

WATER RIGHTS QUESTIONS

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Abstract: *This essay outlines a series of questions for understanding current water rights and the prospects for improving water allocation institutions to cope with increasing competition and demands for intersectoral reallocation. It concludes by contrasting assumptions about water rights formalization, rights holders, enforcement, allocation principles, efficiency, duration, flexibility and transferability. The default assumption for understanding existing rights and for considering reforms in water rights might best be conceived as assuming that rights concern water for which there are already existing uses and claims, formalization should be the exception rather than the rule, rights should be proportional to flows, held by irrigators' associations or other collective entities, and mainly regulated according to local custom and practice through user self-governance, with courts and state agencies having only a secondary role. Rights should secure the access to all water currently diverted, with consumptive use and return flows only considered if usage is to be changed or transferred.*

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Why water rights?

Are conflicts emerging? Increasing scarcity brings different claimants to water into conflict. Existing users want to secure their access to water, which is subject to growing competition. Increased demand from users sharing, or seeking to share, the same resource brings a need for better coordination, and links distant users who could ignore each other when water was more abundant. One of the key tasks of governance is to create an institutional framework within which strangers can peacefully agree to cooperate and coordinate their actions.²

Questions. This essay looks at questions which deserve consideration in trying to understand the water rights which currently regulate water allocation, and the prospects for reforming water rights and water allocation institutions to meet the challenges of increasing scarcity. Much of the literature about water rights has been framed in terms arising from the settlement of the western United States, under conditions which differ greatly from the challenges which face contemporary water management in most of the world.³ Economic and legal analysis often seem to presume effective courts, thorough policy implementation and other conditions which are far from universal. This essay uses a series of questions about water rights to

review alternatives for defining and managing water rights, particularly approaches that may be more relevant in tropical Asian rice growing areas, with their own history, current institutions and management challenges.

What rights? Implicit, informal and customary

What are water rights? Water rights institutions already exist in various forms to regulate access to water. Water rights concern who should be able to take how much water, when and where. Any attempt to limit the definition of water rights to only those rights fully recognized by state law leaves out most of the institutions which regulate water allocation in practice. Water rights may be implicit in dams, canals, division structures and pipes of existing infrastructure, or in specifications about which land should be irrigated, in which season. Rights may be explicit in share systems, quantified flows or rules about how many hours an area can take water during rotational irrigation. Water rights may be informal, embedded in local practice, or formally framed in water permits. Customary rights are usually not static, but evolve in response to local conditions and state influence.⁴ In most parts of the world the major challenge is not one of assigning new rights to unused water. The history of usage is one of only several relevant factors, and priority may be lost in history, and highly contested. Instead of focusing on claims to “unused” water, the principal challenge is to better manage the contesting claims of current and new users, amidst the various legal and social institutions which already influence water allocation.

Is formalization necessary? State laws and agencies can play an important role in improving water allocation, if they recognize and enhance the full set of institutions which shape water allocation. Conversely if state regulation attempts to ignore or override existing claims, then it may undermine existing water management, foment confusion and create more problems than solutions. Formalizing water tenure, through state issued registries, permits or other means, may be a useful part of improving water management, but needs to be done in ways which respect existing rights and create equitable means for dealing with conflicting claims. Formalization processes risk being heavily biased towards those who are wealthier, better educated and politically more powerful, perhaps increasing inequity and hurting those who are poorer and more dependent on secure access to water. If formalization is required, strong efforts need to be made to ensure that poorer, less educated and more remote users have access to the means for protecting their rights.

Where conflicts are urgent, rights may need to be formalized to some extent, particularly where competition is severe or there is strong demand for transferring water between uses. Conversely if water is still relatively abundant there may be little need to formalize rights. In a broader perspective, formality may be more the exception than the rule, if existing institutions currently allocate water effectively, or can be strengthened to be effective enough, for example by setting up councils or other forums to facilitate negotiation among users sharing the same resource.⁵ Formalizing all rights, everywhere, at the same time, is far from the only choice. It may be wiser to formalize rights carefully and selectively, focusing on sites where water conflicts are most urgent and where efforts to improve water allocation are initiated by users.

Who? Rights holders and enforcers

Who holds water rights? Rights may be held by individual farmers, or by corporate bodies such as irrigators’ organizations or water utilities. Having rights held by a water user association or other collective entity may be simpler than having rights held by multitudes of individual farmers. However internal decisionmaking and accountability then become key concerns. Much research on community

management of irrigation and other forms of common property has demonstrated the effectiveness of local management. Unwise imposition of state control, or forced privatization to individuals of rights currently held communally, can undermine and disrupt local resource management, making things worse rather than better. Any intervention needs to be carefully designed and carried out.

Who enforces water rights? Most allocation is handled by interaction among users, not by court decrees or agency decisions. Frequently courts are seen as too expensive, time consuming or ineffective. If disputants cannot resolve conflicts among themselves, they may ask administrative authorities to mediate or arbitrate the conflict. State law is an important point of reference for such quasi-judicial forums, but local history and other factors may be given equal or greater weight. Attempts to reform water rights will be effective if they translate into changes in such practical forums. This applies not just to allocating water within irrigation schemes, but also to governing basin water resources. Rather than assuming that basin water allocation must be managed directly by government agencies, the feasibility of involving users as the primary stakeholders and water managers needs to be recognized.⁶

When? Duration and droughts

Are water rights forever? Assigning water rights in perpetuity is only one option. Water rights can be issued for a limited terms, perhaps with provision for renewal, as, for example, in New Zealand. The primary consideration is likely to be whether this will give adequate security for users to invest in productive and efficient use of the resource. A right which lasts only for a single year, or even only five or ten years, is probably too short to give adequate security and stimulate optimal investment. However similar economic logic suggests that little may be lost, and flexibility encouraged, by limiting the term of rights to twenty or thirty years, with provision for renewal, or purchase of further rights, to be determined well in advance of when the right expires. Limited term rights may create more opportunity for reallocation and reduce long term problems due to speculative acquisition of rights.

What happens when drought occurs? Water rights may be defined so that the same principles apply regardless of the degree of shortage, or there can be explicit provision for shifting management regimes during periods of emergency. Locally-managed irrigation schemes often apply very different allocation rules depending on the degree of water scarcity, and have procedures for switching between different operating rules. Flood and drought are inescapable. At what point does it become necessary to sacrifice crops in order to ensure adequate water for drinking and other domestic needs? There is a need to be able to shift from routine to emergency management, without making emergency the routine condition. If this need is ignored, the result is that crisis management is ad hoc, and likely to be highly conflictual, politicized and inefficient. Planning for drought can forge consensus about when to shift to different rules, and how to share the pain when this becomes necessary.⁷

How much water? Proportionality and efficiency

Is scarcity shared? Rights to water do not have to be specified only in terms of absolute flows, e.g. liters per second, but instead can be a share, e.g., a percentage, of available flow. Most systems for rotational irrigation of rice embody a principle for proportional sharing of available supplies and shortfalls. Proportional principles are most highly elaborated in share systems, famous in Nepal, Spain, Philippines and elsewhere, with rights based on investment in building and maintaining irrigation works. This contrasts with a prior rights systems where “senior” rights holders can take their entire allocation during periods of shortage, with “junior” rights only allowed to take whatever is left over. Even in the western U.S., the home

of such “prior rights,” allocation within mutual companies and irrigation districts commonly reflects proportional sharing rather than absolute prior rights. Internationally, many water allocation systems which are nominally specified in absolute terms actually have rules for sharing shortages which make them proportional in practice. Proportional principles can also be used to manage reservoir storage capacity.⁸

Is water consumed or returned? If a water right is to be increased, decreased or transferred then it becomes important to take account of how this might affect return flows, via surface and groundwater. This has been a major issue in the literature on water transfers and water markets. The existing infrastructure and management of irrigation schemes often depend on relatively large flows, well beyond the consumptive use (the amounts lost to evaporation, transpiration or otherwise not returning for use downstream) that might be assumed in theoretical calculations, whether for smaller farmer managed schemes or large agency managed schemes.⁹ There is growing recognition that basin level water use efficiency may be high, even when efficiency within individual schemes appears low.¹⁰

Attempts to improve irrigation performance and increase water use efficiency have shown how limited is the capacity to impose changes in water allocation.¹¹ Attempting to define water rights limited only to consumptive use can be interpreted as taking away access enjoyed by current users without providing any compensation, an approach likely to evoke resistance and opposition. Existing rights to water are often factored into land prices. Reallocation is likely to be more feasible if those who reduce water use gain from the sales, i.e. recognizing the value of their existing rights and creating incentives for efficiency. The implication of these issues is that the basic water right should often be defined in terms of the entire amount currently diverted, as it is currently used. Changes in use or transfers may need to be restricted to the amount consumptively used, but the primary rights should secure the entire amount currently diverted.

Where? Transferability

Is water tied to land? Customary water rights often make little or no provision for reallocating water. This may work well enough as long as water is not particularly scarce, so there is little need to consider reallocating water between different uses. However, even with agriculture, share systems, where water is not tied to land, may permit expanding irrigated area and moving the point of use, and so may create important incentives for efficient use within a local area.¹²

Is reallocation needed? Cities, industry and others seek new supplies, and often see transferring water from irrigation as the easiest, and cheapest, source to serve their needs. Even where reallocation is formally prohibited, cities or other users with growing demands may buy up irrigated farmland in order to move the water to other uses. Planning and zoning systems have shown limited ability to restrict conversion of farmland to other uses in most countries. Attempts to prohibit water transfers seem similarly unlikely to succeed. As the demand for water increases, competing users will employ one means or another to obtain water. The question may better be framed as one of how to best channel the process of reallocation.

Can reallocation be managed constructively? If new claimants use their political and economic power to expropriate water from existing users, with little or no compensation, this not only creates current injustice but contributes to the prospect for increasing conflict in the future. Controversies about storage reservoir construction have important lessons for policy on water reallocation. Debates have highlighted the high economic, social and environmental cost of dam construction, which encourages alternative strategies like demand management and reallocation.

The history of broken promises and inadequate compensation for land expropriation in reservoir construction has discredited water development projects, breeding mistrust and opposition. In the same way, if water is expropriated with little or no compensation, the prospects are for a similar result of distrust and conflict. However, if current users think their concerns will be heard and any transfers carried out with equitable compensation, then reallocation may be able to proceed relatively smoothly.

Can win-win transfers occur? Commonly those demanding water for urban and industrial use are willing to pay a much higher price for water than the economic value of the water as used in agriculture, while the amounts needed are relatively small compared to the volumes used in agriculture. This creates the potential for mutually satisfactory, voluntary agreements. Within a locality, renting or sale of water may evolve on an informal basis, as in informal groundwater markets. A more formal institutional infrastructure is needed for permanent transfers of water rights to take place between strangers, located in different places. Making equitable reallocation possible may require significant adjustments to ensure that water rights are transferable. If the potential gains from trade are high and transactions likely to be frequent, it may be worthwhile to create tradable water rights and the regulatory apparatus needed to support water markets. If permanent transfers are infrequent, then simpler arrangements for compensation may suffice.¹³

Conclusions

Increasing demand is bringing conflicts and pressures for better institutions to manage scarce water resources. Emergence of conflicts is far from uniform, and conflict management may be more effective if formalization of water rights is selective and prioritized, with formalization as only one option, along with strengthening user self-governance, assistance to facilitate negotiation among disputants and technical analysis to clarify conditions and alternatives.

The literature on water rights derived from the western United States often brings with it a series of assumptions, frequently oversimplified, about how water rights are or should be defined: rights in perpetuity, claiming previously unused water, to absolute volumes of flow or storage, with senior rights served first in their entirety, held by individuals, uniformly applied, legally formalized and regulated by courts. This essay presents a contrasting view, emphasizing that a range of alternatives exist, which should be considered in any attempt to understand or reform water rights.

Users should have rights to water which are secure and can be protected. The best pathways to improving institutions for water rights and allocation are likely to go through recognizing and building on existing local principles and practices for water allocation. Reform should be made selectively and strategically, optimizing the limited capacity of state agencies to address urgent issues, rather than wasting time and energy to impose the appearance of uniformity, or trying to abolish the social capital embodied in existing institutions.

In conditions common to much of tropical Asia the most appropriate formulation of water rights may be directly opposite from that presumed in much of the literature. Depending on local conditions, the default assumption for understanding existing rights and for considering reforms in water rights might best be conceived as assuming that rights concern water for which there are already existing uses and claims, formalization should be the exception rather than the rule, rights should be proportional to flows, held by irrigators' associations or other collective entities, and mainly regulated according to local custom and practice through user self-governance, with courts and state agencies having only a secondary role. Rights should secure the access to all water currently diverted, with

consumptive use and return flows only considered if usage is to be changed or transferred. Table 1 summarizes some of these questions and options for defining water rights.

Table 1. Water rights characteristics and alternatives

CHARACTERISTICS	SOME OPTIONS	
Formality	Explicit rights in registers, permits and licenses	Informal, customary and implicit rights
	Universal formalization	Selective formalization
Rights holders	Individuals	Irrigators' associations
Enforcement forum	Litigation in court	User self-governance
Allocation principle	Volumetric	Proportional
	Absolute priority	Sharing
Efficiency	Consumptive use only	Full flow
Duration	Permanent	Limited term
Flexibility	Uniform rules	Adjusted to season and circumstance
Transferability	Tied to land	Transferable

Notes

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² On the role of the state in enabling strangers to enter into successful transactions, see Douglass C. North. 1990. *Institutions, Institutional Change and Economic Performance*. New York: Cambridge University Press.

³ An example of assuming the generality of prior rights, and ignoring the possibility for non-market mechanisms for proportional sharing of scarcity, is in Farhed Shah, David Zilberman and Ujjayant Chakravorty. 1993. Water Rights Doctrines and Technology Adoption. Pages 478-499 In *The Economics of Rural Organizations: Theory, Practice and Policy*, edited by Karla Hoff, Avishay Braverman and Joseph E. Stiglitz. Oxford: Oxford University Press.

⁴ For legal pluralist approaches to dealing with the complexity of local law and practice in water rights see Franz von Benda-Beckmann, Kabeet von Benda-Beckmann, and H. L. Joep Spiertz. 1997. Local law and customary practice in the study of water rights. In *Water Rights, Conflict and Policy*, eds. Rajendra Pradhan, Franz von Benda-Beckmann, Kabeet von Benda-Beckmann, H. L. Joep Spiertz, S. Khadka, K. Azharul Haq, 221-242. Colombo, Sri Lanka: International Irrigation Management Institute; David Guillet. 1998. Rethinking Legal Pluralism: Local Law and State Law in the Evolution of Water Property Rights in Northwestern Spain. *Comparative Studies in Society and History* 40:1:42-70; Bryan Randolph Bruns and Ruth Meinzen-Dick. 1998. Negotiating Water Rights in Contexts of Legal Pluralism: Priorities for Research and Action. Paper presented at the 1998 Conference of the International Association for the Study of Common Property. Vancouver, Canada, June 10-14, 1998.

⁵ Relatively little effort has been made to apply alternative dispute resolution techniques to water conflicts outside the western United States (Stanbury and Lynott. 1993. Irrigation Management and Conflict Resolution. Unpublished paper; Gail Bingham, Aaron Wolf, and Tim Wohlgenant. 1994. *Resolving water disputes: Conflict and cooperation in the United States, the Near East and Asia*. Washington, D.C.: USAID Irrigation and Support Project for Asian and Near East.). The book, *Getting to Yes: Negotiating Agreement Without Giving In*, by Roger Fisher, William Ury and Bruce Patton (New York: Penguin Books. 2nd Edition 1991) provides a short,

practical summary of research on interest-based approaches to negotiation, and was followed by a series of related books by Fisher, Ury and various colleagues.

⁶ William Blomquist analyzes polycentric self-governance in *Dividing the Waters: Governing Groundwater in Southern California*. San Francisco: ICS Press. 1992. For discussion of administrative water allocation, user-based allocation and markets see Ruth Meinzen-Dick and Mark W. Rosegrant. 1996. *Alternative Allocation Mechanisms for Intersectoral Water Management*. Berlin: Paper Presented at the DSE-ATSAF Workshop on Strategies for Intersectoral Water Management in Developing Countries: Challenges and Consequences for Agriculture.

⁷ On drought planning, see Harald Fredericksen. 1992. *Drought Planning and Water Efficiency Implications*, in *Water Resources Management*. World Bank Technical Paper Number 185. Washington, D.C. 1992.

⁸ Norman J. Dudley. 1992. Water Allocation by Markets, Common Property and Capacity Sharing: Companions or Competitors. *Natural Resources Journal* 32 (Fall):757-778.

⁹ For a critical analysis of how effective operation and maintenance in practice differs from technical design assumptions see *Irrigation O&M and System Performance in Southeast Asia: An OED Impact Study*. Report No. 15824 Operations Evaluation Department, the World Bank. 1996.

¹⁰ On basin efficiency and the risk of non-existent gains from increasing water use “efficiency” see David M. Seckler. 1996. *The New Era of Water Resources Management: From “Dry” to “Wet” Water Savings*. Research Report 1. Colombo, Sri Lanka: International Irrigation Management Institute.

¹¹ Robert Chambers discusses obstacles to water reform in *Managing canal irrigation: Practical analysis from South Asia*. New Delhi, India: Oxford and IBH. 1988.

¹² On incentives for efficiency in share systems see Arthur Maass and Raymond L. Anderson. 1978. *...and the desert shall Rejoice: Conflict, Growth and Justice in Arid Environments*. Cambridge, Massachusetts: MIT Press. The advantages of shares untied to land are analyzed in Edward Martin and Robert Yoder. 1983. *Water Allocation and Resource Mobilization for Irrigation: A Comparison of Two Systems in Nepal*. In *1983 Annual Meeting Nepal Studies Association, Twelfth Annual Conference on South Asia*. University of Wisconsin, Madison, Wisconsin.

¹³ A further point of contrast, in addition to those summarized in Table 1, is between establishing the institutional apparatus for full-fledged water markets with the expectation of frequent permanent transfers, versus infrequent transactions capable of being handled through a combination of negotiation among users and administrative review. One entry point for literature on the infrequency of water transfers is Robert A. Young. 1986. *Why Are There So Few Transactions Among Water Users?* *American Journal of Agricultural Economics* 68 (5):1144-1151.