



Modern water and its discontents: a history of hydrosocial renewal

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Water planning and management in the 20th century were characterized by a particular way of understanding and relating to water that may be described in terms of 'modern water'. Essentially, modern water is a way of knowing, accounting for, and representing water apart from its social context. Modern water replaced a wealth of different waters whose essence was defined by the social circumstances in which they occurred, rather than by the compound of oxygen and hydrogen to which all waters may be reduced. This paper traces the history of modern water and describes its current retreat in the face of circumstances that call for the resocialization of waters. Several examples of this resocialization are given, including a new way of representing hydrosocial relations known as the 'hydrosocial cycle', the campaign for the human right to water and emerging practices in water engineering and water management. © 2013 Wiley Periodicals, Inc.

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INTRODUCTION

The relationship between water and society is as complex an historical, sociological, and regional problem as any that can be imagined (Ref 1, p. 1).

As suggested in the above quote by David Mosse, water has important social, historical, and local dimensions. Over the past 20 years anthropologists like Mosse, along with geographers, sociologists and historians have contributed to a growing volume of research that explores these various dimensions of water (Ref 2, p. 47–72). In so doing, they have produced a critique of the mode of knowing and representing water that has dominated modern hydrological discourse, especially in the more industrialized parts of the world. This modern way of knowing and representing water essentially abstracts all waters from the social, historical, and local conditions in which they are produced and reduces them to a common abstract and timeless identity,

which can be represented as 'H₂O' and shown as circulating in the hydrologic cycle. Elsewhere, I have used the term 'modern water' to describe the operation of abstraction, reduction, and representation that produces H₂O and the hydrologic cycle.²

The first part of this article describes the history, and some of the consequences of modern water, emphasizing the concept of the hydrologic cycle as an example. Modern water is conducive to a style of hydrosocial relations that is reflected in the idea of 'water resources' and the practice of 'water management': it is characterized by a particular way of representing water, a particular kind of hydrological expertise, a concentration of control in agencies of the state, and a way of defining and approaching many water problems that orients attention toward augmenting water supplies. As all of these conventions and practices have come under scrutiny, a kind of water crisis has ensured whereby modern water itself is brought into question. The second part of the article describes key changes in representation and in practice that follow in the wake of this crisis and which contribute to a new water paradigm. First, an emerging concept—the 'hydrosocial cycle'—is introduced as a process in which social elements are intrinsic to water. This is followed by a discussion of two items illustrating hydrosocial renewal and a rejection of modern water: strategies of resistance to

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neoliberalization in the water sector and resistance to commensuration and the growing attention to particularities of social context (stressing politics) in water engineering and management. The article concludes with a discussion of how the relations between water and society produce opportunities for social as well as hydrological renewal.

PART I: MODERN WATER AND ITS CONTENTS

The Hydrologic Cycle

We begin by considering the hydrologic (or hydrological) cycle, which is an important component of modern water. Most readers will be familiar with classic representations of the hydrologic cycle, which is considered the main principle, or framework, of the hydrological sciences.³ However, what began as a scientific concept has found its way into popular discourse. The standard diagram of the hydrologic cycle is common not only in hydrology textbooks, but also in more popular school textbooks and other publications, on posters and the internet (Figure 1).

The hydrologic cycle represents the work of many generations of natural philosophers and scientists to isolate and describe the behavior of water in the hydrosphere.^{4,5} However, the term ‘hydrologic cycle’ and the diagram to represent this concept are relatively recent inventions. They were first presented by the American hydrologist, Robert Horton, in a paper read before a meeting of the American Geophysical Union in 1931.⁶ (Figure 2) Horton presented the hydrologic cycle as a framework for the new science of hydrology that hitherto had not been recognized as a separate science in the United States. As Horton pointed out,

[H]ydrology may be regarded as charged with the duty of tracing and explaining the processes and phenomena of the hydrologic cycle, or the course of natural circulation of water in, on, and over the Earth’s surface (Ref 6, p. 192).

It is significant that Horton defined the hydrologic cycle as the course of *natural* circulation of water. This was done in order to identify hydrology as a pure natural science; hence ‘the field of hydrology, treated as a pure science, is to trace out and account for the phenomena of the hydrologic cycle . . .’ (ibid, p. 192). The naturalness—in the sense of its independence from human interference—of the hydrologic cycle has been upheld to the present. As stated in a relatively recent hydrology textbook, ‘The hydrologic cycle is the most fundamental principle of hydrology . . .’

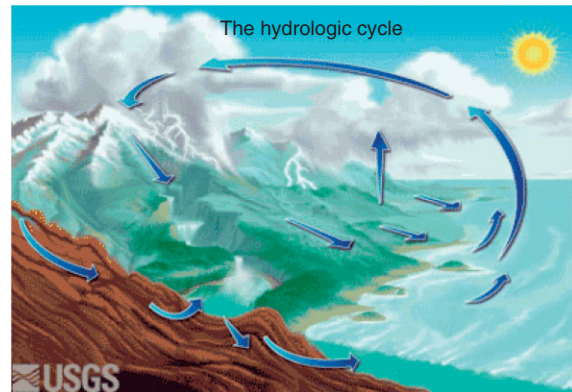


FIGURE 1 | The hydrologic cycle (National Atlas of the United States).

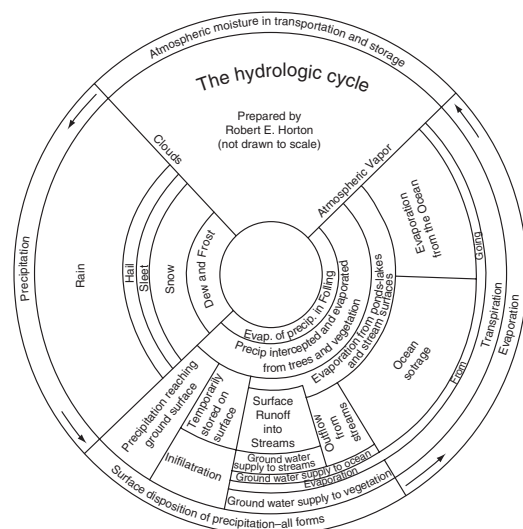


FIGURE 2 | Horton’s hydrologic cycle. (Reprinted with permission from Ref 6. Copyright 1931 American Geophysical Union)

This immense water engine, fuelled by solar energy, driven by gravity, proceeds endlessly in the presence or absence of human activity’ (Ref 7, p. 1.3).

Modern Water

Defining and representing ‘the natural circulation of water’, as Horton described it, the hydrologic cycle contributes to our understanding of water as an abstract, asocial, (i.e., natural) process. As such, the hydrologic cycle contains and reasserts what can be described as ‘modern water’. Modern water is the dominant, or hegemonic, way of knowing and relating to water, originating in Western Europe and North America, and operating on a global scale by the later part of the 20th century.² Modern water can be considered an intellectual achievement, the main feature

of which has been to abstract all the world's waters from their local, social, cultural, religious, and ecological contexts, to reduce them to a single substance, and thus render them commensurable.⁸ This achievement was begun in the 17th century, and was consistent with what R.G. Collingwood describes in his history of the idea of nature: From a world of qualitative differences, natural philosophy effected '*the restriction of natural reality to a complex of quantities*' of which '*nothing is scientifically knowable except what is measurable*' (Ref 9, p. 103). Such an abstract, measurable, conception of water was necessary in order to construct the modern, scientific hydrologic cycle, which is based on the mathematical equation of precipitation with runoff and evaporation in a river basin.^{10–12}

As noted, the intellectual origins of modern water predate Horton's hydrologic cycle: they can be traced to the 17th century scientific revolution,¹³ and are evident in the common dictionary definition of water describing it as a chemical compound:

water . . . 1. Colourless transparent tasteless scentless compound of oxygen and hydrogen in liquid state convertible by heat into steam and by cold into ice, kinds of liquid consisting chiefly of this seen in sea, lake, stream, spring, rain, tears, sweat, saliva, urine, serum, etc . . . (Ref 14, p. 1471).

An important moment in the history of modern water occurred in the laboratory of Antoine Lavoisier, who first proved in the mid-18th century that water could be reduced to a compound of oxygen and hydrogen.^{15,16} Historically, modern water replaced myriad distinct waters. As the historian of science, Christopher Hamlin has shown, throughout the Western world, people perceived water from one instance to another, in accordance with the particularities of culture and place:

A richer and deeper range of conceptions of water and its effects on the body existed before the achievements of Lavoisier et al. A paradigm shift in the concept of water occurred . . . in which water went from a class of infinitely varied substances to a monolithic substance containing a greater or lesser concentration of adventitious ingredients . . . That premodern paradigm . . . was more interested in how waters were different than in the ways they were the same . . . Waters were aspects of the histories of places (Ref 17, p. 135).

Conceptually abstracting water from the histories of the places in which it occurs has had important consequences. There is an internal coherence between this way of knowing and representing water, the consolidation of hydrological expertise, the identification of water as a 'resource' to be 'managed', and the power of the state in managing and controlling this resource.

The State-Hydraulic Paradigm

The main epistemological effects of modern water are to drive out its social content, to render water ahistorical, to reduce it to an abstract quantity and make it amenable to the application of instrumental reason. Modern water has been particularly amenable to the growth of the modern state. To give the hydrologic cycle as an example, this way of seeing and comprehending the nature of water has been particularly convenient to the modern state. The hydrologic cycle was quickly taken up by planning agencies of the US federal government as a means of envisioning the nation's water resources and rendering them as a 'calculable coherence', to use Heidegger's term (Ref 18, p. 21). The 1930s in the United States was probably the height of what Karen Bakker has described as the 'state-hydraulic paradigm' and what Peter Gleick has termed the 'old water paradigm'.^{19–21} This period—which lasted approximately to 1980—was typified by an emphasis on the development of water supplies by the agencies of the state, the view of water as a 'resource' to be 'developed' and 'managed', the concentration of expertise in government agencies responsible for quantifying, engineering and controlling water supplies, and large-scale infrastructure symbolized by large dams.

The first simplified version of the hydrologic cycle diagram was produced by a US federal government agency in 1934, shortly after Horton's paper appeared.²² The National Resources Board was concerned with strengthening the federal government's capacity to assume control of the nation's water resources. To use James C. Scott's well-known term, as a means of making water 'legible'²³ for administrative purposes, the hydrologic cycle was an instrumental component of the state hydraulic paradigm (Figure 3).

The state-hydraulic paradigm was also characterized by the concept of 'water management', i.e., the notion that water was a discrete resource that could be exploited and manipulated without explicit regard for the complexity of relations between water and ecosystem functions and between water and human society. The hydrologic cycle fit nicely within this paradigm as a way of representing water as a pure hydrologic process, that is, as an epistemological tool for disentangling water from ecology and from human society.

Modern Water in Crisis

Modern water rests on the presupposition that water and society are fundamentally distinct, which allows us to imagine that we can manipulate water without profound social consequences. However, following the argumentation of Bruno Latour, We

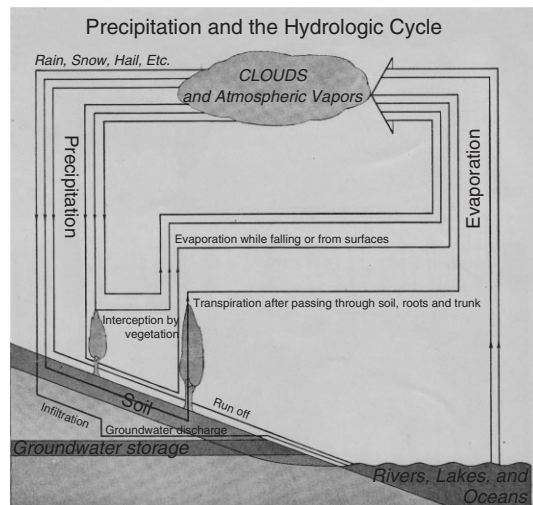


FIGURE 3 | Precipitation and the hydrologic cycle. (Reprinted with permission from Ref 22. Copyright 1934 Natural Resources Board)

Have Never Been Modern, to quote his well-known 1993 work.²⁴ In fact, the very idea of modern water internalizes social practice (hydrological science; water management; the power of the state to control water). While modern water is presented as being devoid of social content, it actually internalizes the disciplinary particularities of the hydrological sciences and the state hydraulic paradigm.

This contradiction becomes obvious with the proliferation of hydrosocial hybrids such as the prevalence of water pollution, the gross disparity of access to adequate water and wastewater services between the rich and the poor,²⁵ the sheer extent to which hydrosystems have been exploited and regulated by humans,²⁶ critical recognition of the various social implications of the state hydraulic paradigm,^{27–29} and acknowledgement that it is impossible to effect changes in the hydrologic cycle without effecting changes in society, the most obvious example being awareness of the social effects of large dams.^{30,31} In the face of such contradictions, modern water is less and less tenable. While the present hydrological problematic is usually presented in terms of a ‘water crisis’,^{32–40} it is more accurate to say that what we are facing is a crisis of modern water (Ref 2, p. 191–211). The point in making this argument is to stress that water is not the problem per se; rather all water problems are fundamentally social problems, and need to be addressed as such. As stated by Sunita Narain, head of the Centre for Science and Environment (India), on the occasion of accepting the 2005 Stockholm Water Prize, ‘Water is not about water. Water is about building peoples’ institutions and power to take control over decisions’ (quoted in Ref 2, p. 223).

PART II: HYDROSOCIAL RENEWAL

The general response to the crisis of modern water involves a recombination of water and society in order to resolve water problems. As suggested in the quote by Sunita Narain directly above, hydrosocial renewal is about recognizing the importance of what might be called hydrosocial relations and deliberately putting people at the center of water solutions. We will begin this section by describing an emerging concept developed by researchers in political ecology to theorize and analyze hydrosocial relations: The *hydrosocial cycle* borrows somewhat from the concept of the hydrologic cycle, but modifies it in important ways. While the hydrologic cycle has the analytical effect of separating water from its social context, the hydrosocial cycle represents water as a hydrosocial fact, thus putting people and politics at the center of all water issues. Following this, we will consider two examples showing how the conceptual recombination of water and society gives rise to new dimensions of water politics and management: First, the proclamation of water as a human right as a strategy of resistance to neoliberalization in the water sector, and second, resistance to commensuration and the growing attention to particularities of social context (stressing politics) in water management.

Humanizing the Hydrologic Cycle: The Hydrosocial Cycle

‘Evidence now shows that humans are rapidly intervening in the basic character of the water cycle,’ reports the framing statement of the Global Water System Project, an international research effort that facilitates integrated study of the biogeophysical and social dimensions of the water system (Ref 41, p. 509). This statement may be understood in two ways: Clearly, as the authors point out, anthropogenic interventions, such as climate change, basin-scale water balance changes, river flow regulation, sediment fluxes, chemical pollution, microbial pollution, and changes in biodiversity, are ‘transforming the contemporary global water system’. But at the same time, the authors of the paper have themselves transformed the water cycle. The water cycle is now understood and represented as the integration of physical, biological, biogeochemical, and human components of a more comprehensive system. Now it is the ‘water system’ that represents the nature of water, a nature that is highly complex and evidently social (Figure 4).

In this case, the ‘water system’ presents humanity as an undifferentiated whole, a disaggregated abstraction. But humanity is differentiated when it

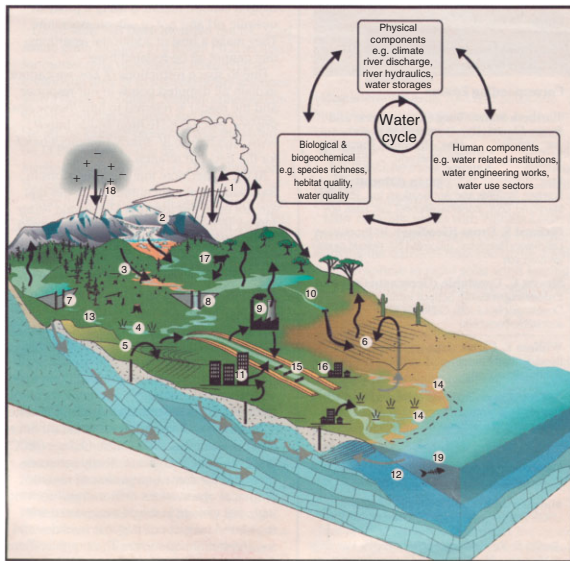
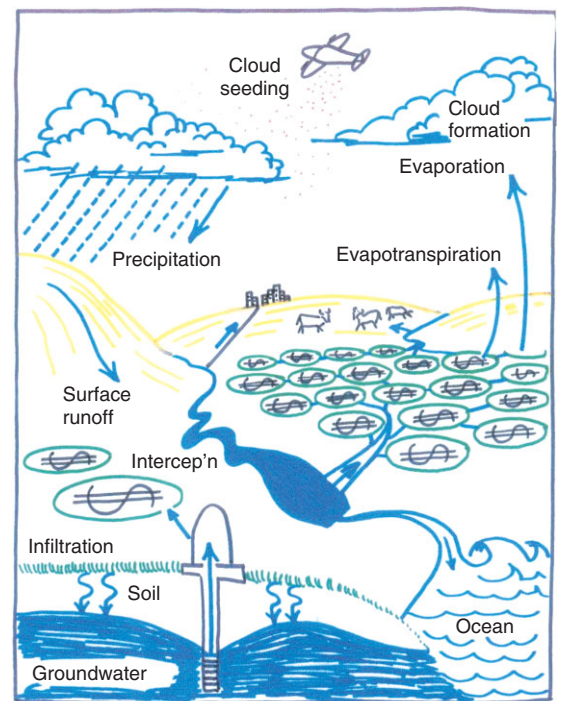


FIGURE 4 | The global water system. (Reprinted with permission from Ref 41. Copyright 2004 American Geophysical Union)

comes to water: there are the water-rich and the water-poor; there are those who benefit from industrial pollution and others who pay the price for industrial pollution. The next figure shown was drawn by Kate Ely, a hydrologist who works with the Confederated Tribes of the Umatilla Indian Reservation, located on the Columbia River Plateau in north-eastern Oregon and south-eastern Washington State. (Figure 5) Given the dispossession of the water and other resources of these tribes and the recruitment of the Columbia River into global flows of capital, we can appreciate Ely's perspective: water does indeed flow uphill towards money. The hydrologic cycle, as it exists today, flows in accordance with forces that are political as well as they are hydrological. This is one focus of researchers in political ecology who attend to questions of access to and disposition of water resources. As Erik Swyngedouw has shown in his work, 'the circulation of water—as a physical and social process—brings to light wider political economic, social, and ecological processes' (Ref 42, p. 2).

For approximately the past decade, the term 'hydrosocial cycle' has been used by Swyngedouw and other geographers to reflect the social and especially the political dimensions of water.^{2,5,43–49} However, there has been little coherence in how it has been defined and employed. A recent effort has been made by Linton and Budds to build on this work, defining the hydrosocial cycle as 'a socio-natural process by which water and society make and remake each other over space and time' and mobilizing this concept as an analytical tool for investigating hydrosocial relations.⁵⁰ The two main aspects of this definition



The hydrologic cycle as it occurs today. Water flows the money! Kate Ely

FIGURE 5 | 'The hydrologic cycle as it occurs today. Water flows to money!' (Source: from Kate Ely, Available at: <http://aquadoc.typepad.com/waterwired/2008/12/postmodern-hydrologic-cycle.html>. Accessed April 22, 2013)

of the hydrosocial cycle are discussed immediately below: the dialectical relationship between water and society, and the social constitution of different waters.

The hydrosocial cycle reflects a dialectical relationship between water and society, which is theoretically rooted in the nature-society dialectic of Karl Marx, as described in his theory of labor in *Capital*, Volume 1:

Man opposes himself to Nature as one of her own forces, setting in motion arms and legs, head and hands, the natural forces of his body, in order to appropriate Nature's productions in a form adapted to his own wants. By thus acting on the external world and changing it, he at the same time changes his own nature (cited in Ref 42, p. 15).

The core idea here is that our engagements with nature impact not only on the natural world, but also on ourselves as society. This is particularly salient for water, which figures so importantly in our health, our production, our economy and culture—in the very fabric of our society. This idea has been applied to water most notably via the 'hydraulic society' thesis made famous by Karl Wittfogel.⁵¹ In essence, this theory holds that that the control

of water in human history—and especially in arid environments—has produced a certain kind of social arrangement, characterized by big bureaucracies and the concentration of state power that Wittfogel characterized as ‘hydraulic despotism’.

However, the dialectical relationship between water and society may be understood in a less deterministic way, as allowing for a wide variety of hydrosocial outcomes that continue to evolve. In his book, *Rivers of Empire*, the American environmental historian, Donald Worster, described nature, and in this case, water, ‘as participating in an unending dialectic with human history . . . that is, as intertwined in an ongoing spiral of challenge-response-challenge, where neither nature nor humanity ever achieves absolute sovereign authority, but both continue to make and remake each other . . .’ (Ref 27, p. 22) Here, the cyclicity of this dialectical process is obvious. The ongoing historical process by which water and society continue to make and remake each other is one aspect of the hydrosocial cycle. Such a concept allows for the twin proposition that ‘water resources are the product of history’ and that ‘water makes history’.⁵²

The idea that water is the product of history may be captured in this dialectical process in the sense that it relates water and society *internally*. To speak of internal relations describes a process by which things do not relate to each other as preformed entities (like ‘water’ and ‘society’), nor do they emerge from these relations as independent entities.^{53,54} Understanding water as internally related with society is anathema to modern water; it offers a way of reinvesting water with the particularities of culture and circumstance that were internalized by different premodern waters.¹⁷ The hydrosocial cycle thus reveals the potential of changing water’s constitution by engaging it in different ways, while at the same time showing how this produces change in social relations.

The hydrosocial cycle *internally* relates a variety of heterogeneous entities including social power and structures of governance, technologies, infrastructure, political policies, and water itself. The latter, which is identified as ‘H₂O’ in Figure 6, represents the agential role of water in hydrosocial relations. Hydrologic processes thus find their place within the *hydrosocial cycle* as not merely material flows of water, but also as agents of social change and organization.

A socio-natural process by which water and society make and remake each other over space and time is represented by Figure 6. Considering this diagram, water’s materiality (H₂O) intervenes in the process, perchance stabilizing, perchance disrupting society (social power/structure), which gives rise to forces that intervene in the process by altering

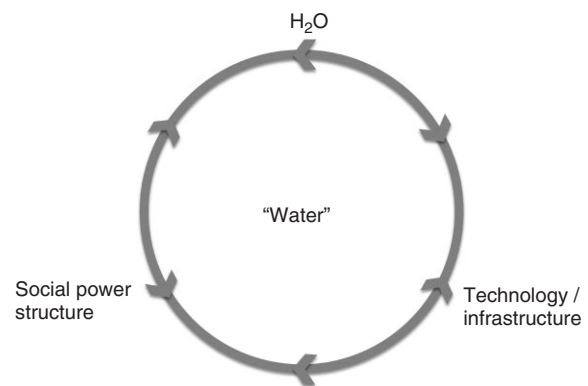


FIGURE 6 | The hydrosocial cycle. Source: Linton and Budds⁵⁰

or manipulating the quantity/quality of flows in the hydrologic cycle (technology/infrastructure), and which in turn intervenes in the process by affecting the materiality of water (H₂O), and so on. This cyclical process is also socio-natural in the sense that water, society, and technology are all hybrid objects, internalizing the relation they have with each other. Different meanings of water emerge as the product of this process: ‘Water’ (identified in the center of the diagram) is the particular type, discourse, construction, idea, or representation of H₂O that pertains in any given assemblage occurring as a moment of the hydrosocial cycle. The particular kind of hydrological (or scientific) knowledge that reflects and buttresses the social order of which it is part is thus represented by ‘water’ in the center of the diagram.

Water as a Human Right

The hydrosocial cycle, as defined above, compels us to identify the assemblage of historical, hydrological, political, and technological circumstances that produce a given instance of ‘water’ as well as to consider what might bring about change in the assemblage. The identity of water therefore both reflects and affects the rules, conventions and techniques that structure its relations with society. The predominant identity of water as a ‘natural resource’ and a commodity for much of the 20th century fit the paradigm of modern water and met the demands state hydraulic paradigm.⁵⁵ However, the crisis of modern water has given rise to a moment of protracted political contestation over the identity of water, not just as a signifier, but as an internally related component of water politics. As Blatter, Ingram and Levesque have noted:

[T]he dominance of law, engineering and economics ensured a narrow, bounded set of meanings of water. The present transformation is characterized

by expanded meanings and definitions of water, beyond these narrow, bounded meanings . . . Whereas modernity has broken up the unity of subject and object, casting water as a resource to be manipulated and subjugated by engineers, lawyers, and economists, new or renewed meanings seek to return water to the core of existence of political actors. (Ref 56, p. 32, 35)

Seen in this light, the significance of the struggle to proclaim and to realize water as a human right as means of resisting neoliberalism becomes more apparent. As Sultana and Loftus have argued, the right to water may be regarded as one facet of a broader transformative politics, and the struggle for this right bears critical opportunities for social change.^{57,58} Rather than an ‘empty signifier’, the right to water can thus be regarded as internally related to the political struggle against neoliberalism.

An example may be provided by recent constitutional and legislative shifts in Latin America that parallel those in many other countries but stand out for their contrast to prior neoliberal reforms in the water sector as well as their rapid uptake in these countries. As reported by Harris and Roa-Garcia, new constitutional language has emerged, most notably in Uruguay, Bolivia, and Ecuador, that recognizes water as a human right and asserts that water services are the direct responsibility of the state (Ref 59, p. 23) These reforms,

‘while not always transformative in practice, do offer the potential to stake novel discursive terrain . . . In all the cases the new reforms seek to counter specific elements of earlier neoliberal agendas; discursively, these shifts are expressions that articulate alternative visions of water needs, priorities and delivery schema; and there is clear potential to resist transnational companies and [international financial institutions]’. (Ref 59, p. 22, 26).

As seen through the hydrosocial cycle, the ‘novel discursive terrain’ staked out in the constitutional language of these countries, internally relates the identity of water to the political economy of water services in such a way as to favor progressive reform in the water sector.

Putting People and Politics at the Center of Water Management

As noted above, the general response to the crisis of modern water involves a recombination of water and society so as to redefine and resolve contemporary water problems. This recombination is evident in recent water scholarship in fields ranging from anthropology to political science, sociology,

geography, and political ecology, so much of which is characterized by increased attention to the plurality of meanings of water, to water’s history and its cultural dimensions, and to the irreducibly political nature of water issues of all kinds.^{47,52,60–65}

But this recombination of water and society is not just evident in critical water scholarship; it can be argued that the actual business of water engineering and water management is increasingly attentive to the particular, the local, and the political nature of water. In the introduction to a special ‘water’ issue of *Technology and Culture* in 2008, Reuss describes how in dealing with competing visions, meanings and values associated with water, water engineers ‘attempt to mediate the incommensurable’. (Ref 66, p. 532).

At a minimum . . . successful engineering requires more than the application of scientific rationalization. Indeed, rather than pushing politics to the side, as high-modernist ideology prescribes, modern public works negotiations often place politics – meaning here the often conflicting relationships among social groups – squarely in the middle of any discussion about a project (Ref 66, p. 545).

A similar picture is painted in a series of articles written by water managers and professionals and recently published in the journal *Water Alternatives*:

[W]ater professionals are central witnesses of, and participants in, the broad spectrum of the social and political processes at work in water law or policy making, in water resources planning and development, and in the management of river basins, irrigation systems and water utilities. As participants they often find themselves at the interface between commercial or political interests and collective values of resource use efficiency, social equity and environmental sustainability. (Ref 67, p. 148)

In a very broad sense, it would seem that the business of water management has shifted from the application of technocratic expertise toward a more engaged practice of social negotiation.²¹ The insertion of the social and the political into the practice of water management can be traced in the history of the concept and the application of Integrated Water Resources Management (IWRM). Introduced in the 1990s, IWRM has enjoyed a career of early rapid uptake in the water community—such that by the early 2000s, it was described as the ‘new sanctioned discourse’⁶⁸—followed by widespread critical reassessment of its merits, and most recently by efforts to retain and apply its more practical elements.

Introduced as a means of overturning the reductionist and sectoral approach to water management that characterized the era of modern water,

IWRM provides an approach to coordinating, or integrating, management of different phases of the hydrologic cycle, different economic sectors, users, and stakeholders associated with water resources, and different administrative units. However, it has been widely observed that putting IWRM into practice is beset with difficulties stemming from its presumption that fundamental cultural and political differences over water can be resolved through ‘technical optimality to be achieved by good science, rational and neutral problem-solving, and negotiations between well-intentioned and well-informed stakeholders’ (Ref 69, p. 3).

Instead of rejecting IWRM outright, it has been argued that putting people and politics center stage in water management would make IWRM more workable. Butterworth et al. summarize a number of recent interventions in the debate over IWRM to put forward two strategies for this: First they suggest focusing on local needs and traditional, local (often common property) management strategies: ‘Focusing on “the local” in IWRM makes it arguably easier to address, or rather harder to avoid people, services and real participation in water resources decision making’ (Ref 70, p. 72). Second, they echo many observers in pointing out that while water resources management is necessarily political, IWRM often treats politics as a problem, thus failing entirely to resolve matters that involve basic political conflict. Rather than avoid politics, they suggest, ‘Why not recognize water politics as a reality and also an opportunity? Political engagement should be appreciated as a catalyst for public involvement and change’ (Ref 70, p. 74). Whether and how IWRM can accommodate political conflict remains to be seen. Nevertheless, recognizing the need for such an accommodation may be taken as a positive sign of hydrosocial renewal.

CONCLUSION

In recent years, scholars in various fields have been attending to the political and social dimensions of water in ways that mark a contrast to the way water was represented and studied in the latter part of the 20th century. These investigations arise in part from a discontentment with a way of knowing and representing water that tended to abstract it from the social relations that give it meaning and that govern its disposition as a resource. ‘Modern water’ was a corollary of a particular kind of hydrological expertise, the idea of water as a ‘resource’, the presumption that water could be brought under control, and the concentration of control over water in the agencies of the modern state.

The demise of modern water brings many opportunities for further research and practice. New ways of representing water—especially in its relation to social processes—are being developed, as suggested in the example the hydrosocial cycle described above. Reasserting the social dimensions of water also broadens the scope of hydrological investigation so as to include a much wider range of approaches and fields. The expansion of interest in water history, in anthropological approaches to water, in the political ecology of water and in water ethics provide examples where an attention to hydrosocial relations flourishes in a growing output of work.

Finally, the reinvestment of water with social content is becoming evident in the practice of water management. Water engineers and managers are increasingly likely to define their role as involving mediation or negotiation between different social actors, different political interests and different cultures of water. It can be argued that recent critique and reform of IWRM also reflects hydrosocial renewal. These developments suggest opportunities for a wider range of social and political engagements in water management than was the case during the era of modern water.

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