PARTICIPATION AND WATERSHED MANAGEMENT:

EXPERIENCES FROM BRAZIL

by Patricia E. (Ellie) Perkins
Faculty of Environmental Studies
York University
Toronto, CANADA
Phone: 416-736-2100 ext. 22632
Fax: 416-736-5679
Email: esperk@yorku.ca

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ABSTRACT: Public participation is emphasized in many new institutional approaches to resource management, especially watershed governance. The implementation of participatory management frameworks, and capacity-building for civil society participants, deserve close attention. This paper reports on an ongoing project in Sao Paulo State, Brazil, which is designed to strengthen the ability of local and NGO representatives to participate in democratic water management structures.

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I. Introduction: Participation and Water Management

In democratic societies, eliciting public participation and support for government decisions has long been a goal. The commitment and energy with which governments pursue this goal, however, can vary widely. There are many models and types of public participation processes: public meetings, opportunities for written and oral submissions to decision-making policy bodies, petitions, focus groups, citizens' panels and juries, etc. Especially for environmental and resource development-related public decisions, and other "public goods" issues, participatory decision-making has received considerable emphasis recently – partly due to the acknowledged difficulties in applying traditional cost-benefit, "bottom-line" analysis for political decisions concerning non-marketed environmental and resource assets. Ecological economists have espoused the idea of "discourse-based valuation," incorporating the views of a range of stakeholders in public decisions, as an alternative to contingent valuation, hedonic pricing, proxy valuation, and other means of reaching complicated policy decisions.

Questions arise, however, related to the amount of "power" accorded to participatory bodies in relation to elected officials and government staff, the representativeness of public participation, and whether pernicious existing social inequities (including gender-based inequities) are reproduced and heightened by such processes. These questions underscore the importance of public participation processes that are theoretically sophisticated, well-designed and well-conducted.

This paper reviews recent theoretical and ecological economics literature on public participation in relation to one particular kind of "public good" or common resource question -- watershed management. Using the example of the European Water Framework Directive and its public participation requirements, as well as its spinoff policy frameworks for inter-jurisdictional watershed management such as the Brazilian National Water Resource Policy Law of 1997, the paper considers examples from São Paulo State, Brazil in discussing the challenges and potentials of this approach to watershed management. It also describes and discusses a Canada-Brazil project designed to facilitate the effective involvement of civil society participants in public decision processes for watershed management.

II. Ecological Economics Theory and Public Participation in Watershed Management

Since many public decisions involving environmental amenities relate to public goods, not privately-held ones, it is arguably inappropriate to apply market-based

economic approaches which may serve for private and individual consumer-type decision-making, but which are not necessarily well-suited to the collective decision-making required in relation to public goods (Jacobs, 1997). Furthermore, as Michael Jacobs points out, the diversity of value-systems and personal views which exist in any community or polity can create a vibrant climate for understanding the implications of externalities and finding flexible, creative solutions to political conundrums (Jacobs, 1997). There are long roots of these ideas in the political theory of "deliberative democracy" and the "public sphere" (Habermas, 1984, 1989; Dryzek, 1990a; Cohen, 1989; Boswell, 1990; Fishkin, 1991; Miller, 1992), as well as in other areas of social and ecological theory (Andersson, 1995) and ethics (Van Staveren, 2001) Even utilitarian Jeremy Bentham believed that use-values are communally, not just individually, derived (Johansson-Stenman, 1998).

[slide – theoretical arguments for participatory environmental decision-making]

Ecological economists concerned with complexity and energy requirements of complex societies speak of the information, bureaucracy, and policy needs of modern societies as constraints. Joseph Tainter, for example, says "historical patterns suggest that one of the characteristics of a sustainable society will be that it has a sustainable system of problem-solving...." (Tainter, 1996:13). This idea, combined with the increasing risks inherent in complex industrial societies which, as Ulrich Beck points out, must be distributed and transferred through sociol-political structures, helps to explain and focus new pressures for democratic public decision-making, both within and outside the state. By helping to recast the policy agenda and changing the terms of public debates, "civil society" actors use discourse to advance ecological modernization (Dryzek, 1996: 115-119).

Martin O'Connor, in discussing valuation from an ecological standpoint, emphasizes the variety of "value systems" and their conflicting prescriptions (O'Connor, 1993:421); he calls the dominance of expansionist capitalist production processes an ideological and semantic domination as well as an economic and political one. By implication, sustainability signifies a process of mediating diverse "value systems" without force – a discourse among different perspectives on value.

Gregory and Slovic set out a detailed description of how such a discourse can be conducted. They stress the proper identification of stakeholders/participants as crucial, and outline a methodology of structured interviews, posing various ways of viewing and measuring problems, objectives, tradeoffs and comparisons, which can build on stakeholder values to "depict a complex environmental issue in terms of the common-sense values and attributes by which potentially-affected people think about the problem" and "bridge the gap between the quantitative, impacts-driven perspective of the technical expert and the more qualitative, values-driven perspective of the concerned citizen (Gregory and Slovic, 1997:179).

In the first definitive description of "discourse-based valuation" (DBV) as a process with clear ecological economics roots, Sabine O'Hara stresses its interdisciplinarity, its ability to span and include the knowledge and perspectives of a broad range of people, and its usefulness in revealing people's unspoken views and preferences – as well as its time and other costs and its potential susceptibility to biases (O'Hara, 1996b). She states that "to view discourse as an alternative to monetary valuation is not as radical a proposition as it might seem at first glance. Markets as institutional mechanisms were and still are, in many parts of the world, places of communicative interaction in which a wide variety of rules, behaviours and attitudes are expressed" (O'Hara, 1996a:7).

The European Society for Ecological Economics conference in Tenerife, Canary Islands in February, 2003 included a special focus on participation processes and alternative environmental valuation methodologies (Frontiers 2, 2003). A number of papers presented at the conference discussed "best practices" in public participation processes, the use and importance of such processes in theoretical terms, and specific examples of the ways in which discourse-based valuation can facilitate policy-making.

[slide – Frontiers 2 website and Canaries map]

In his keynote paper at the Tenerife conference, Arild Vatn points out that from a theoretical perspective, the complexity, interdependencies, and risks which are especially inherent in environmental policy-making necessitate dialogue among those affected by policy decisions - - which, ideally, should be guided by reason, care and involvement rather than individual market-based preferences (Vatn, 2003). He calls for a research agenda focused on "which institutional structures are best at fostering the kinds of dialogues that are needed" to integrate lay people's evaluations in the face of scientific uncertainty and the need for the precautionary principle (Vatn, 2003, p. 15).

Peter Söderbaum has similarly called for an improved understanding of the criteria for judging various types of policy decision processes. In his paper at the Frontiers 2 conference, Söderbaum outlines and discusses a range of such processes, and sets out criteria for comparing them on the grounds of sustainable development and democracy (Söderbaum, 2003). He finds that Positional Analysis, a discourse-based process which allows those affected and concerned about an issue to engage with specialists and decision-makers in comparing and ranking decision options, likely holds out the most promise as a democratic way of making public decisions which makes sustainable development possible.

Other papers from the Frontiers 2 conference which address theoretical issues related to environmental valuation and public participation include those by Farrell, Spangenberg, Martinez-Alier, Stagl, Gowdy, Devine, Eames et.al., Rauschmeyer et.al., van den Hove, and Luks et.al. (all papers dated 2003).

Specifically with regard to watershed management issues, relevant papers from the Frontiers 2 conference include those by Kenyon, Woodhouse, Videira et. al., Schmid et. al., Hill et. al., Bonni et. al., Petit, Gilbert, Janssen et. al., and Mazzeo Rinaldi et. al. (all papers dated 2003).

Olivier Petit, for example, develops an argument for the participatory management of natural resources such as water resources which is based in their character as public goods or common property, which requires that collective action for the public interest be foremost. Neither the state nor the market alone has the ability to regulate and manage such common goods effectively. However, he states, fairly organized environmental stakeholder decision-making processes have many advantages: they can "augment collective learning, avoid conflicts, integrate the weak actors into the stakeholder group, reveal social demand, enable contradictory debate, and increase democracy" (Petit, 2003, p. 14).

[slide – public participation language in recent EC policies]

A trend toward increasing emphasis on participatory public decision-making, especially for environmental and resource issues, has been notable, particularly in Europe, since the adoption of the 1992 Rio Declaration on Environment and Development with its Principle 10 stressing public participation. Milestones include the European Communities' Fifth Environment Action Programme of 1993

and the systematic inclusion of public participation in the EC's Sixth Environment Action Programme of 2001 (van den Hove, 2003, p. 2).

Wendy Kenyon (2003) outlines in particular the public participation requirements of the EC's Water Framework Directive (WFD), which came into force in 2000. It obliges EC Member States to "encourage the active involvement of all interested parties in the implementation" of the WFD and to report on the types of "public information and consultation measures taken, their results and the changes made to the plan as a consequence." An EU guidance document on the WFD mentions Citizens' Juries as one way of meeting these obligations (Kenyon, 2003, pp. 1-2). Kenyon points out, however, that in the context of watershed management decisions, Citizen's Juries (and, by implication, all similar discourse-based valuation or decision processes) can be problematic in several ways:

-- Representation: what population should be represented on the panel? Should representation be broad, "symbolic", statistical, random, or intentionally skewed to give a "voice" to traditionally underrepresented groups? These questions are important in large, diverse watersheds where there are many complex and conflicting interests.

[slide – problems with Citizens' Juries and other discourse-based processes]

-- Accountability: should panel members be accountable to their "constituents" (those they seek to represent); and should governments be required to act on panel decisions; if so, how? If the Citizens Jury is intended to make decisions but this effectively closes down further public discourse, this is crucially important to their political role.

-- The role of experts: What is the power relationship implied by Citizens Jury processes between "experts" and "ordinary citizens"? If the juries simply rubber-stamp priorities set out by "experts", this can lead to alienation and cynicism about the process itself.

-- Scale: River basins can be extremely large geographic areas and can be difficult to define spatially. This can make a Citizens Jury process nearly impossible to implement in practical terms.

-- Time-Frame: Citizens' Juries tend to be short-term, one-off processes, while sustainable decicion-making must consider the long term. Water management in particular requires long time-frames and iterative decision processes; these can put great demands on citizen participants and demand high degrees of "institutional memory".

-- Jurisdictional Issues: Watershed management generally requires collaboration across many political and institutional boundaries, so even if a participatory panel can be assembled, the implementation of its decisions throughout the watershed may be nearly impossible.

Kenyon suggests that possible ways of dealing with these difficulties could include establishing "network juries" made up of various constituent or geographical representatives within a long-term time-framework, perhaps reporting to another participatory panel; or a "three-stage jury" comprising a traditional participatory panel, a stakeholder jury and an inter-jury forum; or a small-scale but long-term citizens' panel process; or a long-term "open jury" process where anyone could make presentations and the jury is part of a wider policy discourse process. Each of these proposals addresses some of the concerns listed above, but no single way has emerged to deal effectively with all of them.

Understanding the purpose and parameters of each public participation process is crucial, Kenyon concludes, in order to ensure that each process is designed properly given the situation. She states, "practitioners need to be fully aware of the issues that affect the legitimacy and value of using a citizens' jury" (Kenyon, 2003, p. 14).

With these general considerations in mind, let us now turn to a specific example which illustrates both the challenges and the importance of expanding public participation in watershed decision-making. This example relates to an ongoing project linking Brazilian and Canadian academics and activists called the Sister Watersheds (Bacias Irmãs) project. The project's goal is to develop ways of increasing the ability of "civil society" members to participate widely and effectively in watershed decision processes.

III. A Case Study in Participation: Brazil's Water Law and São Paulo State, Brazil

[slide – Brazil water map]

Like many countries in recent years, and with due attention to its huge freshwater resources, Brazil has made considerable political progress in defining a national framework for sustainable water resources management. In 1997, Brazil passed the *National Water Resource Policy Law*, which (like the EC's Water Framework Directive) mandates the decentralization of water resources management and establishes River Basin Councils (RBCs) - composed of government, water users and civil society actors - as the smallest territorial unit of management. The RBCs have the following responsibilities:

[slide – RBCs' mandate]

-- to promote and coordinate cooperation over water resources at the basin level;
-- to arbitrate water disputes;
-- to develop and monitor a Water Resources Plan for the basin;
-- to compile information for State and National Water Councils on water bodies and water users for the purposes of determining the necessity of water-use permits;
-- to suggest appropriate charges and develop a framework for implementing water use fees; and,

-- to manage the distribution of funds related to water projects and initiatives in the public interest.

The State Water Councils and National Water Councils maintain managerial responsibilities over other aspects of watershed management, such as water-use permits, and also have become the sites for appeals of RBC decisions (Dourojeanni 2001).

Although the national law was passed in 1997, many Brazilian states had already developed their own water laws creating river basin committees with similar objectives. São Paulo was the first state to do so in 1992, and thus now has over a decade of experience with committee-based watershed management. São Paulo State requires that all of its RBCs be composed of one-third each of state, municipal and civil society representatives, where 'civil society' members are part of NGOs and citizen's groups with a history of environmental, water or citizenship work in the area, and are elected by the public for 3-year terms.

However, although on paper there appears to be meaningful transfer of power to the RBCs and direct public participation, the results of the RBCs have been limited as their process of development is highly uneven within and between states, there are complex politics within the Councils themselves, and state governments and technical experts have shown reluctance to give up centralized decision-making powers (Brannstrom *forthcoming* 2004; Brannstrom *et al.* 2004; Dourojeanni 2001; Tortajada 2001).

Furthermore, a concrete definition of 'who' constitutes 'civil society' is lacking in the national law, and state governments are each left with the responsibility to define the law's implementation strategy in practical terms. In São Paulo, civil society includes the general public, whereas in the rural northeastern state of Ceará, civil society is defined as "water users" and excludes those that do not hold a permit to use water (Brannstrom 2004). Thus before it is possible to assess or understand the degree of 'success' of the RBCs for water governance, more concrete research needs to be undertaken to understand the actual processes of water governance with the RBC institutions, including whether participation has been meaningful, and the implications for ecological and social welfare.

Researchers at a number of Brazilian institutions are involved in this work, and a large-scale U.S.-funded project called Marca D'Agua is gathering and compiling information on the implementation of the Brazilian water law throughout the country. The initial report of the Marca D'Agua project on the Upper Tiete (Alto Tiete) watershed in São Paulo State mentions the need for civil society participants to have training so they can participate equally with other committee members; also the need for better-developed communications structures to make participation more horizontal (Keck and Jacobi, 2001, pp. 32-33).

[slide – map of Alto Tiete and Pisca]

The Sister Watersheds project, in addition to funding graduate student, faculty, and activists' exchanges between Canada and Brazil, is focused on contributing to improved watershed management by developing methods and curricula or other training materials for assisting the "civil society" participants in the RBCs to be involved and effective members of the Committees. The project selected two pilot watersheds in São Paulo State, the Piracicaba River (a sub-committee of the Piracicamirim RBC) and the Pirajuçara River, a tributary of the Alto Tiete (a sub-committee of the Pinheiros-Pirapora RBC), for intensive study; each watershed contains one of the campuses of the University of São Paulo. Funding for the project comes from the Canadian International Development Agency (CIDA), through the Association of Universities and Colleges of Canada, an academic umbrella agency.

Initial work on the 6-year project is exploring an interesting conundrum: while environmental problems are severe in the urban Pirajussara River watershed, there seems to be little public involvement in the local RBC process, in contrast to high levels of participation in other nearby watersheds. In fact, part of the Pirajussara watershed seems to have been left entirely out of the organized RBC structures, with little public comment or notice.

Just why public participation arises easily in some areas while not at all in others, and how the participation process itself may shape this, is a focus of the Sister Watersheds research. The kinds of questions raised by Kenyon about the effectiveness and problems with particular kinds of participation processes will certainly feed into this work. Any environmental activist, whether in the Global North or South, has experienced the frustration and challenges of an unengaged, uninformed, and apathetic public which apparently has no time for participation and involvement in environmental (or any other civic) issues. The simple creation of opportunities for participation, while appealing to democratic theorists, may not take into account prevailing cultural, social, and economic pressures in exactly the opposite direction which militate against the citizenry's willingness or interest in taking up opportunities to participate. This highlights the blurry transition-ground between public participation and community development; clearly actions in each area influence the other.

The fact that the Sister Watersheds project includes not just academics but also an activist environmental education non-governmental organization in São Paulo, the Ecoar Citizenship Institute, also brings pragmatic perspectives and experience with community organizing and development into this project. In the pilot watersheds, whether the key constraints on effective public participation are found to be technical expertise, public speaking ability, time to attend meetings, connections with constituents and support groups in the community, or more fundamental blocks like community apathy, cynicism or anomie, the project's goal is to learn more about each particular situation and develop useful ways of working for better watershed management through democratic means.

[slide – Bacias Irmãs website address and logo]

IV. Conclusion

Despite the difficulties and complexities of public participation processes, they are a vital and growing part of democratic decision-making, especially concerning environmental resources, in both the Global North and the South. Academic research and activist practice are contributing to better understandings of how participation processes can and should be designed and implemented – of "best practices" which are both context-specific and workable. The Sister Watersheds project represents one contribution to this ongoing international effort.

Watersheds are perhaps the most "bioregional" of spaces, subject to topography, weather, geology, and interrelationships of land-use, ecology and human habitation. When watersheds are superimposed on political, economic and governmental jurisdictions (or vice versa), the problems that arise in implementing sustainable use by humans of the watershed are entirely of human origin. Humans created these problems, and it is up to us to find ways of surmounting them. The issues are fundamentally political-economic ones. How much simpler it would be to have bioregional or watershed limits dictate political boundaries! But this would only address one set of complexities – it would not resolve water-use conflicts within watersheds or address the power and status differentials among different social groups.

The issue of how to facilitate public voices in environmental and resource decision-making is definitely with us for the long term.

REFERENCES

Andersson, Jan Otto. 1995. Real Freedom, Democratic Community and Sustainable Development as Fundamental Values in Economic Enquiry. In *Economic Value and Ways of Life*. Ed. Ralf Eriksson and Markus Jäntti. Aldershot, UK: Avebury.

Barker, Jonathan, and Christopher Leo. 2001. Introduction to *Citizen's Hall: Making Local Democracy Work*, by André Carrel. Toronto: Between the Lines.

Barrow, Christopher J. 1998. River Basin Development Planning and Management: A Critical Review. *World Development* 26 (1): 171-186.

Benhabib, Seyla. 1998. Models of Public Space: Hannah Arendt, the Liberal Tradition, and Jürgen Habermas. In *Feminism, the Public and the Private*. Ed. Joan B. Landes. Oxford/New York: Oxford University Press.

Bonni, Federico, and Tommaso Luzzati. 2003. Is the "Tragedy of the Commons" Relevant? The Case of the Water-Table of Prato, Italy. Paper presented at the Frontiers 2 Conference of the European Society for Ecological Economics, Tenerife, Canary Islands, February 11-15. <http://www.euroecolecon.org/frontiers/>

Boswell, Jonathan. 1990. *Community and the Economy: The Theory of Public Co-Operation*. London/New York: Routledge.

Braga, Benedito. 2001. Integrated River Basin Planning and Management: The Upper Tietê Experience. In *Integrated River Basin Management: The Latin American Experience*. Ed. Asit K. Biswas and Cecilia Tortajada. New Delhi: Oxford University Press.

Brannstrom, Christian. 2004. Decentralising Water Resource Management in Brazil. *European Journal of Development* 15 (26): 214-234.

Brannstrom, Christian, James Clarke, and Mariana Newport. 2004. Civil Society in Brazil's Water Resources Decentralization: Assessing Participation in Three States. *Singapore Journal of Tropical Geography.*

Butteriss, Crispin. 1997. Reconciliation of Embedded Cultural Values for Environmental Dispute Resolution. New England Ecological Economics Group Research Profiles. <http://www.une.edu.au/cwpr/NEEEG/Butteris.html>

Carrel, André. 2001. *Citizen's Hall: Making Local Democracy Work*. Toronto: Between the Lines.

Chandra, Marcia. 2004. "Plan of Study" and "Major Project Proposal." Faculty of Environmental Studies, York University, Toronto, Canada.

Cohen, Joshua. 1989. Deliberation and Democratic Legitimacy. In *The Good Polity*. Ed. Alan Hamlin and Philip Pettit. Oxford: Blackwell Publishers, pp. 17-34.

Devine, Pat. 2003. Industrial Policy, Ecological Economics and Deliberative Democracy. Paper presented at the Frontiers 2 Conference of the European Society for Ecological Economics, Tenerife, Canary Islands, February 11-15. <http://www.euroecolecon.org/frontiers/>

Dourojeanni R., Axel. 2001. Water Management at the River Basin Level: Challenges in Latin America. Recursos Naturales e Infrastructura. Santiago, Chile: ECLAC Natural Resources and Infrastructure Division, United Nations.

Dryzek, John S. 1996. Strategies of Ecological Democratization. In *Democracy and the Environment*. Ed. William M. Lafferty and James Meadowcraft. Cheltenham, UK: Edward Elgar, pp. 108-123.

---. 1990. *Discursive Democracy*. Cambridge: Cambridge University Press.

Eames, Malcolm, Andrew Stirling, Jacqui Burgess, Gail Davies, Suzanne Williamson, Sue Mayer, and Kristina Staley. 2003. Deliberative Mapping: Integrating Citizens and Specialists' Appraisals in a Transparent and Inclusive Participatory Process. Paper presented at the Frontiers 2 Conference of the European Society for Ecological Economics, Tenerife, Canary Islands, February 11-15. <http://www.euroecolecon.org/frontiers/>

Eriksson, Ralf, and Markus Jäntti, eds. 1995. *Economic Value and Ways of Life*. Aldershot, UK: Avebury.

European Union. 2001. Guidance on Public Participation in Relation to the Water Framework Directive: Active Involvement, Consultation, and Public Access to Information. <http://forum.europa.eu.int/Public/irc/env/wfd/library?l=/framework_directive/guidance_documents/participation_guidance&vm=detailed&sb= Title>

Faber, Daniel. 1998. *The Struggle for Ecological Democracy: Environmental Justice Movements in the United States*. New York/London: Guilford.

Farrell, Kate. 2003. How Much for Your Wife? A Critique of the Pragmatic Assigning of Monetary Values to Ecological Goods and Services. Paper presented at the Frontiers 2 Conference of the European Society for Ecological Economics, Tenerife, Canary Islands, February 11-15. <http://www.euroecolecon.org/frontiers/>

Ferber, Marianne, and Julie Nelson, eds. 1993. *Beyond Economic Man: Feminist Theory and Economics*. Chicago: University of Chicago Press.

Field, Barry, and Nancy Olewiler. 1995. *Environmental Economics: First Canadian Edition*. Toronto: McGraw-Hill Ryerson Ltd.

Fishkin, J. 1991. *Democracy and Deliberation: New Directions for Democratic Reform*. New Haven: Yale University Press.

Flyvbjerg, Bent. Forthcoming. Five Misunderstandings About Case-Study Research. In *Qualitative Research Practice*. Ed. Clive Seale, David Silverman, Jaber F. Gubrium and Giampietro Gobo. London: Sage.

Foster, John, ed. 1997. *Valuing Nature: Economics, Ethics and Environment*. London/New York: Routledge.

Frontiers 2 Conference of the European Society for Ecological Economics. 2003. <http://www.euroecolecon.org/frontiers/>

Funtowicz, Silvio O., and Jerome R. Ravetz. 1994. The Worth of a Songbird: Ecological Economics as a Post-Normal Science. *Ecological Economics* 10: 197-207.

Garrido, Raymundo. 1998-2001. Water Resources National Policy in Brazil. Contributing Paper to the World Commission on Dams. Brasilia, DF: Ministry of Environment, Brazil.

Gilbert, Alison. 2003. The Use of Spatial Information and Techniques in Trading Off Ecological and Economic Values for the Vecht River Basin. Paper presented at the Frontiers 2 Conference of the European Society for Ecological Economics, Tenerife, Canary Islands, February 11-15. <http://www.euroecolecon.org/frontiers/>

Gowdy, John. 2003. The Revolution in Welfare Economics and its Implications for Environmental Valuation: A Partial Critique of Ecological Economics. Paper presented at the Frontiers 2 Conference of the European Society for Ecological Economics, Tenerife, Canary Islands, February 11-15. <http://www.euroecolecon.org/frontiers/>

Gregory, Robin, and Paul Slovic. 1997. A constructive approach to environmental valuation. *Ecological Economics* 21: 175-181.

Habermas, Jurgen. 1989. *The Structural Transformation of the Public Sphere*. Cambridge: Polity Press.

Hausman, Jerry A., ed. 1993. *Contingent Valuation: A Critical Assessment*. Amsterdam: North-Holland.

Hill, Gary, Leandro del Moral, Pilar Paneque, Belen Pedregal, Clive Spash, and Kevin Urama. 2003. Developing Evaluation Theory and Practice in Water Project Decision-Making Processes: Comparative Ex-Post Analysis of Five European Case Studies.

Paper presented at the Frontiers 2 Conference of the European Society for Ecological Economics, Tenerife, Canary Islands, February 11-15. <http://www.euroecolecon.org/frontiers/>

Hochstetler, Kathryn. 1997. The Evolution of the Brazilian Environmental Movement and Its Political Roles. In *The New Politics of Inequality in Latin America: Rethinking Participation and Representation.* Ed. Douglas A. Chalmers et.al. New York: Oxford University Press, pp. 192-216.

Jacobi, Pedro. 2001. The Metropolitan Region of São Paulo: Problems, Potentials and Conflicts. *DISP* 147: 20-24.

Jacobs, Michael. 1997. Environmental Valuation, Deliberative Democracy and Public Decision-Making Institutions. In *Valuing Nature? Economics, Ethics and Environment*. Ed. John Foster. London/New York: Routledge, pp. 211-231.

Janssen, Ron, and Hasse Goossen. 2003. A Multi-Criteria Approach for Integrated Wetland Management. Paper presented at the Frontiers 2 Conference of the European Society for Ecological Economics, Tenerife, Canary Islands, February 11-15. <http://www.euroecolecon.org/frontiers/>

Johansson-Stenman, Olof. 1998. The Importance of Ethics in Environmental Economics with a Focus on Existence Value. *Ecological Economics* 11 (3-4): 429-442.

Keck, Margaret E. 2002. "Water, Water, Everywhere, nor Any Drop to Drink": Land Use and Water Policy in São Paulo, Brazil. In *Livable Cities? Urban Struggles for Livelihood and Sustainability.* Ed. Peter Evans. Berkeley and Los Angeles: University of California Press.

Keck, Margaret E., and Pedro Jacobi. 2001. A Bacia Hidrográfica Do Alto Tietê, São Paulo – 2001: Projeto Marca d'Agua: Relatórios Preliminares 2001. Brasilia, DF: Campus Universitário Darcy Ribeiro. <http://www.marcadagua.org.br/alto_tiete.pdf>

Keck, Margaret E., and Rebecca Abers. 2004. Running Water: Participatory Management in Brazil. NACLA Report. Forthcoming.

Kenyon, Wendy. 2003. Environmental Planning: Scientific-Political Decision Processes, Participatory Decision Processes. Paper presented at the Frontiers 2 Conference of the European Society for Ecological Economics, Tenerife, Canary Islands, February 11-15. <http://www.euroecolecon.org/frontiers/>

Kesting, Stefan. 1998. A Potential for Understanding and the Interference of Power: Discourse as an Economic Mechanism of Coordination. *Journal of Economic Issues* 32 (4): 1053-1078.

Lister, Ruth. 1997. *Citizenship: Feminist Perspectives*. New York: New York University Press.

Luks, Fred, and Mark Hammer. 2003. Understanding Scientific-Political Decision Processes: Material Flow Analysis, Discourse Analysis and the Rhetorics of (Ecological) Economics. Paper presented at the Frontiers 2 Conference of the European Society for Ecological Economics, Tenerife, Canary Islands, February 11-15. <http://www.euroecolecon.org/frontiers/>

Martinez-Alier, Juan. 1995. Distributional Issues in Ecological Economics. *Review of Social Economy* 53 (4): 511-527.

---. 2003. Ecological Distribution Conflicts in a Context of Uncertainty. Paper presented at the Frontiers 2 Conference of the European Society for Ecological Economics, Tenerife, Canary Islands, February 11-15. <http://www.euroecolecon.org/frontiers/>

Mazzeo Rinaldi, Francisco, Ase Eliasson, and Niklas Linde. 2003. Multicriteria Decision Aid in Supporting Decisions Related to Groundwater Protection. Paper presented at the Frontiers 2 Conference of the European Society for Ecological Economics, Tenerife, Canary Islands, February 11-15. <http://www.euroecolecon.org/frontiers/>

Milani, Brian. 2000. *Designing the Green Economy: The Postindustrial Alternative to Corporate Globalization*. Lanham, MD: Rowman and Littlefield.

Miller, David. 1991. Deliberative Democracy and Social Choice. *Political Studies* 40: 54-67.

Mundy, Bill, and William N. Kinnard, Jr. 1998. The New Noneconomics: Public Interest Value, Market Value, and Economic Use. *Appraisal Journal* 66 (2): 207-208.

O'Connor, Martin. 1993. Value System Contests and the Appropriation of Natural Capital. *The Manchester School* 61 (4): 398-424.

O'Hara, Sabine. 1995. Sustainability: Social and Ecological Dimensions. *Review of Social Economy* 53 (4): 529-551.

---. 1996a. The Challenges of Valuation: Ecological Economics Between Matter and Meaning. Unpublished paper.

---. 1996b. Discursive Ethics in Ecosystem Valuation and Environmental Policy. *Ecological Economics* 16: 95-107.

Peterson, Markus J., and Tarla Rai Peterson. 1993. A Rhetorical Critique of "Nonmarket" Economic Valuations for Natural Resources. *Environmental Values* 2: 47-65.

Petit, Olivier. 2003. From Regulation to Participation: Collective Action and Sustainable Use of Groundwater Resources. Paper presented at the Frontiers 2 Conference of the European Society for Ecological Economics, Tenerife, Canary Islands, February 11-15. <http://www.euroecolecon.org/frontiers/>

Ponting, Clive. 1991. *A Green History of the World*. London: Penguin.

Porto, Monica. 1998. The Brazilian Water Law: A New Level of Participation and Decision Making. *Water Resources Development* 14 (2): 175-182.

Porto, Monica, and Jerson Kelman. 2000. Water Resources Policy in Brazil. *Rivers* 7 (3): 250-257.

Porto, Monica, Rubem La Laina Porto, and Luiz Gabriel Azevedo. 1999. A Participatory Approach to Watershed Management: The Brazilian System. *Journal of the American Water Resources Association* 35 (3): 675-683.

Rauschmayer, Felix, Bernt Klauer, and Heidi Wittmer. 2003. How to Select Instruments for the Resolution of Environmental Conflicts. Paper presented at the Frontiers 2 Conference of the European Society for Ecological Economics, Tenerife, Canary Islands, February 11-15. <http://www.euroecolecon.org/frontiers/>

Ribot, Jesse C. 2002. *Democratic Decentralization of Natural Resources: Institutionalizing Popular Participation*. Washington, DC: World Resources Institute.

Schmid, Erwin, and Markus F. Hofreither. 2003. Designing a Green Payment Program for Two Austrian Watersheds. Paper presented at the Frontiers 2 Conference of the European Society for Ecological Economics, Tenerife, Canary Islands, February 11-15. <http://www.euroecolecon.org/frontiers/>

Silverman, David. 2000. *Doing Qualitative Research: A Practical Handbook*. Thousand Oaks, CA: Sage.

Söderbaum, Peter. 2000. *Ecological Economics*. London: Earthscan.

---. 2003. Decision Processes and Decision-Making in Relation to Sustainable Development and Democracy – Where Do We Stand? Paper presented at the Frontiers 2 Conference of the European Society for Ecological Economics,, Tenerife, February 11-15. <http://www.euroecolecon.org/frontiers/>

Spangenberg, Joachim. 2003. Sustainability Science: Science Must Go Public for Sustainable Development. Paper presented at the Frontiers 2 Conference of the European Society for Ecological Economics, Tenerife, Canary Islands, February 11-15. <http://www.euroecolecon.org/frontiers/>

Stagl, Sigrid. 2003. Multi-Criteria Evaluation and Participation: In Search for Theoretical Foundations. Paper presented at the Frontiers 2 Conference of the European Society for Ecological Economics, Tenerife, Canary Islands, February 11-15. <http://www.euroecolecon.org/frontiers/>

Stirling, Andrew. 1993. Environmental Valuation: How Much is the Emperor Wearing? *The Ecologist* 23 (3): 97-103.

Swyngedouw, Erik, and Nikolas C. Heynen. 2003 Urban Political Ecology, Justice and the Politics of Scale. *Antipode* 35 (5): 898-918.

Swyngedouw, Erik, Maria Kaïka, and Esteban Castro. 2002 Urban Water: A Political-Ecology Perspective. *Built Environment* 28 (2): 124-137.

Tainter, Joseph A. 1996. Complexity, Problem Solving and Sustainable Societies. In *Getting Down to Earth: Practical Applications of Ecological Economics.* Ed. Robert Costanza, Olman Segura and Juan Martinez-Alier. Washington, DC: Island Press, pp. 61-76.

Tortajada, Cecilia. 2001. Institutions for Integrated River Basin Management in Latin America. *Water Resources Development* 17 (3): 289-301.

Van Staveren, Irene. 2001. *The Values of Economics: An Aristotelian Perspective.* London/New York: Routledge.

Vatn, Arild. 2003. Building Interdisciplinary Research. Paper presented at the Frontiers 2 Conference of the European Society for Ecological Economics, Tenerife, Canary Islands, February 11-15. <http://www.euroecolecon.org/frontiers/>

Videira, Nuno, Paula Antunes, Rui Santos, and Gonçalo Lobo. 2003. Participatory Methods for Integrated River Basin Management. Paper presented at the Frontiers 2 Conference of the European Society for Ecological Economics, Tenerife, Canary Islands, February 11-15. <http://www.euroecolecon.org/frontiers/>

Wengraf, Tom. 2001. *Qualitative Research Interviewing: Biographic Narrative and Semi-Structured Methods*. London: Sage.

Williams, Bruce A., and Albert R. Matheny. 1995. *Democracy, Dialogue, and Environmental Disputes: The Contested Languages of Social Regulation.* New Haven/London: Yale University Press.

Woodhouse, Phillip. 2003. Renegotiating the past: Implementing the National Water Act in South Africa. Paper presented at the Frontiers 2 Conference of the European Society for Ecological Economics, Tenerife, Canary Islands, February 11-15. <http://www.euroecolecon.org/frontiers/>

Yin, Robert K. 2003. *Case Study Research: Design and Methods*. Third edition. Thousand Oaks, CA: Sage.

Websites:

Bacias Irmãs / Sister Watersheds Project: <http://www.baciasirmas.org.br/ > See also links on the York University Faculty of Environmental Studies website: <http://www.yorku.ca/fes/fesnews/sisterswatershed.htm > and the Ecoar Citizenship Institute website: <www.ecoar.org.br>

Marca d'Agua Project – Johns Hopkins University and Brasilia University collaboration undertaking comprehensive research in several watersheds: <www.marcadagua.org.br> From there you will find links to the websites of several River Basin Councils.

Brazilian National Water Agency (Agência Nacional de Aguas) -- <http://www.ana.gov.br/GestaoRecHidricos/InfoHidrologicas/docs/AguaNoBrasilenoMundo.html>

Alto Tietê River Basin Committee -- <http://www.comiteat.sp.gov.br/> and then click on 'comité'

Piracicaba River Basin Committee -- <http://www.comitepcj.sp.gov.br/>

Reasons why public input into environmental decision-making is a good idea:

1) The difficulty of commensurating environmental and social factors with market-based prices, and therefore of deriving accurate cost-benefit analyses denominated in dollar terms alone, for development projects and policies.

2) The need to balance economic studies and development pressures with more nuanced and long-term understandings of the role and impacts of policies, which citizens can bring.

3) The importance of public education and involvement as a component of sustainable development.

4) The value of the diverse local environmental and cultural knowledge that citizens contribute to decision-making processes.

5) The ethical imperative that people should be consulted about policies and decisions which affect them.

Website for Frontiers 2,
European Society for Ecological Economics conference,
Tenerife, Canary Islands, February 11-15, 2003:

http://www.euroecolecon.org/frontiers

Public Participation Requirements in Recent International and EC policies:

IV. Rio Declaration on Environment and Development (1992), Principle 10: "Environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided."

V. Fifth EC Environment Action Programme (1993), second principle: "Only by replacing the command-and-control approach with shared responsibility between the various actors, eg. governments, industry and the public, can commitment to agreed measures be achieved."

VI. Sixth EC Environment Action Programme (2002), fourth major principle: **"**Stimulation of participation and action of all actors from business to citizens, NGOs and social partners -- through better and more accessible information on the environment and joint work on solutions."

VII. **European Water Framework Directive (2000):**
WHEREAS …. "(46) To ensure the participation of the general public including users of water in the establishment and updating of river basin management plans, it is necessary to provide proper information of planned measures and to report on progress with their implementation with a view to the involvement of the general public before final decisions on the necessary measures are adopted……THEREFORE ….. Article 14, Public information and consultation: 1. Member States shall encourage the active involvement of all interested parties in the implementation of this Directive, in particular in the production, review and updating of the river basin management plans. Member States shall ensure that, for each river basin district, they publish and make available for comments to the public, including users: (a) a timetable and work programme for the production of the plan, including a statement of the consultation measures to be taken, at least three years before the beginning of the period to which the plan refers;
(b) an interim overview of the significant water management issues identified in the river basin, at least two years before the beginning of the period to which the plan refers;
(c) draft copies of the river basin management plan, at least one year before the beginning of the period to which the plan refers. On request, access shall be given to background documents and information

used for the development of the draft river basin management plan.
2. Member States shall allow at least six months to comment in writing on those documents in order to allow active involvement and consultation.
3. Paragraphs 1 and 2 shall apply equally to updated river basin management plans.”

Potential problems with Citizens' Juries and other discourse-based processes:

1) Accountability: should panel members be accountable to their "constituents" (those they seek to represent); and should governments be required to act on panel decisions; if so, how? If the Citizens Jury is intended to make decisions but this effectively closes down further public discourse, this is crucially important to their political role.

2) The role of experts: What is the power relationship implied by Citizens Jury processes between "experts" and "ordinary citizens"? If the juries simply rubber-stamp priorities set out by "experts", this can lead to alienation and cynicism about the process itself.

3) Scale: River basins can be extremely large geographic areas and can be difficult to define spatially. This can make a Citizens Jury process nearly impossible to implement in practical terms.

4) Time-Frame: Citizens' Juries tend to be short-term, one-off processes, while sustainable decicion-making must consider the long term. Water management in particular requires long time-frames and iterative decision processes; these can put great demands on citizen participants and require high degrees of "institutional memory".

5) Jurisdictional Issues: Watershed management generally requires collaboration across many political and institutional boundaries, so even if a participatory panel can be assembled, the implementation of its decisions throughout the watershed may be nearly impossible.

Brazilian River Basin Committees' mandate:

- to promote and coordinate cooperation over water resources at the basin level;
- to arbitrate water disputes;
- to develop and monitor a Water Resources Plan for the basin;
- to compile information for State and National Water Councils on water bodies and water users for the purposes of determining the necessity of water-use permits;
- to suggest appropriate charges and develop a framework for implementing water use fees; and,
- to manage the distribution of funds related to water projects and initiatives in the public interest.

Bacias Irmãs / Sister Watersheds Project website address:

http://www.baciasirmas.org.br/