

This article was downloaded by: [Shandas, Vivek][Portland State University]

On: 20 August 2008

Access details: Access Details: [subscription number 789543335]

Publisher Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Journal of the American Planning Association

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title-content=t782043358>

Fostering Green Communities Through Civic Engagement: Community-Based Environmental Stewardship in the Portland Area

Vivek Shandas ^{ab}; W. Barry Messer ^a

^a Nohad A. Toulan School of Urban Studies and Planning at Portland State University, ^b Center for Urban Studies,

First Published on: 20 August 2008

To cite this Article Shandas, Vivek and Messer, W. Barry(2008)'Fostering Green Communities Through Civic Engagement: Community-Based Environmental Stewardship in the Portland Area',Journal of the American Planning Association,

To link to this Article: DOI: 10.1080/01944360802291265

URL: <http://dx.doi.org/10.1080/01944360802291265>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.informaworld.com/terms-and-conditions-of-access.pdf>

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

Fostering Green Communities Through Civic Engagement

Community-Based Environmental Stewardship in the Portland Area

Vivek Shandas and W. Barry Messer

Problem: Urban development can fragment natural habitats, alter hydrologic systems, and modify energy flows and nutrient cycles. The literature on mitigating ecological impacts of urban development contains extensive support for engineered infrastructure, but few studies have characterized the factors that foster effective involvement of community members in urban ecological restoration.

Purpose: This article aims to explain why one community-initiated environmental stewardship program has been successful, and offers lessons on how to use community resources to establish similar programs elsewhere. We ask: (1) How can citizens become more involved in the stewardship of their local watershed? (2) What is the optimal mix of local technical expertise and community capacity? and (3) What innovations and accommodations must public agencies make to improve community involvement in environmental stewardship?

Methods: We draw on data from surveys, interviews, and participant reports from 12 years of Portland's Community Watershed Stewardship Program (CWSP) to characterize the prerequisites to developing an effective community-based environmental management program.

Results and conclusions: We conclude that programs encouraging the public to participate in environmental planning and stewardship need flexibility to allow innovation and accommodation in the planning process. We observe that community partners have great success completing projects they themselves initiate, and that are physically located nearby. We also find that developing a partnership with a local

Involving citizens in planning for and managing water resources is a relatively recent phenomenon. The passage of the National Environmental Policy Act (NEPA) heralded an era in which Congress directed all federal agencies to "utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decisionmaking which may have an impact on man's environment" (NEPA, 1969, §102, 2A). In addition, the emergence of environmental advocacy groups, reactions to top-down decision making, and capacity building at the local level together have given rise to an era of collaborative watershed planning (Beierle & Konisky, 2001; Mullen & Allison, 1999; Sabatier, Lubell, et al., 2005; Yaffee et al., 1996). This collaborative approach, which integrates scientific understanding with local knowledge, builds on

university was an important component of this effective environmental stewardship program.

Takeaway for practice: Community-based watershed stewardship programs, if designed correctly, have the potential to increase citizen trust in government, improve the biophysical environment, and foster participants' ecological understanding. Involving the community in urban watershed management programs fills gaps between what public institutions can achieve and what the community needs. This coproduction provides opportunities for citizens to develop ownership of the local landscape, which may in turn increase the number of community groups involved, and the overall geographic reach of restoration projects.

Keywords: community-based, urban watersheds, environmental management, stewardship, community-university partnerships

Research support: None

About the authors:

Vivek Shandas (vshandas@pdx.edu) and W. Barry Messer (messerw@pdx.edu) are both assistant professors in the Nohad A. Toulan School of Urban Studies and Planning at Portland State University. Shandas is also a research associate in the Center for Urban Studies, and his research examines the relationship between ecological degradation, institutional response, and community engagement. Messer's research focuses on opportunities and challenges for developing community-university partnerships in the context of environmental management.

Journal of the American Planning Association,
Vol. 74, No. 4, Autumn 2008
DOI 10.1080/01944360802291265
© American Planning Association, Chicago, IL.

prior attempts to address ecological degradation. Local governance of water resources allows people to engage more easily, to advance their understanding of ecological systems, and to practice citizenship (Beetham, 1996; Duram & Brown, 1999). In fact, many water quality and watershed health problems arise from nonpoint sources of pollution (Adler, 1995), making it essential to directly engage the community as the source of these problems (Trachtenberg & Focht, 2005).

However, it is challenging for planning and environmental agencies to involve the public in natural resource decision making. Contemporary issues of watershed planning require new forms of community interaction and often new social institutions that cross traditional departmental boundaries (Borden, Cline, Hussey, Longworth, & Mancinelli, 2007). A rich body of literature suggests there are institutional barriers to involving the public in the management of local resources. Scholars of public participation planning argue that the modern administrative state is too big and complex to facilitate the kind of face-to-face relationships upon which a participatory democracy depends (Chaskin, Brown, Venkatesh, & Vidal, 2001; Stivers, 1990), that citizens do not have the knowledge or preparation to make meaningful contributions (Kweit & Kweit, 1990), and that participation requires resources many citizens and agencies do not have. More fundamentally, sharing power in this way may allow narrow, private interests to exploit public resources and may risk corruption (Day, 1997; Etzioni-Halevy, 1983; Trachtenberg & Focht, 2005).

Yet others suggest that traditional methods of community participation, such as formal hearings and comment periods, favor polarized interest groups over the general public and do not provide an adequate forum for representing public interests or allow adequate information exchange between the public and agency professionals (English, 1999; Feller, 1991; Wondolleck, 1985; 1988). As a result, studying fairness, legitimacy, and representativeness, and designing more coherent and holistic approaches have become leading research areas for human ecologists (Lauber & Knuth, 1997; Raffensperger, 1998; Webler, 1997).

Despite the formidable challenges of designing ways to engage citizens effectively, public participation programs addressing environmental degradation are growing and improving worldwide. For example, over 40 countries in Europe and Asia have signed the Aarhus Convention, which ensures the public's right to be informed about environmental issues (United Nations Economic Commission for Europe, 1998). More recently, both Canada and the United States have established frameworks for engaging citizens directly in natural resource management through

amendments to the Canadian Environmental Assessment Act (Canadian Environmental Assessment Agency, 2003) and the Watershed Approach Framework (U.S. Environmental Protection Agency [EPA], 1996). Even the U.S. Department of Defense, a traditionally top-down decision-making agency, is sponsoring more than 250 restoration advisory boards (RABs) to create a forum for community input (Prizzia, 2005).

While an increasing number of environmental projects make citizen participation a central tenet and environmental stewardship has been called a "fundamental instrument in any democratic society" (Fagence, 1977), much remains unknown about how best to design institutions to support this. Outstanding issues planning agencies face include: developing citizen trust (Lachappelle, McCool, & Patterson, 2003; Shandas, 2007), maintaining flexibility (Paehlke & Torgerson, 1990; Wondolleck & Yaffee, 2000), and complying with procedural obligations (Ryan & Klug, 2005). In addition, while Hibbard and Lurie (2006) suggest that public involvement in watershed planning contributes to local economies and enhances individual and community capacities for self-governance, others ask whether public involvement ameliorates watershed problems or contributes to them (Bellamy, McDonald, Syme, & Betterworth, 1999; Conley & Moote, 2003). Finally, questions also remain about what to evaluate in environmental public participation programs. Few government agencies or other organizations who involved the public in deliberative processes have reported the results (Chess, 2000; National Research Council, 1996), which makes improving these efforts more difficult.

In this article, we describe the factors that were important to the success of one particularly robust civic engagement program in order to determine what engages citizen groups and what is effective at improving the ecological health of a region. How institutions are organized, what roles participants play, and decisions specifying how individuals and organizations interact help to regularize life, support values, and produce and protect interests (Vatn, 2005; Westley, 1995). We examine how levels and types of participation are shaped by locally distinctive "rules-in-use" (Ostrom, 1999). We also observe the results that have been realized through civic engagement, to understand how to improve environmental stewardship programs.

Approach

The Case

Our case study is the Community Watershed Stewardship Program (CWSP) in Portland, Oregon, a joint venture of the City of Portland's Bureau of Environmental Services (BES; 2005), a local university, and the larger regional community. BES is responsible for water quality protection, wastewater collection and treatment, and sewer installation in the city; thus, the CWSP represents only a small fraction of BES expenditures. Now in its fourteenth year of operation, CWSP involves several thousand citizens in a citywide campaign to protect watersheds from the impacts of urban development, while meeting legal mandates. Even with its 14-year history, it may be premature to declare the CWSP an unequivocal success at fostering environmental stewardship, although many indicators are pointing in this direction.

Why Study Portland's CWSP?

It may seem odd to focus on an exemplar to make the case for developing active civic engagement programs as a way of greening cities. Though Portland has a record of civic participation (Putnam & Feldstein, 2003), and numerous independent awards for being one of America's greenest cities (e.g., see Greenbiz, 2008; Sustainlane, 2006; Svoboda, 2008), it resembles many other U.S. cities in three ways that make it a good case example of how to structure an effective environmental stewardship program.

First, Portland residents exhibited strong distrust of government, including the BES, during the late 1980s and early 1990s, as did citizens in many other cities (Moore, 1995; Putnam, 2000; Shandas, 2007; Wondolleck & Yaffee, 2000). Newspaper reports during this period include citizen criticisms of the city for mismanagement of urban waterways ("Portland faces federal fine," 1989; "Uncovering problems," 1991; "Willamette's role," 1991). In 1989, the EPA fined BES for 22 violations of the Toxic Substances Control Act (TSCA; 1976), and in 1993 the Northwest Environmental Advocates, a local nonprofit, sued the city for violation of the Clean Water Act (CWA; 1972). Portland citizens also contested public agencies' scientific studies and opposed agency solutions to urban water problems (Johnson, 2007). These and other occurrences furthered an already acrimonious tone toward the local government and suggested that BES was not using public funds to properly address legal mandates. Perhaps because BES was already better known for charging the citizens for sewer and stormwater treatment than for protecting the environment, these suits catalyzed a precipitous decline in public trust of BES ("Plant crops, not resorts," 1995).

Second, Portland's combined sewer system resembles those in many other city centers around the nation. While combined systems were state-of-the-art when constructed, by 1993 even a moderate rainfall exceeded the Portland system's capacity, triggering combined sewer overflows (CSOs) of dilute, untreated sewage through 55 outfall points into the Willamette River and Columbia Slough ("Group continues battle," 1993). Such combined sewer overflow events, which pose potential public health concerns, also contaminated surface waters in many other cities around the nation, including Los Angeles, Houston, Chicago, and Baltimore. Building a separate system to carry away storm water is often cost prohibitive, although in order to meet legal mandates such as the CWA and TSCA, municipalities must develop plans for addressing overflow events.

Finally, like other municipalities transitioning to collaborative watershed management (Sabatier, Leach, Lubell, & Pelkey, 2005), government agencies in Portland are attempting to create locally relevant, community-based programs to manage urban water resources. Most are adding inclusive, consensus-based strategies, explicitly aiming to achieve win-win outcomes (Born & Genskow, 2000). While watershed problems were previously seen as remediable using traditional engineering approaches and investments in infrastructure, they are now recognized to be "wicked" or "messy" problems, for which no simple rule specifies how to choose a socially optimal solution (Lachapelle, McCool, & Patterson, 2003; Rittel & Webber, 1973).

This is not to deny that Portland's level of citizen engagement has surpassed that of other cities for a long time. For example, in *Better Together*, Putnam and Feldstein (2003) describe Portland's engaged culture during the 1960s and 1970s by noting that,

Two of the most powerful myths that have shaped American life are the promise of wealth and America as an unspoiled paradise. Unlike many who gravitated to cities that were booming, most of these newcomers to Portland were looking for a new Eden much more than for an opportunity to strike it rich. As Johnson [adjunct faculty member of Portland State University and scholar of the history of civic engagement in the Portland region] suggests, they were primed for activism to preserve or create the quality of life they sought. (p. 253)

While such statements suggest that Portland citizens created their open government and civic involvement through self-selection, Portland's history can also be inter-

puted to illustrate that an engaged citizenry supported by local government can create institutional change to improve the ecology of the community and region.

In short, we examined Portland's approach to watershed management because it is a mature example of a bold experiment. It is a citywide collaboration to change from a top-down, command-and-control governance structure to a flexible, place-based approach to water resource management. While this would be interesting even if it were just a unique case study, we use it to shed light on the mechanisms that fostered this environmental civic engagement, and to offer insights for other complex urban resource management efforts. We were also interested in exploring how community groups, including a local university, were able to participate in governance in a substantive and constructive way. As we examined the case study in more detail, we found that it suggested using collaborative approaches as a complement to, rather than as a replacement for, top-down regulatory approaches. Thus, this article focuses on the unique institutional design of the CWSP, its evolving nature, and some of the effects it has had on community groups, organizations, and the environment.

Data and Method

The relationship between faculty at Portland State University (PSU) and the CWSP started in 1995, though only in recent years have undergraduate and graduate students become deeply involved in the program. While students actively participate in the selection of grantees and day-to-day operations, PSU faculty members, including the authors of this article, have served primarily as advisors and liaisons to the university's community-engagement and service-learning initiatives.

As advisors to the program, we are removed from its day-to-day details, and able to see the direct linkages between its design, the community's response, and the environmental outcomes. We have also examined the midterm and final reports of all program grantees, and transcripts of interviews with CWSP grantees.

Designing a Community Watershed Program

Federal and State Context

In 1998, President Clinton announced a Clean Water Action Initiative prepared jointly by the U.S. Department of Agriculture and the EPA that required states and communities to work with the public and all affected stakeholders to identify priorities and cost-effective strategies.

This formalized a shift toward a collaborative, place-based approach to water resource management that was already beginning, causing public agencies to work with citizens (and citizen groups) to foster locally meaningful approaches to reducing potential sources of pollution and restoring degraded waterways (Wagenet & Pfeffer, 2007). The Clean Water Action Initiative required tribal, state, and local governments to identify watersheds with the most critical water quality problems and work together to focus resources and implement strategies to solve those problems (Kenney, McAllister, Caile, & Peckham, 2001). Federal direction to focus on impaired waters and to increase the attention given to involving the public led Oregon under governor John Kitzhaber (along with Washington, California, Massachusetts, Wisconsin, and Pennsylvania) to develop watershed partnerships. Oregon used a statewide watershed-level planning program (State Senate Bill 924) known as the "The Oregon Plan for Salmon and Watersheds" as a coordination tool. This changed previously ad hoc volunteer organizations and made watershed councils the official watershed management units statewide. Oregon's current leadership in community natural resource management may be partly attributable to its statewide implementation of watershed councils (Hibbard & Lurie, 2006).

Although leadership by a sympathetic governor may have provided some of the preconditions necessary to developing collaborative watershed management in the state, the physical and social conditions in an urban area like Portland require a special approach to engaging the public. The Portland harbor section of the Willamette River, for example, is heavily polluted from years of shipbuilding, creosote manufacture, lead processing, and transfer and storage of petroleum products, and is now a superfund site (Van der Voo, 2007), involving the EPA in cleaning up the river bottom (Oregon Department of Environmental Quality, 2006). State studies in the 1990s identified a wide variety of pollutants in the river bottom, including heavy metals, polychlorinated biphenyls (PCBs), and pesticides. Issues like this, as well as Portland's diverse constituency, mix of land uses and topographical conditions, meant the CWSP's key stakeholders and watershed management plan objectives were quite unlike those in rural areas (Grimm et al., 2008; McDonnell et al., 1997; Meyer, Paul, & Taulbee, 2005).

The Design of the Local Partnership

The program had three main groups of participants: the community, the BES, and PSU. The Watershed Services Division of BES is responsible for improving water quality through stormwater management plans and activities,

overseeing restoration efforts in the five regional watersheds, and planning for future wastewater collection and treatment needs. In 1994, BES convened focus groups to identify community needs and potential strategies for designing the community-led watershed restoration program, which became CWSP. PSU's focus on community engagement and civic involvement allowed university faculty to participate to improve BES' community outreach efforts and several representatives from the local watershed councils also took part.

The interests and concerns of its main participant groups led CWSP to focus on: (a) a stewardship grants program which solicits proposals for watershed restoration from citizen groups; (b) a BES/PSU partnership; and (c) a system for watershed and program evaluation.

Support for CWSP within BES was not initially widespread. For example, in the beginning, some BES staff were indifferent to the development of the CWSP program. While there is tension between funding engineering projects and community-engagement programs, BES program staff worked with university faculty members to determine whether creating CWSP would be advantageous, what the extent of university involvement should be, and to develop criteria for selecting grantees and evaluating program effectiveness. BES systematically solicited input from community partners and university faculty members, and allowed the program design to evolve, enabling a focused and relevant discussion among local institutions and citizens.

Any program that involves multiple participants must clarify its goals and rules. By design, the participants decided CWSP would encourage citizens to undertake activities that would form partnerships in the community, use volunteers to affect change and improve watershed conditions at a neighborhood scale, and provide students and faculty with opportunities for education and research to allow an exchange of expertise and effort between PSU and BES. During the early stages of the program, these goals were often in conflict, mainly because CWSP participants found it difficult to keep the different goals in perspective without elevating or diminishing the significance of any.

The CWSP program has evolved over time, but there are four general principles that have remained in place since its inception:

1. Faculty and graduate students and BES program managers discuss BES watershed priorities and PSU educational and research interests each year in order to weave community involvement opportunities into the developing CWSP plans.
2. Community groups submit proposals that are then reviewed to determine whether they align with the

CWSP mission. Examples include education and monitoring efforts, building ecoroofs and storm-water features, and restoring streambanks. Each successful proposal is awarded up to \$5,000 to spend on materials and project coordination.

3. Graduate students specializing in environmental planning may take paid internships in which they provide organizational and technical assistance to community groups interested in implementing their own watershed education or water quality improvement projects.
4. Grantees are required to provide midterm and final reports on the implementation of their projects, including addressing several specific BES questions.¹

That CWSP is collaborative is illustrated by the synergism that exists among the participating groups. BES provides the administrative support and the coordination of regulatory activities, and PSU provides graduate students to oversee the implementation of the program and undergraduates to assist in other program activities. The university benefits by engaging the local community and providing students with a service-learning opportunity. BES gains a cost-effective source of labor (students) and a trusted community liaison. Students develop project management skills and identify future employment opportunities while providing service to BES and the community. From the city's perspective, the involvement of citizens in public service, what Glover, Parry, and Shinen (2005) call *co-production*, is a mechanism for filling the gap between what government can achieve and what is needed in the community (see Backman, Wicks, & Silverberg, 1997). Co-production allows BES to deliver more services than it could otherwise, especially services devoted to improving the health of urban watersheds. To date, over 130 community projects sponsored by neighborhood schools, civic organizations, churches, and neighborhood groups have been completed. These projects have leveraged the involvement of thousands of volunteers and many neighborhood-based organizations, public agencies, and businesses² neighborhood-scale projects to improve watersheds and water quality.

Results of the Collaborative Approach

We present this as a case study, since the large number of interacting factors prevents us from testing causal linkages between CWSP's design and its outcomes. However, case studies illuminate in different ways, and we use details from the partner reports and testimonials to argue that the

simple existence of this program allowed transformations in local communities, organizations, and ecologies. We use the case to observe and record some types of collaborative processes that foster environmental stewardship in urban areas.

First, the CWSP framework provided numerous opportunities for the participants to find common ground and for community individual volunteers, organizations, and associations to become more involved. Early projects included replanting native vegetation, monitoring stream conditions, and developing educational murals. Over time, people submitted more diverse proposals, and funded projects came to include ecoroofs, bioswales, and storm-water retention and detention facilities widely dispersed across the city (see Figure 1). BES program administrators actively responded to community interests by building a set of practices and institutional arrangements that were more flexible than they had used in the past. One of the community partners, a CWSP-funded member belonging to the Portland city schools, contended that "it was the willingness of the agency [BES] to work with our plans that made this very different from the previous experiences that I've had with them." Several of the midterm and final project reports include such sentiments, which speak to the importance of taking seriously the perspectives of involved partners.³ This confirms the importance of the CWSP program design, which allows community groups to decide what is important to them and what needs to be done, and through the proposal process, to make a case for how their project will improve the urban watershed.

Second, designing the program to involve the local university and community partners also brought in more community organizations, volunteers, and residents, and expanded the organizational capacities of the city and the university. The number of individuals and groups participating in the program has grown steadily since its inception. Neighborhood schools and both formal and informal community associations now have ways to participate directly in neighborhood work and to connect to similar associations doing comparable work throughout the city. Each year more organizations participate in the CWSP as a result of such connections. One community partner, a CWSP-funded member belonging to a neighborhood group, stated that, "My idea is to get people excited, educated about what's growing out there, then to recruit people to do volunteer work." The program has a multiplier effect on involvement, as each current participant passes on information about the opportunities to become involved in work that benefits neighborhoods and watersheds to multiple contacts. This is demonstrated by the fact that the partnership has grown from 10 organizations contributing

to the partnership in 1995 to more than 800 contributing organizations today. Such an outcome is consistent with the growing literature on the social diffusion of innovation (Dodgson & Bessant, 1996) and the use of social networks for developing community partnerships (Cross, Parker, Prusak, & Borgatti, 2001).

The community groups participating in the program seem also to have benefited. The CWSP program provides such groups with both technical assistance and means of increasing their workforces. For example, one community partner, a CWSP-funded member belonging to a neighborhood group, stated, "We've been very fortunate to have someone who has experience to know what plants to plant where and to design the planting plan." While the grantees use funds for a variety of purposes, some hire specialists for proposed projects. By hiring environmental specialists (e.g., botanists, landscape architects, or hydrologists) the community groups learn about local ecosystems, while BES ensures that the projects provide technically sound improvements to local watersheds.

The PSU students are active partners in the program and get valuable community-based learning opportunities from it. Over the course of the partnership, PSU has offered 20 senior capstone courses and 12 other undergraduate courses, in total involving about 600 undergraduate students in working beside community volunteers. These "problem-based" courses (Austin & Sax, 1998) attract students from several disciplines to work together to address a regional problem of global significance. They are effective in part because they have access to an organizational structure that evolves in response to community needs. Over 20 graduate students have also provided technical assistance to organizations developing and implementing projects in their neighborhoods.

Finally, ecology in the region has been improved by restoring degraded riparian areas. In the CWSP program's 12 years of existence, over 23,000 volunteers have contributed nearly 150,000 total hours to plant 76,000 native plants and restore 1.9 million square feet of upland/riparian areas in watersheds throughout the city. Over that time, the city made over 100 small grants totaling \$436,000 that have generated matching contributions of nearly \$2 million. Currently, several faculty and students at PSU are quantifying the land cover and hydrological changes resulting from these watershed restoration efforts and their findings will soon offer additional evidence about the relative effectiveness of various restoration projects.



Figure 1. Location of CWSP sites, 1995–2005.

Lessons Learned From the CWSP

Portland watershed managers had to address three critical questions before a public agency (BES) could catalyze community-initiated watershed stewardship projects: (1) How can citizens become more involved in the stewardship of their local watershed? (2) What is the optimal mix of local technical expertise and community capacity? and (3) What innovations and accommodations must public agencies make to improve community involvement in environmental stewardship? The same would be true for any planning entity moving from a traditional, top-down, and inflexible approach to a collaborative, community-initiated, and accommodating approach to urban watershed management. Our observations about how the CWSP managed the tensions between top-down and bottom-up watershed planning also raise broader planning issues.

How Can Citizens Become More Involved?

Environmental stewardship programs commonly aim to increase participation, and CWSP demonstrates that the

process of engaging citizens matters. First, the CWSP program fostered ownership by involving stakeholders early in the process. BES initiated this process by convening the university, representatives from the local watershed councils, and key community partners to contribute to the design of the CWSP program, creating ownership from its inception. Unlike traditional planning informational meetings, the early stages of the program offered an opportunity for stakeholders to participate in identifying the salient issues and to describe the types of stewardship activities that could help address regional watershed challenges. Working with others toward the common goal of improving regional waterways, community members became more aware of the connection between their actions and the health of the environment.

It is important to note that involving citizens during program development was accomplished by balancing the tension between inviting the universe of potential participants and selecting a representative set of community members. By inviting community members that represent a broad array of potential grantees to the early meetings, and

soliciting their feedback about other potential community members, BES raised the odds that the design of the CWSP would be perceived as legitimate and contributed to the program's effectiveness. Each community has its own mix of stakeholders and types of projects, but the principle remains the same; engage citizens early and often and allow the community partners to own and implement their own restoration projects (Rohe, 2004; Smith, Nell, & Prystupa, 1997).

Equally important is the principle of producing a tangible result. It is true that the program yielded better informed citizens and a network of community partners, two manifestations of enhanced social capital. But the tangible completed projects gave participants a sense of accomplishment. Whether groups removed invasive species, restored eroded streambanks, or created green roofs to regulate stormwater runoff, they saw their projects regularly as they went about their daily lives. This personal connection seemed to foster commitment among volunteers and led to reliable project completions. That the projects were small as well as tangible made it easier for groups to secure resources, and provided a feasible way for them to approach the much larger ecological issue.

What Is the Optimal Mix of Local Technical Expertise and Community Capacity?

Divergence from the conventional model of watershed planning and management troubled many of those involved in the early stages of developing the CWSP. Because watershed management has traditionally been accomplished with engineering projects, allowing community members to define project goals seemed like the wrong idea initially. Ironically, the opposite seems to have been the case. The success of the numerous and diverse projects completed by the community participants in the CWSP and the growing number of community applicants participating in the program attest to its broad appeal. This is not to say that if planning agencies build community capacity for environmental stewardship their communities can do without engineering projects. Rather, public involvement in the CWSP programs has helped support and complement large-scale infrastructure projects by educating the public about the challenges of managing urban stormwater and assisting citizens to develop strategies for local mitigation.

The CWSP combined technical expertise of faculty members from PSU's urban studies and planning program and local environmental experts (e.g., ecologists, hydrologists, and botanists) with understanding of regional landscapes to inform project design and mobilize community participation. While the technical experts played a significant role, they were peripheral in the actual restoration of

local watersheds. However, targeted technical expertise improved community partners' abilities to understand the multiple dimensions of watershed restoration projects. The resulting work not only has broad public purpose, but visibly enhances the landscapes of individual neighborhoods.

These successes appear to result largely from the program's tapping into two major community assets. First, community organizations and existing networks of neighborhood groups, watershed councils, and other entities provided ready-made operational units that could be mobilized quickly (Kecskes, Kerrigan, & Patton, 2006). Second, neighborhood landscapes provided an understandable focus for community action (Beatley & Manning, 1997).

What Innovations and Accommodations Must Public Agencies Make?

The public views government agencies as untrustworthy, slow-moving, and filled with administrative hurdles (Lachapelle et al., 2003; Shandas, 2007; Wondolleck & Yaffee, 2000). A system that allows community groups to focus their efforts on their proposed projects rather than on following planning procedures seems to lead to more successful project completions. CWSP transferred authority from the city to citizens gradually, initially involving community members in the design of the program and selecting a few preliminary target restoration sites, then hiring student interns, conducting outreach to community members, and expanding the program to cover the entire city. BES identified the best projects proposed each year and worked as a liaison with other planning agencies. In fact, Portland's Bureau of Planning became a more active participant through ongoing discussions and issuing permits for the proposed CWSP projects, several times waiving fees for CWSP permits. BES demonstrated remarkable flexibility in dealing with citizen groups and other planning agencies, overcoming a common criticism that government entities are unable to adapt and change.

In addition, the CWSP employees seemed genuinely interested in designing a novel program that allowed community members to define their own goals and the plans to accomplish them without imposing too many administrative or bureaucratic obligations. Several of the midterm and final reports and transcripts of interviews state that "BES was remarkably responsive" to community partners' needs (a CWSP-funded member belonging to a church group) and that they appreciated the city agency regularly bringing the partners together "to see what issues they had in common and what some people had come up with for ideas to work through those" (a CWSP-funded member belonging to a neighborhood group). This is particularly relevant given that planners' work lies at the

interface between meeting formal procedural obligations and responding to public concerns (Howe, 1994). Designing a program that is flexible in administration (e.g., the permitting process, legal restrictions), coordinated in programming (e.g., grants management, interagency cooperation, university involvement), and responsive to citizen involvement (e.g., streamlining project permits, geographic targeting, secondary partnerships) can help address uncertainties in urban watershed management now and into the future.

Conclusions

Planning agencies with environmental responsibilities are moving away from purely technical solutions to water quality and habitat protection issues to involving multiple stakeholders representing diverse interests in collaborative solutions (Lubell, 2005). Fortunately, the CWSP demonstrates that a collaborative approach can enhance the riparian canopy in addition to involving citizens and reducing the amount of stormwater entering local waterways. Our investigation suggests that a well-managed collaboration, involving both key interests and expertise, can be highly compelling and a complement to technical solutions, particularly if it allows participants to undertake projects close to home, and to define their own goals.

Humans need a sense of place within the natural environment (Howell, 1997). By taking part in stewardship, community members can begin to reestablish the connection between their actions and the health of the environment. Perhaps because many Portland citizens understood that the regional waterways were degraded and required considerable improvement, the CWSP program was well timed, allowing Portland to meet its legal responsibilities to protect and enhance water quality while also pursuing community-initiated projects.

This case illustrates that community members can be motivated by a responsibility for future generations or by the notion that they are a part of the natural world, not apart from it. We observed that community involvement in watershed stewardship through CWSP transformed environmental protection from a technical and impersonal activity that relies largely on engineered systems of control, to one that established relationships that will influence the way local governments interact with citizen groups. In this system the balance of power is shared, and people experience greater satisfaction in their neighborhood and increased social bonding (Cochrun, 1994). Empowerment and recognition come from the experience of participation and belonging.

Over the past quarter-century, the growth of community partnerships has been substantial. The literature suggests, and our analysis of the CWSP confirms, that when community groups are given an opportunity to lead and own an environmental stewardship project, everyone wins. Perhaps one day in the not-too-distant future we will witness an integration of the traditional approach and this newer one, including effective communication, coalition building, and a strong sense of social responsibility. We hope city planners, community organizations, civil engineers, and neighborhood citizens will see that an engaged and environmentally literate public can produce tangible results that improve local communities and ecologies. This case illustrates how building and sustaining effective environmental stewardship programs can enable social sustainability in our communities (McKenzie, 2004), address entrenched public distrust of government, and improve the quality of life for all residents in human-dominated landscapes.

Acknowledgments

The authors would like to thank the staff and student interns at the Portland BES for providing access to the CWSP reports, and Amy Helling and the four anonymous reviewers for their thoughtful feedback on this article.

Notes

1. All grantees are asked for photo documentation of the project and are required to address the following questions: (1) Who has been involved in your project? (2) Have you seen benefits to water quality? (3) How has watershed awareness been improved by the project? (4) What factors made this project successful? (5) What was difficult or frustrating about this project? (6) Did this year's project add to the organization's development? (7) What type of publicity did this project receive? (8) What types of monitoring and maintenance do you expect for this project?
2. Nonprofits involved include watershed councils, neighborhood associations, youth and adult volunteer service organizations, and churches. Schools at all levels have participated, as have government agencies at all levels from local to federal. Locally owned and other private businesses have also taken part.
3. In addition, on several occasions when community partners proposed projects that required city permits, BES administrators worked collaboratively with other agencies to streamline the permitting process and allow community groups to complete projects on time. This interdepartmental collaboration in itself is a noteworthy outcome.

References

- Adler, R. W. (1995). Addressing barriers to watershed protection. *Environmental Law*, 25(2), 973-1106.
- Austin, A. W., & Sax, L. J. (1998). How undergraduates are affected by service participation. *Journal of College Student Development*, 39(3), 251-263.

- Backman, K. F., Wicks, B., & Silverberg, K. E. (1997). Co-production of recreation services. *Journal of Park and Recreation Administration*, 15(3), 58–75.
- Beatley, T., & Manning, K. (1997). *The ecology of place: Planning for environment, economy, and community*. Washington, DC: Island Press.
- Beetham, D. (1996). Theorizing democracy and local government. In D. King & G. Stoker (Eds.), *Rethinking local democracy* (pp. 28–49). Basingstoke, UK: Macmillan.
- Beierle, T. C., & Konisky, D. M. (2001). Innovations in public participation and environmental decision making: Examples from the Great Lakes Region. *Society and Natural Resources*, 14(9), 815–826.
- Bellamy, J. A., McDonald, G. T., Syme, G. J., & Betterworth, J. E. (1999). Evaluating integrated resource management. *Society and Natural Resources*, 12(4), 337–353.
- Borden, R. J., Cline, K. S., Hussey, T., Longworth, G., & Mancinelli, I. (2007). A river runs through it: A college-community collaboration for watershed-based regional planning and education. *Human Ecology Review*, 14(1) 90–100.
- Born, S. M., & Genskow, K. D. (2000). *The watershed approach: An empirical assessment of innovation in environmental management*. Washington, DC: National Academy of Public Administration.
- Bureau of Environmental Services. (2005). *Comprehensive watershed management plan*. Retrieved February 10, 2006, from: <http://www.portlandonline.com/shared/cfm/image.cfm?id=107808>
- Canadian Environmental Assessment Agency. (2003). *Strengthening environmental assessment in Canada: Amendments to the Canadian Environmental Assessment Act*. Retrieved February 10, 2008, from: http://www.ceaa.gc.ca/013/001/0003/index_e.htm
- Chaskin, R., Brown, P., Venkatesh, S., & Vidal, A. (2001). *Building community capacity*. Edison, NY: Aldine de Gruyter.
- Chess, C. (2000). Evaluating environmental public participation: Methodological questions. *Journal of Environmental Planning and Management*, 43(6), 769–784.
- Clean Water Act. 33 U.S.C. §§ 1251–1387 (1972).
- Cochran, S. E. (1994). Understanding and enhancing neighborhood sense of community. *Journal of Planning Literature*, 9(1) 92–99.
- Conley A., & Moote, M. A. (2003). Evaluating collaborative natural resource management. *Society and Natural Resources*, 16(3), 317–386.
- Cross, R., Parker, A., Prusak, L., & Borgatti, S. P. (2001). Knowing what we know: Supporting knowledge creation and sharing in social networks. *Organizational Dynamics*, 30(2), 100–120.
- Day, D. (1997). Citizen participation in the planning process: An essentially contested concept? *Journal of Planning Literature*, 11(3), 421–434.
- Dodgson, M., & Bessant, J. (1996). *Effective innovation policy*. London: Thomson Business Press.
- Duram L. A., & Brown, K. G. (1999). Assessing public participation in U.S. watershed planning initiatives. *Society and Natural Resources*, 12(5), 455–467.
- English, M. R. (1999). Environmental decision making by organizations: Choosing the right tools. In K. Sexton, A. A. Marcus, K. W. Easter, & T. D. Burkhardt (Eds.), *Better environmental decisions: Strategies for governments, businesses and communities* (pp. 57–75). Washington, DC: Island Press.
- Etzioni-Halevy, E. (1983). *Bureaucracy and democracy: A political dilemma*. London: Routledge and Kegan Paul.
- Fagence, M. (1977). *Citizen participation in planning*. Oxford, UK: Pergamon.
- Feller, J. M. (1991). Grazing management on the public lands: Opening the process to public participation. *Land & Water Law Review*, 26(1), 571–596.
- Glover, T. D., Parry, D. C., & Shinew, K. J. (2005). Building relationships, accessing resources: Mobilizing social capital in community garden contexts. *Journal of Leisure Research*, 37(4), 234–256.
- Greenbiz. (2008). *Portland named America's greenest city*. Retrieved February 28, 2008, from http://www.greenbiz.com/news/news_third.cfm?NewsID=55612
- Grimm, N. B., Faeth, S. H., Golubiewski, N. E., Redman, C. L., Wu, J., Bai, X., et al. (2008). Global change and the ecology of cities. *Science*, 319(5864), 756–760.
- Group continues battle against overflows of sewage. (1993, December 28). *The Oregonian*, p. A2.
- Hibbard, M., & Lurie, S. (2006). Some community socio-economic benefits of watershed councils: A case study from Oregon. *Journal of Environmental Planning and Management*, 49(6), 891–908.
- Howe, E. (1994). *Acting on ethics in planning*. New Brunswick, NJ: Rutgers University Press.
- Howell, D. (1997). *Environmental stewardship*. Westport, CT: Bergin & Garvey.
- Johnson, S. (2007). *Community governance: Facilitating the wisdom of crowds to create an equitable and sustainable society*. Unpublished manuscript.
- Keckes, K., Kerrigan S., & Patton J. (2006). The heart of the matter: Aligning curriculum, pedagogy and engagement in higher education. *Metropolitan Universities: Indicators of Engagement*, 17(1), 51–61.
- Kenney, D. S., McAllister, S. T., Caile, W. H., & Peckham, S. J. (2001). *The new watershed source book: A directory and review of watershed initiatives in the Western United States*. Boulder: Natural Resources Law Center, University of Colorado School of Law.
- Kweit M. G., & Kweit, R. W. (1990). *People and politics in urban America*. Belmont, CA: Wadsworth.
- Lachapelle, P. R., McCool, S. F., & Patterson, M. E. (2003). Barriers to effective natural resource planning in a “messy” world. *Society and Natural Resources*, 16(6), 473–490.
- Lauber, B., & Knuth, B. (1997). Fairness in moose management decision making: The citizens’ perspective. *Wildlife Society Bulletin*, 25(4), 776–787.
- Lubell, M. (2005). Do watershed partnerships enhance beliefs conducive to collective action? In P. A. Sabatier, M. Lubell, A. Vedlitz, W. Focht, Z. Trachtenberg, & M. Matlock (Eds.), *Swimming upstream: Collaborative approaches to watershed management* (pp. 201–232). Cambridge, MA: MIT Press.
- McDonnell, M. J., Pickett, S. T. A., Pouyat, R. V., Zipperer, W. C., Parmelee, R. W., Carreiro, M. M., et al. (1997). Ecosystem processes along an urban-to-rural gradient. *Urban Ecosystems*, 1(1), 21–36.
- McKenzie, S. (2004). *Social sustainability: Towards some definitions* (Working Paper 27). Magill, South Australia: Hawke Research Institute.
- Meyer, J. L., Paul, M. J., & Taulbee, W. K. (2005). Stream ecosystem function in urbanizing landscapes. *Journal of the North American Benthological Society*, 24(3), 602–612.
- Moore, S. A. (1995). The role of trust in social networks: Formation, function, and fragility. In D. A. Saunders, J. Craig, & E. M. Mattiske (Eds.), *Nature conservation 4: The role of networks* (pp. 187–194). New South Wales, Australia: Surrey Beatty and Sons.
- Mullen, M. W., & Allison, B. E. (1999). Stakeholder involvement and social capital: Keys to watershed management success in Alabama. *Journal of the American Water Resources Association*, 35(3), 655–662.
- National Environmental Policy Act. U.S.C. 4321 et seq. (1969).
- National Research Council. (1996). *Understanding risk: Informing decisions in a democratic society*. Washington, DC: National Academy Press.

- Oregon Department of Environmental Quality. (2006). Portland harbor superfund site. Retrieved February 28, 2008, from <http://www.deq.state.or.us/lq/cu/nwr/PortlandHarbor/>
- Ostrom, E. (1999). Institutional rational choice: An assessment of the institutional analysis and development framework. In P. A. Sabatier (Ed.), *Theories of the policy process* (pp. 35–71). Boulder, CO: Westview Press.
- Paehlke, R., & Torgerson, D. (1990). Environmental politics and the administrative state. In R. Paehlke & D. Torgerson (Eds.), *Managing Leviathan: Environmental politics and the administrative state* (pp. 285–301). Peterborough, Ontario, Canada: Broadview Press.
- Plant crops, not resorts. (1995, April 24). *The Oregonian*, p. B3
- Portland faces federal fine for PCB violations: Settlement proposal would cost city \$41,000 for waste plant problems. (1989, January 28). *The Oregonian*, p. A7.
- Prizzia, R. (2005). Community involvement in protecting the environment: The role of restoration advisory boards (RABs). *The Innovation Journal: The Public Sector Innovation Journal*, 10(1), 3–16.
- Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. New York: Simon & Schuster.
- Putnam, R. D., & Feldstein, L. M. (2003). *Better together: Restoring American communities*. New York: Simon & Schuster.
- Raffensperger, C. (1998). Guess who's coming to dinner: The scientist and the public making good environmental decisions. *Human Ecology Review*, 5(1), 37–41.
- Rittel, H., & Webber, M. (1973). Dilemmas in a general theory of planning. *Policy Sciences*, 4(2), 155–169.
- Rohe, W. M. (2004). Using social capital to help integrate planning theory, research and practice. *Journal of the American Planning Association*, 70(2), 142–151.
- Ryan, C., & Klug, J. (2005). Collaborative watershed planning in Washington State: Implementing the Watershed Planning Act. *Journal of Environmental Planning and Management*, 48(4): 491–206.
- Sabatier, P. A., Leach, W. D., Lubell, M., & Pelkey, N. (2005). Theoretical frameworks explaining partnership success. In P. A. Sabatier, M. Lubell, A. Vedlitz, W. Focht, Z. Trachtenberg, & M. Matlock (Eds.), *Swimming upstream: Collaborative approaches to watershed management* (pp. 173–200). Cambridge, MA: MIT Press.
- Sabatier P. A., Lubell, M., Vedlitz, A., Focht, W., Trachtenberg, Z., & Matlock, M. (2005). *Swimming upstream: Collaborative approaches to watershed management*. Cambridge, MA: MIT Press.
- Shandas, V. (2007). An empirical study of streamside landowners' interest in riparian conservation. *Journal of the American Planning Association*, 73(2), 173–184.
- Smith, L. G., Nell, C. Y., & Prystupa, M. V. (1997). The converging dynamics of interest representation in resources management. *Environmental Management*, 21(2), 139–146.
- Stivers, C. (1990). The public agency as polis: Active citizenship in the administrative state. *Administration and Society*, 22(1), 86–105.
- Sustainlane. (2006). *U.S. city ranking*. Retrieved February 20, 2008, from <http://www.sustainlane.com/us-city-rankings/>
- Svoboda, E. (2008). *America's 50 greenest cities*. Retrieved February 28, 2008, from <http://www.popsi.com/environment/article/2008-02/americas-50-greenest-cities?page=10>
- Toxic Substances Control Act. 15 U.S.C. § 2601 et seq. (1976).
- Trachtenberg, Z., & Focht, W. (2005). Legitimacy and watershed collaborations: The role of public participation. In P. A. Sabatier, M. Lubell, A. Vedlitz, W. Focht, Z. Trachtenberg, & M. Matlock (Eds.), *Swimming upstream: Collaborative approaches to watershed management* (pp. 85–135). Cambridge, MA: MIT Press.
- Uncovering problems in Portland's sewers. (1991, September 1). *The Oregonian*, p. A3.
- United Nations Economic Commission for Europe. (1998). *Convention on access to information, public participation in decision-making and access to justice in environmental matters*. Retrieved February 10, 2008, from <http://www.unece.org/env/pp/>
- U.S. Environmental Protection Agency. (1996). *Watershed approach framework*. Retrieved September 20, 2007, from <http://www.usepa.gov/owow/watershed/framework.html>
- Van der Voo, L. (2007, July 3). History of a Superfund cleanup bid. *Portland Tribune*, p. B2.
- Vatn, A. (2005). *Institutions and the environment*. Northampton, MA: Edward Elgar.
- Wagenet, L. P., & Pfeffer, M. J. (2007). Organizing citizen engagement for democratic environmental planning. *Society and Natural Resources*, 20(9), 801–813.
- Webler, T. (1997). Organizing public participation: A review of three hand books. *Human Ecology Review*, 3(1), 245–254.
- Westley, F. (1995). Governing design: The management of social systems and ecosystems management. In L. Gunderson, C. S. Holling, & S. S. Light (Eds.), *Barriers and bridges to the renewal of ecosystems and institutions* (pp. 391–497). New York: Columbia University Press.
- Willamette's role as sewer challenged. (1991, April 8). *The Oregonian*, p. A1
- Wondolleck, J. M. (1985). The importance of process in resolving environmental disputes. *Environmental Impact Assessment Review*, 5(4), 341–356.
- Wondolleck, J. M. (1988). *Public lands: Conflict and resolution*. New York: Plenum Press.
- Wondolleck, J. M., & Yaffee, S. L. (2000). *Making collaboration work: Lessons from innovation in natural resource management*. Washington, DC: Island Press.
- Yaffee, S., Phillips, A., Frentz, I., Hardy, P., Maleki, S., & Thorpe, B. (1996). *Ecosystem management in the United States: An assessment of current experience*. Washington, DC: Island Press.