscored by westerners' concerns about losing jurisdiction over the waters that sustain them. As one civic leader from the arid American Southwest put it, when asked about the prospect of losing water, "If [communities] don't have the water anymore, how can they make any decisions? How can they have any say-so? Who's going to listen to you if you don't own any water?" As another put it, "If the people in the community lose their water right, if they don't have any say, they might as well move out" (Ingram & Oggins 1990, 8, 9).⁸ Properly attending to the community value of water is an important part of water's moral economy in the American West. Justice is in this context a matter of western communities, regions, and states wielding the degree of jurisdiction over water they believe is necessary for conducting their collective affairs, that is to say, the degree of jurisdiction sufficient to maintain themselves as viable social and political entities.⁹

Many western water conflicts illustrate the point, especially those that involve efforts to transfer water from one community, district, basin, or state to another. Given its lasting influence, one example, the Owens Valley, stands out. It is the story of Los Angeles's acquisition of river water via land purchases in the Owens Valley, California, located 250 miles to the northeast, and the subsequent construction of an aqueduct. Frequently described as the "Rape of the Owens Valley," the transfer amounted to, as one scholar (Libecap 2007, 12) summed it up, "theft of the valley's water; destruction of the local agricultural economy; and colonization (hydrocolonialism) of the region by a remote, disinterested city." Valley residents resorted to violence after nearly twenty years of more conventional political protest. They repeatedly seized or dynamited various sections of the aqueduct between 1924 and 1931 (Walton 1992). Valley residents lost their water but their now legendary story hovers over the West like a

“ghost” (Haddad 2000, xv). Panned by critics as a “syndrome” whose lessons have “poisoned subsequent attempts to persuade farmers to trade their waters to thirsty cities” (*The Economist* 2003), westerners instead recognize the Owens Valley as one of the most powerful frames for identifying and condemning a certain kind of water-related injustice.¹⁰ Residents of the Owens Valley claimed many injustices, among them, conspiracy, deception, and fraud, especially as they related to how agents for Los Angeles acquired key plots of land. The most serious injustice, however, was to the social, political, and economic integrity of the community itself. The transfer of water was in effect an exercise in domination, a grinding case of rule by those not of nor for the Valley. As the *San Francisco Chronicle* put it more than fifty years after the transfer, “Water controls the life of the valley, and Los Angeles controls the water” (cited in Libecap 2007, 21). From the perspective of the Valley residents, then and now, the transfer of water was an unnecessary and indefensible sacrifice of one community for the sake of another.¹¹

Multiple values and competing demands for scarce water in the arid American West complicate the meaning of and quest for equity. Under these circumstances, equity is not simply a matter of when and how water is applied to farmers’ fields. Equity is instead a function of decision-making principles that formally recognize and meaningfully sustain water’s many different values, community in particular. The principles of complex equity and due process define the moral economy of water in the arid American West.

*Complex Equity.*¹² Complex equity is a form of justice, a normative principle for goods, like water in the arid American West, distinguished by their multiple values and meanings. Justice is in these instances a matter of honoring the nature of the good, of rendering each distinct but connected value its due. It begins with official recognition of water’s complexity in all relevant decision-making arenas. Decision-making forums that fail to regard goods like water as complex unavoidably conceive the good as something less than what it is for all those who value it. Partiality is in this case a kind of injustice.¹³

Complex social goods also merit the protection of their multiple values and meanings. Insofar as no one value or meaning defines a complex good, just arrangements and decisions sustain the complexity to which each related element contributes. In the arid American West, water signifies enormous economic, communal, and environmental values, among others. Even in times of scarcity, meeting any one of them need not and should not come at the permanent sacrifice of another. Complex equity opposes reductionism.

The multiple values and meanings of a complex good often align with equally diverse, at times incompatible, principles of distributive justice; for example, the principle of exchange in relation to water’s properties as a marketable commodity, the principles of need, equality, or desert in relation to its noncommodity or more cultural elements. Competing internal principles of distributive justice underscore the challenge of rendering each sphere of value and meaning its due. The regulation of scarce western water on the basis of only one inherent principle of distribution, to the exclusion of the others, leads to a kind of tyranny, to the domination of every other sphere of value and meaning (community, for instance) by a principle of distribution (for

example, commodity and market-based exchange) alien, if not hostile to it. Complex equity promotes the justice of nondominance. Justice is in this instance a matter of preserving water's multiple spheres of value and distribution by limiting their ability to govern the good in its entirety.

Due Process. Insofar as water's multiple and competing values cannot be met fully in all instances, water policy decisions cannot help but favor some over others. From the perspective of what is to be evaluated, decision-making procedures are as important as the decisions themselves. Due process reflects a principle of justice in decision-making. Decisions are just if they are made fairly. Decisions are fair if made publically and on the basis of deliberation. Public decision-making forums grant all affected interests a voice in the process and guarantee that all of water's many values and uses are meaningfully taken into account. Equally important, the principle of due process assures participants that the inherently collective act of allocating water in the arid American West remains the responsibility of the affected interests and communities.

Decisions are also fair if grounded in deliberation. The fact that decisions inevitably favor one set of values and meanings over others does not exempt them from the justice of giving an account. Deliberation entails articulating and then carefully weighing the effects of favoring one course of action and related set of values rather than others. Effective and just deliberation rests on meeting all posed objections, on adhering to processes that allow objections to be raised.

The political model of water's moral economy clarifies the grounds for conflict. Significantly, water conflict is not simply a function of clashing preferences on what is the more advantageous development project or efficient (re)allocation of scarce supplies. Conflict is also a function of inequity, of decisions and procedures that fail to take water's complex nature properly into account. Beyond identifying the relevant grounds for charges of illegitimacy and conflict, the moral economy of water serves as the basis for more just and effective policymaking. Colorado and its 2015 Colorado Water Plan illustrate both points.

Colorado and the Moral Economy of Water. Colorado's water issues are numerous, longstanding, and, given population growth and climate change, evolving. They include the political challenges related to trans-basin diversions (especially with respect to moving water from the West Slope to the Front Range), interstate obligations (the Colorado River and Rio Grande River compacts in particular), environmental protection (including minimal flows, restoration, and endangered species), the reallocation of existing supplies (rural-to-urban transfers, water marketing), and the growing pressure for new development (Nichols, Murphy, and Kenney 2001). The challenges track the set of uses and values at the center of the arid American West's moral economy of water. They also mark many of the more significant instances of conflict. Those involving trans-basin as well as rural-to-urban transfers have been among the most contentious. Complex equity explains why.

Colorado's largest trans-basin diversion is the Colorado-Big Thompson Project (CBT), an intricate array of canals, reservoirs, tunnels, and pumps that transports up to 310,000 acre-feet of Colorado River Basin water across the continental divide to the farms and cities of the South Platte River Basin. Although proposed in the 1930s to provide much needed water for Northeastern Colorado farms and communities, as well as check "California's and Arizona's interests in acquiring more water from the Colorado River" (Tyler 1992, 28), West Slope residents quickly objected. They organized the West Slope Protective Association to press their concerns, which featured the injustice of depriving West Slope communities control over their future affairs. As N. C. Huffaker, West Slope resident, put it before members of the Association, "We have the source of it. Morally speaking, the water is ours, if we need it or use [it]. I don't believe anybody in Grand County ever voiced a protest against Denver's taking (sic) the surplus water . . . but to take all the water that originates in Grand County and give it to Northeastern Colorado is wrong, and you men know it is wrong as well as I do" (Delaney Papers, Box 33, Fd 10). In a December 27, 1935 letter to Frank Delaney, the West Slope's most influential advocate, N. H. Meeker stated that a "moment's consideration of what happened in the Owens Valley in California is the most forcible application of the dangers inherent in any transbasin diversion project." Meeker shrewdly recommended that Delaney and other prominent West Slope Coloradans "work out the history of the Owens Valley water 'grab' in all its details . . . to show the different steps which resulted in changing the Owens Valley from a rich and prosperous farming community to an arid, worthless region." "That picture," Meeker concluded, "might do more to unite public opinion in this part of the state than a score of eloquent speeches" (Delaney Papers, Box 33, Fd 10). West Slope concerns only intensified with each additional trans-basin proposal, among them the Fryingpan-Arkansas Project (1953), Homestake (1967) and Homestake II (1982) projects, and Windy Gap (1970), generating in the process a legacy of bitterness and distrust that has greatly complicated water policymaking (Nichols, Murphy, Kenny 2001, 40).

Rural-to-urban transfers of surface or ground waters, especially if market-driven, have proven equally contentious and for similar moral-economic reasons. Between 1990 and 1998, for example, residents of the San Luis Valley, one of Colorado's poorest regions, successfully opposed two different efforts (American Water Development, Inc. and Stockman's Water) to tap the Valley's abundant aquifers and sell the recovered water to urban centers like Denver, Colorado Springs, or even Albuquerque, New Mexico. Images of Owens Valley, CA and Crowley County, CO spurred Valley residents to fight the proposals in the courts and at the ballot box, relying on bake sales and self-imposed property tax increases to fund their efforts (Arnold 2008). As John Hill, editor of the local *Valley Courier*, summed it up, speaking directly to the issues of reductionism and nondominance, "This is more than a question of do the citizens of the San Luis Valley want to prevent what happened in the Owens Valley in California and what happened in Crowley County. This is a question of whether SLV residents . . . believe . . . that the distribution of resources is the function of the wealthy and that the resources of the state do not belong to the people of Colorado. . . . Who controls the wealth?" (Hill 1991, 4).¹⁴

An equally strong illustration of the moral economy of water has been Colorado's planning and policy responses to predictions of a 500,000 acre-feet shortfall in water by 2050, a challenge made even more daunting by the likelihood of intensifying cycles of drought and a legacy of bitter intrastate water conflict. Key responses include the 2004 Statewide Water Supply Initiative (SWSI); the 2005 Water for the 21st Century Act, which created the Interbasin Compact Committee (IBCC); and, most recently, the 2015 Colorado Water Plan (CWP). All three programs promote collaborative water policymaking through widespread input and representation. The Water for the 21st Century Act divided the state into nine basins, each with their own roundtable, to encourage ongoing discussions of basin-related water issues and to refine needs assessments. Representatives on the affiliated IBCC do much the same for the state as a whole. The participatory nature of the planning mechanisms reflects the legitimacy of due process in decision-making. Maintaining the "grassroots roundtable structure and geographic representation" (CWP, 1-4) of the IBCC was a point of emphasis in the development of the 2015 CWP, the key to building consensus across a range of water-related interests and perspectives. Planners received over 30,000 comments during its development (Finley 2015).¹⁵

Most striking, however, is the CWP's attention to the principle of complex equity. Charged by Governor Hickenlooper to reflect Colorado's water values, the CWP officially recognizes water's full range of meanings and uses. CWP goals include meeting specified municipal, agricultural, environmental, recreational, and water quality management needs within the context of existing interstate compacts and the projected shortfall of available water (CWP 6-15ff). Strategies include emphasizing water conservation, re-use of wastewater, and multipurpose storage projects that "balance all needs and reduce conflict" (Ibid.). Especially noteworthy is the CWP framework for future transmountain basin diversions (TMD). The framework consists of seven principles that are "to guide future negotiations between proponent(s) of a new TMD and those communities it may effect, were it to be built" (CWP 8-13). Collectively, the principles set a very high bar for any future transfer of water from the West Slope to the East. Proposals must accommodate "future western slope needs" (Principle 5). New TMD proposals are not to seek firm yields of water from the West Slope; they must accept "hydrologic risk" (i.e., allowed to divert water only when it is "physically and legally available in priority in the basin of origin") and they are not to be covered by any forthcoming "collaborative program that protects against involuntary curtailment" (Principles 1 and 4). Principle 7 stipulates that "Environmental resiliency and recreational needs must be addressed both before and conjunctively with a new TMD" (CWP 8-13ff).

Proclaimed by Governor Hickenlooper as an "historic step for the state," the CWP reflects hard-won lessons from Colorado's "long and adversarial" water history (Hickenlooper 215). Thoroughly comprehending the normative grounds for past conflicts has been in this instance the critical first step in designing more effective and just policies. Success, the CWP in effect asserts, is a matter of taking the moral economy of water even more fully into account.

Conclusion. Water issues cover a wide range of important but difficult water policy challenges, among them groundwater reform, urban conservation, rural-to-urban transfers, and state water management. Equity is a key theme in each case. Clashing perspectives on what constitutes a legitimate use or fair allocation of increasingly scarce water drive much of the conflict long associated with water politics. Progress rests on scholars and policymakers taking the competing claims of equity more prominently into account, on more clearly recognizing how and why equity claims differ. As Wilder and Ingram recently put it in “Knowing Equity When We See It” (2016), the ultimate objective is to develop principles that indicate in what direction “water policies must move to serve fairness as contexts and circumstances change.” While no one set of rules “can be universally applied,” Wilder and Ingram conclude that scholars need to develop the lenses that bring water equity in all of its manifestations much more clearly into view. It rests on “transforming . . . the vocabulary and fundamental concepts we use to understand water issues” (2016).

The moral economy of water is one such lens. In both the anthropological and political models, water is analyzed in light of its socio-cultural as well as its more physical and economic qualities. For the political model in particular, water is a complex good, one whose meanings and values include but go well beyond that of a commodity primarily for ever more efficient use or profitable exchange. The political model of water’s moral economy takes to heart Ingram’s insight that water is often communal in nature and effect (Brown and Ingram 1987). How a people in an arid environment associate in order to develop, use, and govern water creates the sense of attachment and mutual obligation by which they recognize themselves as a community, an equity concern in its own right (Ingram, Whitely, and Perry 2008, 13). Colorado is a case in point. Whether one features its longstanding *acequias*, valley-based mutual companies, water conservation districts, basin roundtables, or the state as a whole—especially as that involves the Colorado, Rio Grande, or Arkansas rivers—water institutions, policies, and practices serve as vital mediums for social and political relations. As the example of the 2015 Colorado Water Plan illustrates, far more equitable outcomes rest on policymaking processes that officially recognize and honor the full range of values and claims that constitute residents’ understanding of water.

The moral economy of water, however, is not just a lens for transforming how we comprehend water issues, as important and necessary as that may be. The political model of water’s moral economy is also the source of principles—the principles of complex equity and due process—capable of serving fairness wherever water is both scarce and complex. Water policies are equitable, they instruct, to the extent that they sustain the complexity to which each water-related value contributes.

Endnotes

1. Blatter, Ingram, and Levesque (2001) develop a framework for analysis based in part on a range of premodern, modern, and postmodern meanings of water. The listed meanings include but are not limited to understanding water as a property of territorial units, focal point for non-territorial communities, security issue for states, industrial product, gift of nature, and virtual reality. Elsewhere, Ingram, Whiteley, and Perry argue that “One of the major impediments to attaining higher levels of agreement on water management is the failure to recognize value pluralism in relation to water” (2008, 2). Water’s value pluralism is at the center of the political model of moral economy developed below, the principle of complex equity in particular.
2. Blatter, Ingram, and Levesque (2001, 4) make a similar point: “We insist that the researcher must first understand the meaning of water as it exists in a particular local place or social context. Only then can the scholar apply specific explanatory approaches. This priority given to understanding leads us to propose specific methods that concentrate on the social construction of meanings of water as well as that of identities and preferences of actors and communities.” Each meaning and associated set of identities and preferences is a “source of claims to legitimacy, voice, and fairness” (Ingram, Feldman, and Whiteley 2008, 276). Walzer makes the point especially forcefully: “All distributions are just or unjust relative to the social meanings of the goods at stake” (1983, 9).
3. Trawick recognizes at least two types of irrigation systems, (1) those designed and administered by “government bureaucracies” and (2) “self-organized” community systems, “run according to rules and procedures established by the local farmers themselves. . .” (2014, 88). For Trawick, the moral economy of water reflects the operating principles of self-organized community systems. Significantly, the moral economy of water is not limited to extremely small and typically remote peasant villages. At least one much larger “multi-community system,” the *huerta* of Valencia, Spain, displays the same set of principles, compelling evidence, he and his co-authors argue, of a worldwide process of convergent evolution in irrigation. Although the *huerta* consists of approximately 20,000 farmers organized into 10 different irrigation communities, it nonetheless “remains a smallholder system, like the previously studied [peasant systems] in Peru, one composed of household production units that, in terms of their size and labor organization, closely resemble those that generally prevail today in developing countries” (2014, 90).
4. Trawick, Reig, and Salvador (2014, 93) list three additional principles for Valencia, given its greater scale and multi-community composition: “Boundary maintenance,” “Direct feedback on the level of free riding,” and “Graduated sanctions.” They also substitute “Alternation or turn-taking” for Regularity.
5. In “The Moral Economy of Water Reexamined,” Wutich (2011) extends the anthropological model of moral economy to an urban setting, Cochabamba, Bolivia. Noting Trawick’s study of the Peruvian Andes in particular, Wutich reduces the moral economy of water to “two key principles: the right to subsistence and the norms of reciprocity” (2011, 20). Wutich’s focus is not on an irrigation community but on individual water exchanges in one of Cochabamba’s most vulnerable and impoverished squatter settlements, Villa Israel. Excluded from the municipal water system, residents of

Villa Israel purchase water from vending trucks or, when without sufficient funds, procure it through reciprocal arrangements rooted in either neighborhood relationships, kinship ties, or Christian charity. Although Wutich recognizes that reciprocal water exchanges in Villa Israel “differ substantially from those of an irrigation system managed by Peruvian peasants,” especially in term of operational principles, she nonetheless finds them “consistent with the moral economy of water [as] documented elsewhere in the Andes” (5, 22). Erica Simmons makes a similar case in *Meaningful Resistance: Market Reforms and the Roots of Social Protest in Latin America* (2016). The threat to water access in Cochabamba, she concluded, drawing on classic moral economic concepts and categories, created the perception that “ancestral ... ‘traditions and customs’ ... were at risk ... and challenged a pervasive belief that water belongs to the ‘the people’” (2016, 9).

6. Having reported on one particularly contentious water issue in the San Luis Valley of Colorado, a region about the size of New Hampshire, Jim Hughes concluded that water is “‘The Issue,’ the defining topic central to the way valley residents think about their communities and about their relationship to the rest of the state and the West” (1998, H-12). Hughes’s observation is true for the arid West as a whole, as Norris Hundley’s study of the 1922 Colorado River Compact (2009 [1975]) illustrates. Involving the federal government and the states of California, Arizona, New Mexico, Nevada, Colorado, Utah, and Wyoming, the negotiations over how to allocate Colorado River water were, he found, “dogged almost from the start by conflicting notions of sovereignty, as each side . . . sought to assert its supremacy in areas jealously coveted by the other” (x). Disputes between the states continued for decades, prompting Hundley to characterize the region as a “Basin of Contention” (352). Ira Clark (1987, 535) makes a similar point about the 1938 Rio Grande Compact involving Colorado, Texas, and New Mexico. Under an “atmosphere of suspicion and hostility,” delegates to the negotiations “warily weighed each proposal to make sure that their respective states would suffer no injury.” The results, Clark concluded, were less than optimal. “The states so jealously guarded their freedom from outside interference that they created no machinery for enforcement...” (535). An even more recent example is the 2015 Colorado Water Plan (CWP). In response to the rhetorical question of why should it matter that Colorado “pull together as one,” the document states, “Because other governments watch Colorado’s water positions closely. Because discordant infighting weakens Colorado’s position in interstate and international arenas, invites unnecessary federal intervention in our water affairs, and dulls our responsiveness” (Colorado Water Plan 2015, Executive Summary-10).
7. As the very basis for the associated benefits of “schools, churches, and social life” (Mead 1903, 382), water is intrinsically communal, its development throughout many parts of the American West is an especially striking case of “political community for the sake of provision, provision for the sake of community” (Walzer 1983, 64).
8. The responses come from a survey of 317 community leaders in portions of Arizona, New Mexico, and West Texas (Oggins & Ingram 1990). In his study of water transfers in Crowley County, a rural region in eastern Colorado that had suffered the loss of much of its water to larger urban centers, Weber (1990, 13-15) concluded: “Now with the drying of the lands, the area’s reason for being, its history, and its culture lose their meaning. Metaphorically, the people of the area lose their psychological and cultural ‘roots’.” Weber found it “difficult to imagine a future beyond the present generation.” Compare to

- Ingram (1990, 5), “Strong communities are able to hold on to their water and put it to work. Communities that lose control over their water probably will fail in trying to control much else of importance.”
9. My conception of the moral economy of water is indebted to Helen Ingram’s and several co-authors’ scholarship on the noncommodity and community-oriented nature of water in the American West. See, e.g., Brown & Ingram 1987; Ingram 1990, 1992; Ingram and Oggins 1990; Mumme & Ingram 1985; Nunn & Ingram 1988; Oggins & Ingram 1990, among others.
 10. Patricia Mulroy, influential and long-serving head of the Southern Nevada Water Authority, confirms in her own way the point about Owens Valley’s legacy. Commenting on a precedent setting water banking agreement between Nevada and Arizona she stated, “Don’t ever call it a transfer . . . It’s a *banking agreement*. That thing will disappear on us tomorrow if we call it a transfer” (quoted in Jenkins 2015). For additional examples of how the legacy of the Owens Valley has affected western water politics, including policies restricting various kinds of water transfers, see Erie (2006, 29-53), Nichols, Murphy, & Kenney (2001, 40-42), and Libecap (2007, 15-18).
 11. Among the actions taken by the residents to prevent the loss of their water was the formation of a valley-wide irrigation district via provisions in California’s Wright Act, an anti-water monopoly law passed in 1887 (Pisani 1984, 253) and an additional example of the moral economy of water (Arnold 2007, 165-166). In the run up to the vote on incorporation, a Valley newspaper rallied its readers with the plea to “unite on the great issue of keeping for the Owens Valley, to be adjusted among ourselves, the water which by nature and justice belongs to it. Give the irrigation district your support. Any other attitude will be that of individualism rather than for the community” (cited in Walton 1992, 166). Residents resorted to violence after Los Angeles refused to recognize the Owens Valley Irrigation District, preferring instead, according to Wilfred Watterson, an Owens Valley banker and leader of the opposition, to deal with residents “as individuals and not as a community” (Cited in Walton 1992, 159).
 12. The following two sections draw heavily on Arnold 2008.
 13. Wilder and Ingram’s survey of water and equity in global contexts makes a similar observation. “Subordinating a multifaceted understanding of the character of water with a narrowly economic view,” they write (2016), “has *skewed* the management of water to serve those who have the ability and means to use water to produce the greatest economic returns” (emphasis added). For Wilder and Ingram, “Equity implies value pluralism and fair treatment of many diverse values, including the nonhuman and nonuse” (2016).
 14. In its July 13, 2015 editorial, the *Pueblo Chieftain* responded to the latest effort by a “water speculator” to purchase farm land and water rights in the lower Arkansas River Valley and transfer the water to cities along the Front Range. Citing its concerns about the “long-term viability of Southern Colorado communities and our way of life,” the editorial condemned such exportations as “devastating to the entire region” (*Chieftain* Editorial). Note the editorial’s sense of the injustice at hand: To the extent that a purely commercial approach to water transfers preempts water’s other economic and communal values, the transfer is illegitimate.
 15. As James Eklund, director of the Colorado Water Conservation Board, put it, “For 150 years water has been a source of conflict in our state. More recently, that story is changing, and Colorado’s Water Plan—a product of literally thousands of meetings and

conversations across our state—is the best evidence yet for a new way of doing our water business. We are talking to one another. We are forging new relationships. Even those who may see water-related issues from very different perspectives have worked hard to understand other points of view. And that kind of understanding leads to an environment of civility that helps us cooperate in fashioning solutions” (Hickenlooper 2015).

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