

# **Beyond Universal Remedies for Good Water Governance:**

## **A Political and Contextual Approach**

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### **Introduction**

The water resources research and practice community excels at the development of innovative and varied ideas and blueprints to replace existing flawed water management institutions. History is littered with formulas that were embraced by both scholars and practitioners, but either failed to take hold, or, when implemented, failed to live up to their promise. One after another, multi-objective planning, principles and standards, centralization, coordinated river basin planning and management, watershed management, devolution and decentralization, markets, privatization and many other formulas have had some period of years in the sun and then faded. Often these ideas corrected errors and made things better in some places, but proved to be no panacea for the ills of water governance in many other contexts. Today, hopes are fixed upon Integrated Water Resources Management and Adaptive Management, which envision more collaborative governance and a more flexible and engaged role for science. I will argue in this paper that there is much old wine in these new bottles. But, beyond suggesting that there is much to be learned from past experience, the larger point is that the realities of water governance unfold on the ground (or in this case on the water), and that not only must remedies be designed for the context, they also actually must be implemented.

The current intellectual ferment among water scholars and practitioners is more exciting now than anytime in the last fifty years, yet the reality of the problems in which water is implicated is more and more discouraging with each passing year. While the literature presents new notions of green, blue and virtual water, everyday water governance results in mounting problems. For instance, the reallocation of water has moving agricultural water from food to biofuels with lightening speed, increasing food prices and worsening worldwide food shortages. Energy development is requiring increasing quantities of water, and non conventional development is water intensive. The ratio of water to ethanol production in Canada is between four and eight to one (Klein and LeRoy, 2007). Tar sands conversion to usable oil in Alberta Canada requires 15 gallons of water to produce one gallon of oil (Isaacs, 2008). Worldwide, thirsty cities are steadily eroding agriculture's grip on water rights, aggravating food scarcity. Water quality problems continue to plague even developed countries after nearly half a century long clean up campaign. Evaluating the state of common pool resources, Elinor Ostrom (2008) concludes that much of the news is negative.

This paper will first consider what lessons about water governance can be learned from previous and contemporary experiments with water reforms. It indicates that the record on most reforms is decidedly mixed. Among the lessons are that a substantial gap exists between promise and practice. Reforms stall out at



**Watershed Governance:** Like river basin institutions, watershed approaches in the United States can trace their roots back over half a century to the New Deal when the Department of Agriculture Soil Conservation Service took on upstream problems and worked mainly with farmers. While “watershed” is a catch all term for surface water systems in many countries, in the U. S. watershed protection is closely connected with upland headwaters. The principle purpose of early watershed protection efforts was erosion control, and they encouraged grass-roots farmer participation. The watershed governance institutions that have flowered since the early 1990s in the U. S. have similar geography, but very different constituencies and purposes. They are much more environmentally conscious and oriented toward maintaining biological diversity, riparian restoration, and control of non point source pollution. Most are dedicated to increasing broad stakeholder participation in decisions and activities. Further, they generally espouse the partnership of government and non government actors. Thousands of watershed institutions exist in the U. S. today, and they display enormous diversity of orientation, purpose, extent of public involvement, and degree of governmental agency support. The watershed form has been diffused around the world with the support of most water resources scholars and practitioners. From the perspective of extent of adoption and bottom-up participation watershed governance arrangements are unquestionable successful. Measured in other terms, the verdict is less certain.

Participation is only weakly associated with positive results for water management on some measures. Research looking at 46 participatory irrigation management programs that involved farmers on six continents found that costs to farmers rose in 21 cases, improvements in the timeliness of water delivery in 34 cases, equity of water delivery in 32 cases, quality of system maintenance in 32 cases, collection of charges in 30, amount of area irrigated in 29, yields in 23, and farm income in 24 cases (Meinen-Dick, 2006,p.15202).

Another broader test of watershed governance is whether it leads to better societal outcomes, for the moment begging the question of better for whom. A meta-analysis of 35 cases of participatory governance institutions in North American and Europe suggests that the record is mixed (Fritsch and Newig, 2008). Only in one third of all cases new perspectives engaged, information generated or social learning processes initiated lead to better consideration of environmental perspectives in the final agreement. A similar large study of U. S. watershed management by Sabatier et al (2005, p.289-290) finds: “collaborative institutions are expensive to implement and maintain and often are extremely time-consuming, requiring as long as four years to achieve effectiveness”. These analysts see watershed collaboration as a kind of last resort when more straightforward governance is impossible: “we recommend that the collaborative approach to watershed management be used as a method.....only when there are

high stakes, high social distrust, high governmental distrust and high knowledge uncertainty”.

Measured by whether watershed institutions lead to more implementable policies and practices, watershed institutions fare better. The logic is that legitimate processes of participatory decision-making helps to resolve conflicts, increases trust among participants, builds social capital and leads to consensus. Perceived fairness of processes correlates very highly with acceptance in the study of collaborative governance of North America and Europe (Freisch and Newig, 2008). There is enormous variation among cases, however, and the analysts stress the importance of context.

Problems that plagued watershed governance from their introduction decades ago continue. Gaps exist between watersheds leaving some problems unattended.

Watersheds are highly vulnerable to problem impinging from outside their boundaries, and without some overarching umbrella institutions at river basin or higher levels, clashes and gaps occur. Further, success of watersheds is highly dependent upon enough resources, sufficient scientific and technical know how, and leadership all coming together, a happy convergence that turns out to be fairly uncommon.

***Markets and Privatization:*** For nearly two decades the world banking community and many water professionals have argued that the answers to mounting water problems are to be found in market transfers from agriculture to more economically profitable uses, involving the private sector in water delivery, and instituting user-pays, full cost recovery principles. Unless the price of water to users reflects its true value, it is likely that water will be wasted. Given the high economic and environmental costs associated with the development of new water supplies, moving water to more beneficial uses through markets makes sense, and has worked well in a variety of contexts. Water markets have taken many forms, from informal rural water sales in countries like Nepal and India to highly organized market arrangements in places like the Murray-Darling system in Australia (Howe and Ingram, 2005). In many places, markets perform well. But, experience has shown that markets can not make up for failures of governments and that well operating markets depend upon a strong regulatory framework and functioning oversight (Bauer, 1998). While markets have certainly been engaged in water transfers out of agriculture such water transfers are often negotiated arrangements heavily involving government agencies as buyers, facilitators and regulators (some also question if they're 'true' markets, since there is often only a single buyer and seller, and other 'bidders' are left out (e.g., San Diego and the Imperial Irrigation district).

Harnessing the financial and management capacity of private enterprise is supposed to help reach the United Nations' Millennium Development Goals to serve the roughly a billion people who lack access to drinking water and double that number who lack sanitation services. The costs of reaching MDG are estimated to be somewhere between 25 and 100 billion dollars a year, much of which would need to come from new, private investors. Yet, private investments

remain quite small, less the 25% of total investment, and according to analysts, will not thrive unless prevailing political conditions change (Schouten and Schwartz, 2007). In a number of countries, such as Bolivia, the Philippines, and Argentina where water and sanitation has been privatized, grass roots actors were able to overturn these multi-million dollar privatization deals by lobbying government to cancel contracts or pressuring the companies themselves. Globalization is an obviously complicating factor since many international water companies are multinational (e.g., French/American) firms operating under few constraints, and with the blessing of international financial institutions. Some private water corporations are demanding re-negotiated contracts, guarantees, and currency exchange insurance from governments and international financial institutions prior to investment.

While political interests hooked on water subsidies are often blamed for resistance to full cost recovery pricing imposed by privatized water utilities, there are more profound reasons for public opposition. Water is tied up with specific place-based ecologies involving community, culture and identity, and can be a symbol for security, self determination, and preferred lifestyles. Private enterprise and public-private partnerships can not by themselves provide the open public forums in which such value based decisions can be adequately discussed. Further, water and poverty are closely associated, and even in rich countries like the U. S. there exist pockets of poor people without adequate service (Westcoat, Headington and Theobald, 2007). User-pay principles may mean water rates the poorest of the poor can not afford. Life-line rates can help, but categorizing some portion of the population as “needy” risks stigmatizing those singled out for their inability to pay full costs of water. Obtaining more water supplies for expanded service in growing urban areas worldwide is enormously difficult and contentious, and private urban water utilities are likely to face great opposition from rural and farming areas unwilling to sacrifice water to fuel growth and urban sprawl, and from environmentalists concerned with the negative ecological consequences of transfers (Ingram, 2006).

#### Integrated Water Resources Management and Adaptive Management

Integrated Water Resources Management (IWRM) has attained practically the status of lingua franca among water resources scholars and practitioners. IWRM was endorsed by the 2000 Summit on Sustainability in Johannesburg and by the 3<sup>rd</sup> World Water Forum in 2003. It is a prerequisite for compliance with the European Union’s Water Framework Directive of 2000 and guides the European Union Water Initiative (Fischhendler, 2006). It often comprehends one or another of the previously discussed reforms. It is a conceptual approach that stresses several interrelated themes: recognition of the full range of social, ecological and ecological uses of water; integrative planning and practices across the full range of water users including in-stream uses; and coordinating water management at multiple scales; as well as flexible allocation of water entitlements. In the words of Ken Conca “IWRM has become a discursive framework of international water policy –the reference point to which all other arguments end up appealing. Much like the thoroughly picked over concept of sustainability, IWRM combines

intuitive reasonableness, an appeal to technical authority, and an all encompassing character of such great flexibility that it approaches vagueness” (Conca, 2006, p.126-127).

Without question, IWRM has fostered intellectual ferment and created opportunities for interdisciplinary interaction and research not previously experienced. To an unprecedented degree it has involved the skills of a wide range of academics, from anthropologists who deeply analyze the historical connection between water, people and place to ecologists who have introduced notions of resilience. It has gathered into one network not only multiple disciplines but also international and national water scholars with people interested in very specific watersheds. The International Conference on Adaptive and Integrative Water Management in November, 2007 in Basel Switzerland showcased the wide variety of research being conducted, and at least one presentation was probing and somewhat critical (Fischhendler and Feitelson, 2007).

Adaptive management, while a separate idea, is usually paired with IWRM in contemporary water discourse. Adaptive management is learning by doing, and means managing so that decisions are made and modified according to what information is known including knowledge of the effects of previous actions (Doremas, 2002). Foundational to adaptive management is the claim that continued science experiments are critical to natural resources management, and that policies should be designed for continued opportunities for learning (Hollings, 1978; Lee, 1993). The role of science in adaptive management becomes much more intimately involved with day to day, or on the ground, decision making than previously. The uncertainties of physical and biological systems are acknowledged, as well as the needs for managers to make decisions in situations of uncertainty. Scientific research agendas are tied more closely to decision makers’ needs, and scientists even take on roles of advisers to watershed councils. Adaptive management embraces social learning as a valuable approach in implementing water reform (Blackmore, Inson, Jiggins, 2007).

Despite the high hopes and expectations of the academic and professional water community to IWRM and adaptive management, the actual prospects for delivering purported benefits are no better than fair. IWRM and adaptive management have great appeal to specialists, but actually acting on these ideas presents political institutional and equity problems. Part of the difficulty is in the scale and scope of IWRM and adaptive management changes envisioned. If each of the components of IWRM has displayed shortcomings in the past, the risk of failure is compounded when they are combined. In attempting to resolve so many different problems simultaneously, the collective demands upon human, organizational and financial resources are overwhelming (Fishhedler and Feitelson, 2007). Moreover, despite the broad scope of IWRM, the reconciliation of land uses to water resources goals and objectives seldom occurs. Most important, IWRM and adaptive management are disconnected from the politics and implementation processes and analysis that can initiate real change.

The real difficulties of implementation are greatly underestimated. Substantial changes in water entitlements, bureaucratic cultures and missions, and

human behavior are required (Guruswamy and Tarlock, 2005; Bloomquist and Schlager, 2005) Initiatives are begun with great fanfare; involve large sums of money and significant scientific expertise. Yet when substantial problems arise, such as the onset of drought (Fishlander, 2007), economic reversal or threats to endangered species, political conflicts occur, carefully constructed arrangements fall apart (Doyle and Drew, 2008). When things begin to go awry, people are unwilling to wait a sufficient time for new arrangements to take hold or for scientific experiments to be completed. Divided loyalties of participants in collaborative arrangements results in few if any champions of faltering institutions once they get into trouble.

Politics is usually blamed for defeats and shortcomings of various reforms, as if failure to pass political muster was not a fundamental requisite of any water resources governance arrangement. Politics is the means through which to allocate values, and conflicts are certain to happen in future situations where past climate is a poor prediction of the future; wetlands that purify water are being degraded and destroyed; safe drinking water is increasingly unavailable even in some parts of developed countries; coastal areas are vulnerable to sea level rise, risk of extreme weather events that threaten lives and agricultural productivity; and all recipes for energy production require the ingredient of water. Water resources inherently involve value conflicts because water has very different meanings to different people in different contexts. While under certain circumstances water is viewed as a product of engineering systems, in others it is viewed as an economic good that should be reallocated through markets. Some see water as a property right, while others see it as a common good and a human right (Blatter and Ingram, 2001). Moreover, water resources and political power are inextricably connected, and there are winners and losers in most water decisions. Politically powerful interests have always benefitted from privileged access to water resources decision making, and they are unlikely to step aside without conflict. Participation is no panacea for water conflicts since decision rules as to who participates and by what kinds of rules are decisions made are also deeply political (Bloomquist and Schlager, 2005). Moreover, open and transparent forums do not make up for power differentials among participants, the significant resource, skill, and cultural barriers to participation of some disadvantaged populations.

The problem with all of the reforms critiqued above is not so much what they propose either separately or in combination, but what they leave out. Absent from the discussion of contemporary reforms are discussions of ways to move from ideas and concepts to actions. How can issues be framed so as to engage the imagination and public support necessary to cause change? How can social movements be mobilized to place water issues higher on the public agenda of things that need to be addressed? How can leadership be attracted to take up water issues that have long been the province of experts? How can water agencies bound by conservative bureaucratic cultures be encouraged to take risks by adopting new ideas and approaches?

### **Bringing the Art of Politics Back In**

Any meaningful change in water management is likely to be accompanied by a good deal of resistance and strategic maneuvering. It is far easier to continue to do things in the same ways than to make fundamental changes, and policy stability characterizes most policy domains, especially water. As Huitema and Meijerink (2007) argue about water “transitions” real change requires a number of things to come together at once. Ideas need to be not only articulated, but also inserted into the political process. There must be a changed policy image or new framing of what is at stake around which mobilization can occur. A change agent is important, and they can be variously described a policy entrepreneurs, boundary workers, policy advocates and visionary leaders.

***Capturing the Agenda*** The contemporary language of water resources reform tends to be rather bloodless and politically tone deaf. In order for real change to come about in the way societies consider and manages water, the issue of water must be placed higher on the public agenda. A half century ago, an astute political scientist noted that crisis such as floods and droughts created consent in water politics (Hart, 1957). During the era in which Hart wrote water agencies had backlogs of construction projects setting on the shelves that could be brought forward as “solutions” when the timing was right. While present day disasters are every bit as severe, water professionals seem not to be able to translate public concern into commitments to act to protect water resources. Rather than capitalizing upon hot topics like climate change, wildfires, drought and food security where water is close to the heart of each matter, connections are not made and such opportunities are lost. Public attention seems to be more feared than sought by many water professionals in agencies and utilities who think that water is inevitably viewed by the public as a service the interruption of which will only bring approbation and blame upon providers. As a consequence, too often the public and political decision makers are assured that due to the kinds of reforms discussed in the first part of this paper, crises can be avoided. It would be accurate and more politically effective to indicate that very real and painful changes in human behavior and expectations are required if water resources are to be protected.

Researchers and practitioners in climate change have been relatively more effective than their counterparts in water resources in conveying the seriousness of the problem and the closeness of the relationship between human choices and the increases in green house gasses. Whatever the technical flaws, the notion of “carbon footprints” and the urgency of making them smaller catch the public imagination. More effort needs to be put into the development of similar intuitively logical and understandable signals of the extent to which human actions are worsening the state of the planet’s waters. Such yardsticks promote individual behavioral change, as well as provide means to mobilize against damaging new energy, agriculture, and land use technologies and facilities. Because water flows through nearly everything, it can provide a very accurate barometer of unsustainable practice.

Water touches the emotions and evokes sympathetic responses far more easily that does carbon, methane, and other greenhouse gasses, and yet water fails to get the level of attention necessary for innovative change. The field of water



resources needs to add to interdisciplinary skills the talents and insights of the humanities and arts that have the ability to communicate effectively about culture and values and to motivate commitment. For instance, photographs of crumbling ice flows has done more to raise concern about global warming than the endless discussions of the design of the Kyoto protocol. Consider what photographers like Ansel Adams have done for the U. S. system of national parks and what such an artistic giant might do should he/she focus on global water.

***Engaging Water Equity, Community and Sense of Place*** Mobilization of public interest and support is critical to meaningful change in water resources policy and practice. People with widely different interests in far-flung places are responding similarly to feelings of risk and insecurity over their separation from impenetrable and unaccountable water resources decisions that appear to be made elsewhere, such as among experts, through the global marketplace, or through processes of climate change. While some observers have associated these value-based social movements to basic human rights to water and the millennium poverty reduction goals (Conca, 2005), the appeal is much more general, and is better captured by the notions of water for equity, places, and communities. Collective identities are created, expressed, sustained, and modified by processes including the framing of issues and the marshalling of symbols. One common frame or narrative portrays water that naturally and justly belongs to particular places somehow becoming disembedded and lost. The loss is amplified by a sense of disenfranchisement by affected communities even when the cause is traced to past human actions taken before consequences were known.

Collective identities are also reinforced by collective actions such as marches, strikes, and boycotts that have become rather common in water politics in poor countries. Collective action has taken on a new twist in relationship to community and place based demands concerning water. Unlike the more traditional “pipeline” structure of knowledge transfer unidirectionally from scientists to citizens, citizens themselves are becoming engaged in the production of knowledge (Lemos and Morehouse, 2005) While some of the involvement is monitoring the physical characteristics of local water, citizens are also becoming actively involved in the recovery and restoration of riparian habitats.

Appealing to equity, community and a sense of place is a way to get onto the agenda, and no satisfactory resolution of the many complex problems that plague water resources governance can be found without dealing with issues of equity (Feldman, 1995, 2008; Falkenmark and Folke, 2002; Gerlack et al, 2008; Whiteley, Ingram and Perry, 2008). Engaging the ethical dimension of water governance requires very different processes than suggested by IWRM and other water “reforms” espoused within the water resources community. “Conventional tools for evaluating scientific quality with its focus on ‘doing things right’ have to be expanded towards ‘doing the right thing’” (Falkenmark and Folke, 2002, p.9). Issues of equity, fairness and justice require processes in which values often treated as indirect or third party effects of water management are elevated to primary concerns. Escalation of ethical issues to the forefront of discussion is beginning to take place in scholarship and practice at a number of levels and needs to be pushed further along.

Literature on water and equity got inspiration in the 1970s through the work of Maas and Anderson (1978) and continues as a rather marginalized strain in water literature until the present (For instance see Brown and Ingram, 1987; Westcoat, Headington, and Theobald (Fritsch, Oliver and Jens Newig (2008); Rogers, Llamas, and Martinez-Cortina (2006); Llamas, and Perez-Picazo, (2001); Whiteley, Ingram and Perry, 2008). In its earliest incarnation, equity was asserted to be equally important as efficiency in longstanding irrigation systems in Spain and the Western United States (Maass and Anderson, 1978). Later, water equity was identified as a precondition for raising insular minorities out of poverty because water was so closely identified with community identity, security, and control (Brown and Ingram, 1987). Lack of equity and poverty were found to be linked not just in poor countries, but highly industrialized ones like the U. S. (Westcoat et al. 2007). According to Andrea Gerlak and her co-authors (2008) the term "hydrosolidarity" was coined by Professor Malin Falkenmark as the opposite of "hydroegoism" or a narrow, self interested view of water.. In its broadest sense, "hydrosolidarity" is a deliberate attempt to inject mutual understanding, common good, and ethics in relation to shared waters (Gerlack, et al, 2008).

Unfortunately, from my point of view, this hydrosolidarity concept has become just another element in the already over freighted concept of IWRM. In contrast, other scholarly literature identifies water ethics and equity as essential preconditions for forging sustainable and implementable water policies and practices (Feldman, (1995; 2007); Whiteley, Ingram and Perry, 2008). David Feldman (1995) considers the strengths and weaknesses of institutions live covenants, categorical imperatives and stewardship as mechanisms to translate equity ideals into action. At the international level, covenant like language has been adopted in a number of international settings. The UNESCO formed World Commission on Ethics of Scientific Knowledge and Technology is a case in point. Searching for universals in 2002, the commission offered six ethically based water principles:

1. Principle of human dignity—water as a basic human right;
2. Principle of participation—focus on citizen participation in decision making;
3. Principle of solidarity—we all rely on the continued health of our ecosystems and are linked through our upstream and downstream dependency on these systems;
4. Principle of human equality—incorporating the values of justice and equity;
5. Principle of common good—water as a common good and essential to the realization of full human potential and dignity; and
6. Principle of stewardship—moving toward a sustainable ethic and finding a balance between using, changing, and preserving our land and water resources (Selbourne 2000).

The UNESCO principles, like other international norms, lack an enforcement mechanism and influence is mainly symbolic. But, images and symbols are as or more important than scientifically constructed facts in water policy, especially if they inspire international social movements. Such a networked global social movement has emerged around the issue of dam affected peoples, including indigenous people, and is connected with "anti-globalization"

Speaking. While the critical nature of water and groundwater is to the state of public policy, the direct attention of those who are in the business of water is not. In fact, the World Bank, the United Nations, and the World Bank (Domas 2006) find little to no attention in the United States to the water crisis. The water crisis is not of one of the most important issues in the United States, and the Arizona water crisis is not the most important issue in the United States. The Arizona water crisis is not the most important issue in the United States, even though that was the specific goal of the highly touted Arizona Groundwater Management Act. Even so, widely respected water commentators in the state write that the Act is a success largely because of its innovative water banking provisions that make full use of Arizona's legal entitlement to the already overstressed Colorado River. (Jacobs and Holway, 2004). As a matter of fact, while such water banking actions reduce groundwater overdraft for about 15 years, the aquifer depletion problem escalates after that because population growth, resistance to conservation, and even morally to take common action (Snow, 2009). The Arizona water crisis continues unabated. Further, recharge credits are allowed to over-bump even if recharge waters occur in other, disconnected aquifers. (Hirt et al. 2008). It is important that particular place and context, powerful forces can emerge to change governance of water resources. Water policy scholars and practitioners consider the Arizona experience as a cautionary tale. The visionary language of contemporary reforms is not the same as **Inspiring Leadership**. Getting things done in politics requires effective leadership, and in virtually all cases where real change occurs in water resources, success can be traced to the involvement of skilled political operatives. An examination of the emergence of large scale river basin initiatives in the U. S. during the 1990's, indicates that the leadership of for Secretary of the Interior Bruce Babbitt (Doyle and Drew, 2008; Ingram and Fraser, 2005). Leaders are not attracted to policy areas unless there is a potential for public support beyond just the experts and professionals. Equally important, political leaders need access to ideas, especially if the public support prompted by crises is not to be diverted into the old style large scale dams and diversions of yesteryear.

Water professionals need to become astute at injecting water concerns whenever what is at stake affects the resource. Forging meaningful linkages among diverse issues and finding favorable venues are an important pathway for meaningful change (Huitema and Meijerink, 2007). For instance, staff of the Chesapeake Bay Program were able to insert their concerns in the context of the U. S. Farm Bill during congressional consideration. They communicated effectively for support of both Bay state governors and elected legislators. Providing hard data on the costs of adverse environmental impacts of farming upon watersheds, along with other data suggesting that Chesapeake Bay states were getting less than their fair share of federal money was extremely effective in getting provisions helping the Chesapeake Bay Program into the legislation. Similarly, proposed energy legislation contains cap and trade programs to control greenhouse gasses and presently allocates substantial money to environmental restoration including wetlands (Swanson, 2007).

### **Contextual Approach to Design of Water Resources Governance.**

Prescriptions need to fit contexts. Context, as a term, is sometimes used to signify the vague, residual, unexplainable, and usually small variations that are not captured in generalized theory. In contrast, context in this paper is used to signify the numbers of complex characteristics that distinguish one geographic and temporal place from another. Just as ecologists see the interrelationships among numbers of physical things and living organisms as making up a particular ecology, context signifies the nexus of physical, natural, political, cultural, social, and economic phenomena that make one place distinct from another. Context has a temporal dimension. The context of a place depends upon what has happened in the past, the development of some technologies and institutions and not others, and the accretion or lessening of what is broadly described as social capital. Context clearly incorporates the presence or lack of distributive justice, fairness, and opportunity. Context also includes whether or not a place has reached some threshold that is favorable to innovation (Tabara and Ilhan, 2006).

Warnings against the adoption of standardized solutions to public problems regardless of settings abound both in the general literature on public policy and practice and in particular reference to water resources. Harold Laswell, who is widely credited with initiating the formal study of the policy sciences half a century ago, insisted that values, goals, and other elements of policy designs and processes depend upon context and that concrete settings determine what is feasible (Brunner, 2007; see also Raul Lejano, 2005). This advice has been largely ignored in water management. Ruth Meinzen-Dick(2007) writes, Over the past 50 years, a series of institutional arrangements has been presented as panaceas to improve water management.....Each of these approaches has failed to live up to expectations, largely because the variability of local situations and the difficulty of transplanting institutions from one place to another.” (p19200). Moreover, standardized solutions often embrace only one perspective on

problems, and where that perspective is presently lacking in a context, the reform may be quite helpful. Swallowed whole, however, a uniform approach to the subject as complex and disputed as water is indigestible.

The editors and authors of the book Clumsy Solutions to a Complex World (Verweij and Thompson, 2006) argue that the worst errors in designs for policy and management are made when one way of knowing and perceiving reality dominates and excludes other ways. Cultural theory is based on the notion that there are several dominant perspectives continuously in a tug of war with one another, but each needs the others to succeed. In pure egalitarianism, there is an endless search for consensus and no way for deciding among alternative opinion. Hierarchy maintains order and has a whole armory of different solutions to conflicts including upgrading, shifting sideways, downgrading, and redefining, but unless tempered by other perspectives, hierarchy ignores equity, lacks innovation and may lead to repression. Individualism advocates the right of each person to live according to her own needs and wants, and spurs innovation, but may also lead to disorder, and inequality. Water serves multiple values and perspectives, and it is not necessary to buy into the cultural approach to agree that clumsy solutions that contain within them a mix of perspectives are likely to be more self correcting than purist designs.

The contested terrain of water requires not government or markets, but both; not public or private water enterprises, but both; not expertise or grass roots knowledge, but both; not water for nature or people, but both, not centralization or decentralization, but both; not river basin or watershed institutions, but both;( and the list could go further). Lach and coauthors (2006) found merit in several highly innovative policy designs in California that are clumsy solutions with appeal to multiple values. Rather than cost of service, several cities in Southern California use a conservation rate that is administratively determined, perceived as fair, uses economic incentives, and can be raised in time of drought. The Environmental Water Account (EWA) allows fish management agencies to have access to water rights through markets. Fish agencies work closely with water project operators to release water from storage facilities at times that both help fish and accommodate other users (Lach et al, 2006; Ingram and Fraser, 2006)

A contextual approach to water resources requires not just a close study of the elements of water resources management that are present in a context, but also what is absent. In situations of excessive bureaucratic control, designs with greater transparency and public participation are appropriate. However, transparency and openness are not by themselves useful in contexts of great economic and social inequity where the resources necessary to participate are out of reach to the disenfranchised, and other outreach strategies and capacity building are required. Markets and privatization may well spur necessary innovation in contexts where entrenched public bureaucracy are slow and inefficient, and where entrenched interests have captured public subsidies, but they hardly make up for lack of long term focus on water sustainability and intergenerational equity. Emotional appeals to conscientious stewardship of irreplaceable ecological and social water services can spur the development of

social scientists and change in public attitudes, but human science may not help  
increase water governance in a particular context. Before recommending large investments  
in water governance, it is important to consider the range of possible policy options and whether  
that information placed in the hands of the public is likely to change their attitudes and behaviors  
in a way that would be beneficial. It is also important to consider the specific questions that  
scientists are being asked. While there is a lot of hope for producing a satisfactory policy, it is important to  
consider the exact nature of the questions and the advice that is being asked to help  
determine whether the current policy is the best one or if reform might be effective. (Lejano  
and Ingram, 2007)

The perfect can be the enemy of the good. There are a number of examples  
where natural resources management has been muddling along doing a fairly  
good job only to be replaced by some "best practices" preferred by international  
networks of experts that resulted in decidedly worse performance (Lejano and  
Ingram, 2007).

It should be remembered that administrative reorganization sacrifices many years  
of possible progress to time spent in readjustment. In fact, there may never be a  
re-adjustment; reorganization may merely compound inter-agency  
infighting/posturing, etc.

The fundamental needs of the poorest of the poor must be kept in mind in  
designing governmental and market institutions (Howe and Ingram, 2005). Where  
there are already large economic, social and political inequalities, carefully  
consider whether reforms help to level the differences among users or will further  
empower already advantaged water users.

Where past water policies are generally inequitable, it is not good enough to  
simply increase efficiency even if the distributional effects are neutral. Increasing  
efficiency through markets may actually cancel out equity by making it less  
likely that decision-makers will worry about distribution or non-market captured  
benefits (e.g., instream flow, the cultural importance of indigenous fisheries,  
etc.).

It is best to mix and match policy tools to get people to do what they otherwise  
would not do. Policy tools such as capacity building – including the building up  
of civil society, incentives, sanctions, regulations, charges, symbolic appeals and  
the like are all based on different theories of how desired action can be motivated.  
Different people and groups are open to very different kinds of appeals, and  
depending on who needs to change to reach some water related objective, one or  
another tools can be usefully employed.

Whether or not to set up new hydrologic based management institutions is a question of whether new arenas can make a difference in access and outcome in what may be an already crowded institutional context. Hydrologic based institutions like watersheds and river basins are not the magic bullet in water management some reformers insist them to be. While it is very often helpful to try to draw the boundaries institutions to include upstream and downstream problems and other kinds of externalities, there are other considerations. National and sub national political boundaries are usually drawn on basis different from hydrology, and mismatches create serious conflicts over standing, authority and resources. There are always spaces between hydrological boundary lines however they are drawn that outside governance boundaries but still require attention. Further, there is the issue of whether decision-makers across jurisdictions are provided with incentives to build trust, enhance confidence, share information, and collaborate on outcomes.

Culture and place are very important in understanding why water institutions are the way they are and the extent to which there are opportunities for change. Institutions may be path dependent, set in motion long ago, and still operating even though they no longer fit existing values and circumstances. Opportunities for change can be enhanced by a particularized narrative that explains how institutions that once served useful purposes no longer do so – and that engage local cultures/communities in discussion. It should be remembered that reorganization sacrifices many years of possible progress to time spent in readjustment.

Changing policies does not necessarily solve problems of implementation. New policies may also be ignored. There is ample evidence that often privatized water utilities inherit customers used to not paying their water bills and will continue to ignore bills even when they are sent by a different agency. Some reforms aggravate implementation problems. The more complex the policy chain, such as policies involving actors at multiple levels in public and private sectors, the more numerous are the veto points where policies can fail.

Privatization and market mechanisms cannot substitute for inept government and corrupt institutions. Both require continual monitoring and oversight by governmental and political institutions with capacity to perform such demanding roles. Such reforms should be undertaken only within a transparent, accountable framework that has the capacity to protect public values (Howe and Ingram, 2005).

Strategies that can project credible alternative scenarios of water availability and cost for future generations in particular places can help develop concern for intergenerational equity. In the many contexts where

Water management always faces multiple challenges, but maintaining public confidence and support is essential. Credibility and trust, once lost, is enormously difficult to recover. In the context of climate change and increasing risk of extreme events, it is essential that water agencies accurately portray risks, explain the differences between preparedness and prevention, and engage the public in plans for equitable sharing of unavoidable burdens.

### **Conclusion**

Close consideration of many of the ideas promoted in contemporary water networks of researchers and practitioners reveals that some have a long history of failure in many places and only partial success in others. There is little new evidence that the fundamentals that caused past failures have changed. While there is much to celebrate about recent discourse and activity around Integrated Water Resources Management including greater involvement of the social sciences in applied research and a general commitment to participation and openness, there simply are no universal remedies for good water governance. Moreover, there will always be stress among the multiple values underlying water problems. Even when policy designs fit and work well in a particular context, continual readjustments are likely to be necessary to deal with both emerging problems of a changing and increasingly variable climate and shifts among contending values.

While contemporary water resources research and practice provides a lively smorgasbord of ideas, often misleadingly swept together as “integrated”, far too little attention has been directed towards the politics of water. Politics is often viewed as an impediment by the water researchers and managers, perhaps as an outgrowth of their generally technical orientation. The mainstream of the water research and practice community prefers commitment to ideals that can somehow be adopted and implemented by “collaboration”. Politics is the means through which societies contend with differences among multiple values and perceptions and the gaps between desires and resources. Collaboration, along with persuasion, conflict, bargaining, negotiation, discourse, and force are all political processes that may be more or less appropriate in various contexts. Research suggests, however, that collaboration is a lengthy process that may not result in sufficiently timely or innovative solutions. Adequate responses to what are bound to be mounting water problems will take more radical political action and substantial change in “business as usual”. While water tends to be a path dependent issue area, which is subject to only small and sometimes inadequate change, opportunities for dramatic and transformative change do occur. Such opportunities may be triggered by external events like floods or drought, but to ignite change, events must be accompanied by new issue definitions, public mobilization, and committed leadership. Water researchers and practitioners need to attend to political opportunity structures and the cultivation of leadership



through strategic and timely insertion of ideas, perspectives, relevant science, and accumulated wisdom. There may be increasingly opportunities to link water with other critical subjects of heightened public concern, like energy and agriculture to raise the visibility of water and to bring in a broader, more energized movements and networks. Equity and fairness have powerful generative force in water politics and water reforms that do not appear just and fair are unlikely to be politically infeasible.

Attempts to design improved water resources management and institutions must attend to context. Standardized reforms have failed time after time because of a lack of understanding of the cultural and political logic of existing arrangements and/or because prescriptions worsened imbalances among competing perspectives in particular context. Attachments to the purity of particular approaches with broad labels like “markets”, “privatization”, “watershed governance” or the like leads to overemphasis of some values and blindness to others. In general, clumsy solutions that embrace multiple perspectives and appeal to different kinds of logic are preferable. It is a mistake to believe that all people and groups are motivated the same way. Mixed strategies that appeal to different ways of knowing are more likely to be effective. Finally, the water researchers and practitioners must give up the pursuit of one size fits all water institutions that, once set in motion, persist on their own by adaptively respond to changing circumstances. What is needed is a renewed appreciation for the pluralism of good ideas and a realization that no single idea can ever be the panacea. Universal remedies are a mirage, momentarily exhilarating but ultimately disappointing.

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