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What is Public Participation in Water Resources Management and Why is it Important?

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Introduction

As we know, the control of water is the control of life and livelihood. Thus, how we exercise this control reveals what we value, who we are, and what type of society we seek to become. It is hard to find two more compelling concerns in our contemporary world then quenching the thirst of a rapidly growing humanity and doing it in a participatory way.

Participation can mean many things to many people. This paper is not dogmatic and does not offer the definitive definition of participation. However, it does convey what I think participation means to water resources management and why. I have picked five areas of growing concern to the water field within which to discuss what participation is and why it is important:

1. Ethical dimensions of water management;
2. Water management and civic culture;
3. Tension between the technical and political;
4. Reconciling the discontinuities between geographic and jurisdictional boundaries;
5. Need for better and more conflict management.

Ethical Dimensions of Water Management

Water closely mirrors arguments we see in social ethics. One way to look at the close connection of water to broader social ethical concerns is to look at how water management concerns relate to what many consider universal ethical principles, such as the United Nations Universal Declaration of Human Rights of 1948. For example, the principle of human dignity means that all persons are worthy of respect, and the human being is an end and not a means. So too with water. There is no life without water, and those to whom it is denied are denied life. Water for all and meeting minimum basic needs are vitally tied to the principle of human dignity.

The ethical principle of association means that the person is social as well as sacred. The principle of participation means that individuals, especially the poor, must not be shut out from participation in those institutions that are necessary for human fulfillment. Both of these ethical principles mirror a major theme: those who are affected and who would benefit from water (which is vital to their fulfillment as humans) must have the opportunity to participate in its planning and management (Delli Priscoli and Lamas, 2001).

We can see profound ethical implication in all aspects of the traditional water uses such as flood control and management; drought contingency planning and management; irrigation; hydroelectric power and agriculture; water supply and sanitation; navigation; ecological maintenance and health; public health and disease control and others. Ethical consideration around these uses concern the distribution of benefits and costs of the services; who gets how much of the water and who pays; the distribution of risks – who is vulnerable and to what degree. Today, this includes service for nature and ecology, as well as people.

Ethical implications are also clear in all aspects of water management decision making such as planning, regulating, operating, financing and investing, designing and implementing, and others. They concern who participates; what are the decisions they participate in; do they have access to formulating options or only to reacting to options already formulated; how and what type of opportunity costs are considered; the valuing, implicit or explicit, in trade-off decisions; level and type of information open to the public; disclosure and characterization of impacts; the way professionals interact with non-professionals; and the use, as well as misuse, of technical and professional information.

In the face of such ethical responsibilities how could we continue to use the all too familiar model: decide, in-

form the client community, and then justify our decision, or decide, announce, and defend? This old model must be – and is being – replaced by another model in which the participants jointly share information, jointly diagnose the problem, jointly reach an agreement about a solution, and jointly implement it. The decide-inform-justify approach usually builds on a paternalistic (albeit often nobly motivated) professional ethic. The professional formulates alternatives or determines options, and then, for the good of society, informs the public and thereby justifies those decisions.

While often attached to the traditional engineer's mentality, this old model is even finding new life with many contemporary environmental regulators. However, the ethical basis of such professionalism is changing, whether engineer, planner, or regulator. For example, few of us go to the doctor and say, "Heal me." Instead, we participate in the diagnosis as well as in the healing process itself. So too when we turn to traditional, technical, and governmental agencies. We must find new ways to jointly diagnose problems, to decide on plans of actions, and to implement them. This notion of professionalism is driven by a new ethic of "informed consent" as opposed to paternalism.

In the U.S., the 1970s brought environmental impact assessment, social impact assessment, and technology assessment. In the 1980s, risk assessment emerged. Should we be surprised in a period of austerity, when shifts are occurring between environmental quality and economic development values and there are calls for growth, that managing uncertainty and assessing risk become important? After all, if we are to do the same or more with less, what are the risks? Who is going to take the risk, and to what extent? The assessment and the assignment of risk go to the heart of what it means to be an engineer. It goes directly to the distinction often made between performance and design criteria.

In a *Washington Post* (1986) article, "The Slippery Ethics of Engineering," Taft Broome uncovers further complexity in the engineer's ethical role. He states that there are new ideas about what engineering means:

> "[E]ngineering is always an experiment involving the public as human subjects. This new view suggests that engineering always oversteps the limits of science. Decisions are always made with insufficient information. In this view, risks taken by people who depend on engineers are not really the risks over some error of scientific principle. More important and inevitable is the risk that the engineer, confronted with a totally novel technological problem, will incorrectly intuit which precedent that worked in the past can be successfully applied this time. [...] Interestingly these new moral dimensions are not being created primarily by philosophers. They are the works of engineers themselves." (Broome, 1986)

Broome further states:

> "Most engineers regard the public as insufficiently informed about engineering intuition - and lacking the will to become so informed - to assume responsibility for technology and partnerships with engineers or anyone else. They are content to let the public delude itself into thinking that engineering is an exact science or loyal to the principles: conventional sciences (i.e., physics, chemistry)." (1986)

Broome (1986) states that the practice of using intuition leads to conclusions put forth by others, that engineering is an experiment involving the public as human subjects. We are part in parcel of the environment we plan. When we start planning, we interact with and change the environment we plan. Our engineering and planning themselves become change agents. Thus, we can subtly cross the line from scientific to self-fulfilling prophecy or modern mythmakers (Delli Priscoli, 1989).

At the bottom line we must move from the paternalistic to informed consent view of our professional ethics (Broome, 1986). We must bring people to the idea of choosing the level of risks rather than seeing themselves as passive recipients of risk. This informed consent model of professional ethics means that public engineers will become balancers and facilitators more than dictators of specific solutions. They must focus not just on the acts, but the relationship to those who are acting.

The pubic engineers must move beyond standards to guidelines to principles. In philosophical terms, this means using more to utilitarianism perspectives as the basis of policy making. We should be moving to blending our belief in the absolute preservation of public health and our conservative utilitarian traditions. Accountability, performance, and power sharing will become part of the public ethic we must foster. As engineers, we must move even further to blending and mixing quality and quantification in our approaches.

It is not that engineers, scientists, and technical professionals have become irrelevant. We need them more then ever. However, for their expertise to be put in service, new relationships must be built with those whom they would serve.

This new model of "informed consent" demands broader understanding, by all stakeholders, of the special ethical demands faced by decision makers. For example, when is the decision not to decide a greater evil then to decide and to possibly incur unexpected negative effects? Meaningful participation often brings both decision makers and participants into a new awareness of this ethical reality. Lack of participation or non-meaningful participation allows stakeholders the luxury of negative "nay-saying" without confronting the reality of decision making pressures; and that is dangerous. Admittedly, getting the public in touch with such realities, which are often described in obscure and esoteric language, is difficult. But we must, and participation is one of our main tools to do so.

Nowhere is this dilemma clearer than in water and ecological decision making. In the U.S., the days when the shared experience of being negative was sufficient to establish legitimacy have passed. For a time, society needed a shock: an instrument to make us stop and take notice.

The environmental impact assessment (EIS) has been that blunt instrument. But now we know that we must go further: that there are not one but many possible ecological futures; that we must actually design and choose our future. This is the challenge of environmental design: the co-creation of our ecology. We already see this practically in new programs that actually engage in proactive ecological design such as environmental restoration and wetland construction. Some call this the adoption of a Promethean Environmental Archetype and the rejection of an Arcadian Archetype to fuel our search for sustainability (Lewis, 1992).

Ecology and water disputes must overcome the syndrome of advocacy science if we are to preserve the legitimacy of the scientific enterprise, which is necessary for water management. We must ask: what are the ethics of using science to persuade the public, especially under conditions where there is fundamental disagreement among scientists and where even the models and data themselves are weak? Participatory processes force all of us to confront these questions.

Water Management and Civic Culture

In his notes on Virginia, Thomas Jefferson observed that the great engine of democracy is responsibility. Civic responsibility is enhanced when citizens meaningfully participate in making decisions that affect their lives. They take responsibility for trade-offs. Such experience becomes a powerful means to educate and to inform – both prerequisites for democratic political culture. Participatory processes build on a classical notion in democratic theory: that those who are affected by decision should have a say in decisions that affect their lives because in doing so they will become better citizens. And it is often the physical infrastructure and water infrastructure that citizens see directly affecting their lives.

Building that physical water infrastructure in a collaborative and participatory way is now an important means for building the civic infrastructure and the civil society or what many call the governance environment. However, this is not new. Water, governance, and civic culture have always been connected (Delli Priscoli and Hassan, 1998). Fountains of ancient Rome, like standpipes in small villages today or in medieval cities of Europe, have played roles in building civic culture as well as quenching thirst. They were occasions for civic dialogue and meeting places central to creating a sense of civic belonging and responsibility. Indeed, the fountain was truly a civic work. It was a gathering place of nations, believers, and unbelievers. We should not forget that civil society, civic culture, and civil engineering share commons roots. Whether it is irrigation associations, community water and sewage, and even large-scale multipurpose river operations, water management forces us to connect and to balance rights to water with responsibilities for managing water. Most democratic theorists see the experience of such balancing as central to development of civic society (Kettering Foundation, 1991).

The days of a vague dogmatism that things must be preserved or that we must go back to some ill-defined state of nature are disappearing. They are disappearing under the reality of giant projects such as the Everglades and coastal Louisiana. The reality of these projects is not that we are defining some past baseline to which we will target our efforts. Rather, the reality is that we are really negotiating about some preferred state of our ecology. We are jointly creating our ecological future (our home) with nature or God. In a sense we will increasingly come to consciously realize that we are interacting *with*, rather than passively *accepting*, our destiny to create rather than live with a predetermined future.

This movement away from passive acceptance to active choice of decisions that directly affect our lives is the heart of democratic civic culture. There is little place here for the old paternalism of engineering design that says, "I will take care of everything for you." So too there is little place for the new regulatory paternalism that says the State will protect you based on some obscure and non-existent holistic wisdom: a wisdom, like engineering of the past, which is often achieved among experts usually bound together in joint missionary zeal by unwritten ideological consensus. The movement is exercising freedom *to* choose activities and responsibilities – no matter how frightening or overwhelming. It is not a freedom *from* interference, inconvenience, or action. It means taking responsibility *for* choosing a design (destiny) and actively pursuing it.

In this way, debates about our ecology and water will become central substantive debates that reform our democratic systems of governance. Once again, water decisions will show how closely they are linked to our civic cultures. Choosing our future will be a public discernment process or as Habermas (1984) might call it: a new process of public dialog. However defined, there is little doubt that a new central role for the public engineer as facilitator of that debate will emerge. (Delli Priscoli, 1998).

This is far from esoteric. For example, the modern Dutch democracy has grown out of hundreds of years of experience of water boards across Holland. More recently, while releasing Colorado River water to recreate floods in the Grand Canyon, one engineer said, "We are trying to recreate what Mother Nature would have done." Another stated, "This is a test of whether man can do something right with dams rather than always doing something wrong with dams" (Delli Priscoli, 1998).

But the reality is complex. The lack of spring floods has changed patterns of sediment flow, the river banks, and the ecology of the Canyon. However, the dams have also allowed tamarisk trees to line the banks. These trees provide habitat for endangered western willow flycatchers, which have helped increase the peregrine falcons to the point where they are no longer an endangered species. It is no wonder that these practical engineers revert to incantations to "Mother Nature" paralleling traditional

appeals to wisdom goddesses such as Athena. It is no wonder that they use the value and emotional language of moral right and wrong. There are no easy answers. Answers depend, to a great degree, on what you want or think the ecology ought to be. They depend on what purpose and value you ascribe to that ecology. It is frightening to have all your scientific knowledge confront you with the reality that you are co-designing the ecology. The norms to guide such decisions really need to appeal to ultimate authority or higher goods.

As we spend huge sums on the Everglades and eventually on Coastal Louisiana, even wetland restoration and preservation will come to mean conscious intervention, or partnerships, with nature. We see that we are intervening to create or to re-create some preferred state or equilibrium, whether that preference comes from a vision of the future or from romantic notions of the past. But nature is dynamic. Nature's destruction to nature can be greater than anything that humans could dream up. Look at the results of floods or volcanoes and their impact on the atmosphere.

All this requires a process of collaborative public engineering. The environmental as well as the engineering communities have vital interests in such processes. In short, participation forces us to be more than simply "water customers" or "water clients," we become "water citizens."

Today, participatory processes are doing more than making our democratic institutions perform better. They are becoming catalysts for new civic partnerships and even new governance structures that transcend the old.

The Republic of South Africa, based on participation, has written into its constitution a fundamental right to water. It has abolished old riparian systems and created a new system with two reserved rights and all other rights permitted for limited time. Participatory processes in water management have become a fundamental vector for creating a new distribution of civic rights and responsibilities.

Some years ago, a study done by the Kettering Foundation found that two systems of participation, formal and informal, seem to be emerging in the United States. Participation in the formal system of voting is decreasing while participation in the informal is increasing. The informal system includes participation in activities such as community impact, regional projects, and environmental and water projects. The study concludes that the problem is not to bring the informal to the formal, but how to get the formal to recognize the informal (Kettering Foundation, 1991). This remains good advice today.

Over the last thirty years, an NGO dedicated to restoring life of the Chesapeake Bay in the Eastern U.S., has created enough widespread awareness that a new type of regional governance structure, a Bay Commission, has been formed. It crosses governmental, sectoral, and jurisdictional lines.

On the Everglades in Florida, NGOs, activists, and others have created a new structure of intergovernmental and private-public partnerships. This has produced the largest restoration – or ecological design project – in the world. And it has transformed the behavior of traditional agencies.

In two small towns on the Hungarian and Slovakian border, citizens on both sides of the river, Hungarians and Slovaks – on their own initiatives and in a region fraught with potential for violence – came together to meet and discuss how to clean the pollution, to manage the water and reduce terrible health risks to themselves and their children. Water, which knows no boundary, facilitated a dialogue that resulted in agreement on clean up and management, the first open border crossing in the current era, and a variety of joint projects still being carried out. The sense of joint ownership and moral imperative from these actions, taken without and, indeed, contrary to the desires of the national governments, forced the governments to follow (Montville and Delli Priscoli, 1998).

Participatory processes in water management can and do profoundly affect our civic cultures.

Tensions between the Political and Technical

Few issues intertwine the technical and political as much as water management. Even a cursory look at history shows that the interaction between the political and technical is complex.

For example, in the modern West, there are few figures more symbolically important in the realm of politics, engineering and art, than Niccolo Machiavelli and Leonardo da Vinci. The story of their collaboration to divert the Arno River and their integrated water resources plan for the region illustrates how the technical and political are intertwined. That collaboration foreshadows the use of satellite imagery, open public debate among technical and political stakeholders, systems modeling and optimization, and the triad of technical administration, financing, and political power. Da Vinci's drawings, done from the perspectives of looking down from above the project, are remarkably similar to today's satellite imagery. The drawings were also found with adhesives for wall hanging at briefings and public meetings around the countryside (Masters, 1998).

Traditionally, we have come to view the separation between the political, usually seen as legislative voting, and the technical, usually seen as implementing the executive agencies. When confronted with complex water management decisions, this distinction breaks down. (Delli Priscoli, 1974). Often it is with the implementation or administration of general laws that the distribution of impacts becomes clear. Politics is "Who gets What, When and How" (Lasswell, 1958). Often the where become apparent only in implementation. Thus, administrators of technical agencies begin to appear as the bestowers or deniers of political benefits. And this is becoming truer and truer as we become more complex.

To manage this gray area, scholars and commentators from Habermas to Robert Reich, have been calling for a new paradigm of public dialogue, which leads to civic discovery (Reich, 1996). This call reflects the chief goals of participatory processes: to foster deliberation, to en-

courage social learning, to create new alternatives, and to build or enhance, through empowering experiences, the civic infrastructure.

In his book on subjective probability and engineering judgment, Vick notes the essential features of informed consent. It is interesting to look how closely these professional ethics from hard engineering parallel those that would be espoused by participation and collaboration advocates and how they strongly suggest a democratic civic culture as we confront the dilemma of technical versus political. (Vick, 2003) The elements are:

1. The decision rests with the decision maker;
2. Probabilities communicate information to inform the decision;
3. Judgment is expected to be incorporated in probability estimates;
4. Probability estimates incorporate ranges where appropriate;
5. Probabilities for adverse consequences are accompanied by means to reduce either or both;
6. The decision maker is encouraged to seek other opinions; and
7. Motivational bias in probability estimates is not tolerated.

Much of the water legislation of the 1970s and 1980s in the United States and now in many lenders and donors policies has included a litany of impact assessment requirements such as impact assessment, community impact assessment, risk assessment, and environmental assessment. Each is essentially the recognition that traditional decision-making processes somehow do not include significant and appropriate values.

Unfortunately, many have come to see these assessment techniques in purely technical, rational, analytical, and value free terms. The truth is that decisions fall somewhat between the clearly technical and clearly political. Essentially we are seeking the reasonable, not just the rational. While the rational may be a necessity, it is not a sufficient condition.

But behind this lurks a far more profound principle or norm for water managers: we must seek to put that which we do – our technology – into service of that which we believe – participatory democracy. Once again, water management is leading the way. Let me share one example.

Today the Interstate Commission for the Potomac River has achieved what most would say is impossible. With little formal authority – two low-flow agreements for the river – it now exercises more influence than most River Basin Organizations in the world. How could this be?

Using new participatory software has allowed political and technical stakeholders to jointly create simulation models of the river. These models are on a real time basis. They have become trusted monitoring tools of five sovereign entities. They have become so trusted that as soon as potential problems emerge, these entities react individually for the collective good. So where engineers had previously thought that six dams were necessary – one dam with this operating trust has now seen the capitol of the U.S. successfully through two major droughts. And all of this has occurred because water professionals, politicians, and stakeholders put the tools of technology in service of their beliefs in participatory processes and created new ways to manage the "gray" areas between technical and political.

Participatory processes, at their best, help us manage this gray area and to provide representative participation in technical/administrative decisions.

Discontinuities between Geography and Jurisdictions

Our water problems are integrated around watersheds and river basins. However, our administrative units to deal with them are fragmented. Participatory processes are essentially tools to help us bridge the discontinuity between geographical and jurisdictional boundaries found in water resources management.

Neither effluent from waste facilities nor polluted groundwater can be contained within traditional jurisdictional entities, nor can the problems they create be solved by members of one jurisdiction and throughout the world. Such resource issues will increasingly drive political and international decisions. But these resources are spread across state, local, provincial, federal, and international boundaries. Organizations and institutions built on traditional jurisdictional boundaries seem deadlocked by the NIMBY (not in my backyard syndrome).

Ultimately, participation is a bottoms-up phenomenon. Participation becomes a driving force for the vertical (state, local, and regional) as well as the horizontal (across agency) negotiations vital to decisions, which rarely fit traditional jurisdictional boundaries. Both are central pieces of the current advocacy for Integrated Water Resources Management (IWRM) found throughout the world water community (GWP, 2000).

This is most clear in river basin management. Throughout history, the river basin has played a major role in unifying communities and stimulating trade and the emergence of large political-economic organizational units. Historical examples illustrate that communities were integrated through the management of water and land resources for agriculture, riverain navigation, and settlement networks based on agrarian productivity and transport nodes. River navigation also facilitated the integration of raw materials and manufactured goods from different parts of the basin and among basins – and spawned NGO advocacy groups such as boatsman associations along the Rhine and Danube during the Roman Empire (Delli Priscoli and Hassan, 1998).

Today, new communities, internationally, are demanding new institutions and forums for negotiations that often cross traditional jurisdictional and/or national boundaries. The issues themselves are also spawning new affinity groups or NGOs such as environmental groups that operate across those boundaries. The influence of such cross-

jurisdictional groups could become important in certain regions. In Eastern and Central Europe grass-roots NGOs and environmental groups have demonstrated how they can transform old institutions (Fisher and Davis, 1992).

At the bottom line, IWRM, the centerpiece of world debate on water policy, cannot be achieved without participatory processes.

Participation and Conflict Management

There is some confusion, indeed naiveté, surrounding participatory processes and conflict management (Carpenter, 1995). Many participation successes were achieved during the 1970s and 1980s, but there were also many lingering problems and discontent. Chief among these was the notion that "Public participation got people talking and us listening to their needs, but we do not seem to come to closure and reach agreement." In response to this sentiment and to the growing litigousness in the U.S. society, the field of alternative dispute resolution (ADR) emerged in the early 1980s. ADR used much of the rhetoric and process skills found and developed in the participation experiences. For example, facilitation, mediation, neutral party assistance, and the early notions of interest-based negotiation, which is parallel to value-based alternatives started to be used for solving disputes before going to court.

The participation experience was born of multi-party, multi-issue disputes usually precipitated by new ecological value challenges. ADR began by focusing on mediation and various forms of nonbinding arbitration born of the more traditional model of labor-management disputes, which involved limited numbers of parties and more discernable interests. Practitioners in both of these traditions have come together in a variety of professional forums and societies. The growth of environmental mediation in the United States during the 1990s is one major example.

Beyond these convergences, though, important differences between participation and ADR exist. Participation has been driven primarily by values of empowerment, creativity, and open access to government. ADR, while not ignoring such values, has been sold more on the values of efficiency, timeliness, and cost effectiveness of decision-making processes. These values of empowerment, open system access, efficiency, and timeliness can and often do conflict. In the end, some people may just not agree among themselves, or with water managers, or with other decisions but we will all have to learn to live together while we disagree. In this sense, participation is far more than conflict resolution. Participation seeks to help us discern public interest and community will and to articulate preferred futures. I think that political philosopher Ben Barber puts it best when he says, "participation teaches us the arts of Democracy" (Barber, 1997).

Conclusion

The demands for participation in water management and ecological decision making are both indicators and symptoms of problems in water management and democratic institutions. The values held by those whom administrators and executives serve are changing. Older administrative organizations and institutions, which themselves are the embodiment of values from previous times, have often lagged behind their publics. New publics bring new demands. At the same time, the complexity of decisions increasingly raises the question of how to achieve democratic accountability. Our water resources demands do not conform to traditional jurisdictional boundaries. The ethical basis of professionalism is now moving from paternalistic to informed consent. Participation is a means to adapt and to make our democratic institutions work better in this context. But participation is also helping to reinvent our civic cultures.

Participation is a means to achieve important psychological transference within our publics: that is, from passive victims of, or reactors to, risk toward active choosers of levels of risk (Delli Priscoli, 1989). In this way, water management reform becomes a major tool for providing experiences for building democratic civic cultures on which democratic system depend. Yet we still do not link participatory programs in water directly to programs for democracy building in aid programs.

At its best, participation can connect us and perhaps break down stereotypes. It can help us walk in others' shoes. It can be a symbolic act of reconciliation and a vehicle for forgiveness and healing that are prerequisites for management of ethnic and distributive conflicts.

In the end, our increased environmental and water knowledge has brought us to a major point in the evolution of consciousness. We humans are coming to understand that we are co-creators of, and participants in, our own evolution. We are "in and of" nature. In some way we are reflective consciousness in nature. By forcing us to experience multiple viewpoints, each often coached in the certainty of pedigreed science, participation has been a vehicle to bring us to such realizations.

Caught between an apocalyptic pessimism for earth and optimism in a savior technology, many express fear of the future. Indeed, our fixation on the short term could be a collective avoidance strategy to deal with this fear. However, the fear of the future could stem from another source of anxiety deep in our collective subconscious. That source might be the awesome sense of responsibility stemming from realizing that we are co-designing our ecology or playing God, whether by explicit choice, non-choice, or avoidance. Built on a democratic faith, participation will not let us run from this collective responsibility. In classical theory, democracy is defended because citizens participate in decision that affect their lives and this experience will educate and build responsibility among citizens – and better citizens (Pericles, DATE? [Thucydides, Peloponnesian Wars]).

What issues could be more important and affect us more than purposefully designing our ecological future and our water resources life support system? Our technology and experts

tell us that we have enough water – if we cooperate.

Two hundred years ago, Thomas Jefferson – himself steeped deeply in both the technical and political worlds – once said about the making technical/administrative accountable:

> "I know of no safe depository of the ultimate powers of the society but the people themselves and if we think them not enlightened to exercise their control with wholesome discretion, the remedy is not to take it from them, but to inform their discretion." (qtd. in Peden, 1954)

Two hundred years later, reflecting on the same problem, one of America's leading theorists, Robert Dahl, said:

> "[C]omplexity threatens to cut the policy elites loose from effective control by the demos. The result could be [...] a kind of quasi-guardianship of the policy elites [...] indeed specialization, which is the [...] grounds for the influence of policy elites, may itself impair their capacity for moral judgment [...] If democratic process is not firmly anchored to the judgments of the demos, then the system will continue to drift over to quasi-guardianship." (Dahl, 1989)

Participation means much to both water management and our civic cultures.

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