



Government Involvement in Community-based, Collaborative Watershed Management: A Study of the Ohio Watershed Coordinator Grant Program

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Introduction

Non-point source pollution is the single largest threat to water quality in the United States, with approximately 40% of watersheds citing non-point source pollution as the main source of impairment (USEPA 2002). Management of these non-point sources is critical to attaining water quality improvement. In recognition that traditional regulatory means were ineffective to control non-point source pollution, the 1987 amendments to the Clean Water Act called for a “watershed protection approach” to address non-point source pollution using a bottom-up method (USEPA 1996a). Section 319 of the 1987 amendments established grant programs to states to fund local community-based efforts to develop and implement watershed management plans (Clean Water Act 1987; USEPA 1996b, 2002). In response, the 1990s followed with a proliferation of new and varied community-based watershed initiatives.

The USEPA embraced this community-based, collaborative approach to watershed management, commenting that:

Many public and private organizations are joining forces and creating multidisciplinary and multijurisdictional partnerships to focus on these problems, community by community and watershed by watershed. These watershed approaches are likely to result in significant restoration, maintenance and protection of water resources in the United States. Supporting them is a high priority for EPA’s national water program (USEPA 1996a).

The USEPA further emphasized that the social nature of these community-based, collaborative efforts would be key to their success:

Once individuals become aware of and interested in their watershed, they often become more involved in decision-making as well as hands-on protection and restoration efforts. Through such involvement, watershed approaches build a sense of community, help reduce conflicts, increase commitment to the actions necessary to meet environmental goals, and ultimately, improve the likelihood of success for environmental programs (USEPA 1996b).

The emergence of community-based, collaborative watershed management organizations, and the investment of federal and state funds in such efforts, raises several questions. Previous research has shown that different types of watershed organizations (such as agency-based versus citizen-based) may function differently, and that involvement in governmental programs may impact the processes and outcomes of these organizations in a variety of ways, some more positive than others. So what are the impacts of state involvement on community-based, collaborative watershed management?



The present study examined 18 watershed organizations participating in the Ohio Watershed Coordinator Grant Program, a six-year competitive grant initiative managed by the Ohio Department of Natural Resources (ODNR), in collaboration with the Ohio Environmental Protection Agency (OEPA) and the Ohio State University Extension (OSUE). The grant program, whose primary objective is to improve surface water quality through community-based watershed planning and management, funds full-time Watershed Coordinators, offers training and technical assistance, and provides monitoring and evaluation to measure attainment of program goals and objectives.

The Ohio Watershed Coordinator Grant Program provides an interesting opportunity for empirical study for several reasons. Consistent with management trends over the past decade, the program adopted a community-based, collaborative model for environmental management—providing a setting to test the efficacy of this approach. At the same time, the program is innovative in that it has funded a variety of types of organizations, ranging from citizen-driven non-profit organizations to local governmental agencies. In addition, several funded organizations altered their objectives, composition and activities in order to meet the state grant requirements, resulting in varying amounts of organizational change. For research purposes, the existence of this program creates a natural experiment to examine how state involvement impacts various types of community-based, collaborative watershed efforts. As management trends continue to direct government funding towards community-based, collaborative organizations to address non-point source pollution, it is important to understand the results that such efforts may yield.

Methods

In-depth personal interviews with Watershed Coordinators in January-February 2002 informed the development of organizational profiles for each of 18 watershed groups before involvement in the state program and after one year in the program. Document analysis of grant applications, organizational literature, and grant progress reports offered additional information and corroborated data from the interviews.

Organizational profiles classified each watershed group into one of three organization-types: agency-driven, hybrid or citizen-driven, following Moore and Koontz (2003). Organization-type classification was determined by decision-making body composition, group structure and sources of funding. Agency-driven organizations are typically housed in governmental agencies, have decision-making bodies dominated by agency personnel, and rely on governmental appropriations and grants for the majority of their funding. Citizen-driven groups tend to be incorporated as non-profit organizations, have decision-making bodies with a broad representation of citizen and agency stakeholders and depend on government sources as well as private donations, grants and membership dues for funding. Hybrid organizations tend to have



both agency-driven and citizen-driven characteristics, and typically are non-profit organizations with a decision-making body dominated by agency personnel.

Profiles also measured seven organizational resources (see Table 1) before and after involvement in the state program. Human resources identifies the number and experience level of paid employees, support staff and volunteer base, while technical resources measures the amount and quality of scientific and management-related information available to the personnel. Financial resources represents levels of operational and programmatic funding. The level of experience of the organization refers to whether the group has had past experience and expertise addressing similar natural resources management issues. Structural resources measures the extent to which the structure of the organization facilitates the execution of management activities, such as fiscal decision-making and the establishment of collaborative relationships. Legitimacy refers to the way in which the organization is viewed by the general community and, in particular, whether the organization is representative of the community at large. And lastly, network resources measures the number and nature of collaborative relationships built between the organization and other agencies, organizations and individuals.

Human	Leadership and staffing, including program and support staff, and volunteer base
Technical	Information about the natural resources and their management
Financial	Grants, membership dues and donations, as well as in-kind support of equipment, office space and support services
Experiential	Knowledge base and expertise with similar problems or management efforts
Structural	Organizational arrangements that help or hinder autonomous decision-making
Legitimacy	Degree to which the organization is viewed as representative of the community
Network	Relationships formed with other organizations, agencies and individuals

Table 1: Summary of Community-based Environmental Management Resources (adapted from Steelman and Carmin 2001).

Resource levels were scored, relative to other organizations in the study, as either high (3), medium (2) or low (1). For example, in human resources, one of the citizen-driven groups, which was coded as “low,” had no paid program or support staff prior to involvement in the state program. They relied on a volunteer board of directors led by one key individual who had taken the lead on initiating a water monitoring program, recruiting interns and applying for grants, including the Watershed Coordinator Grant Program. At the other extreme was one of the hybrid groups, which was coded as “high.” The organization had two full-time program staff—a Watershed Coordinator and an assistant coordinator—funded through other governmental grants, programs, and donations. In addition, two nearby colleges offered a steady stream of volunteers to assist with activities ranging from office work to river clean-ups. Finally, one of the agency-driven groups, which was coded as “medium,” had an education Coordinator who carried out some tasks related to the watershed in the course of his regular job responsibilities,



but had no program or support staff explicitly dedicated to watershed management. The other six resources were similarly scored as high, medium, or low.

By comparing resource levels before and after program involvement, and by examining how these differences varied by organization-type, the study analyzed the impacts of state involvement on different types of community-based, collaborative watershed management efforts, and speaks to implications of investment in such organizations.

Findings

Trend 1: Before involvement in the state program, agency-driven organizations had higher organizational resources than did hybrid or citizen-driven organizations.

Comparisons between organization-types before involvement in the state program revealed that agency-driven organizations had an overall higher level of resources than hybrid and citizen-driven organizations. Tables 2 and Figures 1 through 7 show detailed data across resource types and organization types. In particular, agency-driven organizations exhibited much higher levels of human, technical, financial and network resources than did other organization-types. Although still higher, the differences for experiential and legitimacy resources were less dramatic. Finally, for structural resources, agency-driven organizations actually were lower than hybrid and citizen-driven organizations.

Trend 2: After one year in the state program, agency-driven and hybrid organizations had equally high organizational resources, followed by citizen-driven organizations.

Comparisons across organization-types after one year of involvement in the state program indicated that, averaged across all resource levels, hybrid organizations and agency-driven organizations exhibited similar overall resource levels—although the two differed on some particular resources. For example, agency-driven organizations had slightly higher levels for all resources except experiential, for which the two types were identical, and structural, for which hybrid groups exhibited much higher resources than agency-driven organizations. Citizen-driven organizations, on the other hand, demonstrated lower levels of resources than hybrid and agency-driven groups for all resource levels except experiential and legitimacy.



<i>Resource</i>	<i>Agency-driven (n=9)</i>	<i>Hybrid (n=6)</i>	<i>Citizen-driven (n=3)</i>	<i>All groups (n=18)</i>
<i>Human</i>	2.44 → 3.00 $\Delta = +0.56$	2.00 → 2.83 $\Delta = +0.83$	1.33 → 2.33 $\Delta = +1.00$	2.11 → 2.83 $\Delta = +0.72$
<i>Technical</i>	2.89 → 3.00 $\Delta = +0.11$	2.50 → 2.83 $\Delta = +0.33$	2.00 → 2.67 $\Delta = +0.67$	2.61 → 2.89 $\Delta = +0.28$
<i>Financial</i>	2.33 → 3.00 $\Delta = +0.67$	2.16 → 2.83 $\Delta = +0.67$	1.50 → 2.50 $\Delta = +1.00$	2.14 → 2.86 $\Delta = +0.72$
	2.33 → 2.67 $\Delta = +0.34$	2.00 → 2.67 $\Delta = +0.67$	2.00 → 2.67 $\Delta = +0.67$	2.17 → 2.67 $\Delta = +0.50$
<i>Structural</i>	1.78 → 1.89 $\Delta = +0.11$	2.33 → 2.67 $\Delta = +0.34$	2.33 → 2.33 $\Delta = +0.00$	2.06 → 2.22 $\Delta = +0.18$
<i>Legitimacy</i>	1.89 → 2.22 $\Delta = +0.33$	1.67 → 2.16 $\Delta = +0.50$	1.67 → 2.67 $\Delta = +1.00$	1.78 → 2.28 $\Delta = +0.50$
<i>Network</i>	2.67 → 2.89 $\Delta = +0.22$	2.50 → 2.67 $\Delta = +0.17$	1.67 → 2.33 $\Delta = +0.67$	2.44 → 2.72 $\Delta = +0.28$
<i>Average</i>	2.33 → 2.67 $\Delta = +0.34$	2.17 → 2.67 $\Delta = +0.50$	1.79 → 2.50 $\Delta = +0.71$	2.19 → 2.64 $\Delta = +0.45$

(Mean level Year 0 → Mean level Year 1; Δ = Net change)

Key: 1 = low level of resources; 2 = medium level of resources; 3 = high level of resources

Note: Net changes greater than two thirds of a point noted in bold face. This does not denote a statistically significant change, but is rather a qualitative cut-off point to differentiate between large and small amounts of change.

Table 2: Summary of State Impact on Resources by Organization-type.

Trend 3: Citizen-driven organizations experienced the greatest impact on organizational resources after involvement in the state program, followed by hybrid, and then agency-driven organizations.

Citizen-driven organizations, although lower in overall resource levels, experienced a greater impact by the state program than did the hybrid or agency-driven organizations. Citizen-driven organizations exhibited a notably larger change on all resource levels except structural, for which citizen-driven groups experienced no change. Hybrid groups and agency-driven organizations, on the other hand, experienced a smaller amount of change from the state program.



Trend 4: Across organization-types, human and financial resources were most greatly impacted by involvement in the state program, followed in order by experiential, legitimacy, technical, network and structural resources.

Averaging resource levels across all 18 organizations revealed that program involvement was associated with large impacts on human and financial resources—an unsurprising finding because the primary activity of the program was to provide funding for personnel. However, the program also provided training, technical assistance, and opportunity for collaboration, and therefore had potential to impact more than just human and financial resources. Accordingly, impacts were also measured for the remaining five resources: technical, experiential, structural, legitimacy and network (see Table 2).

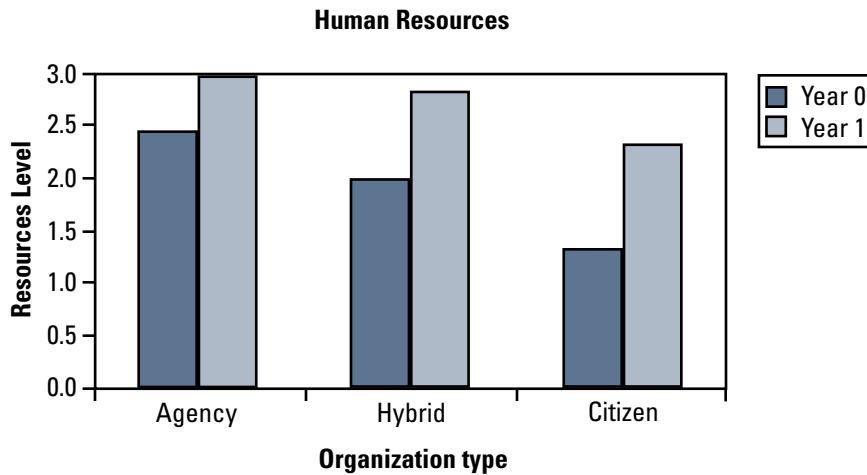


Figure 1: Government Impacts on Human Resources

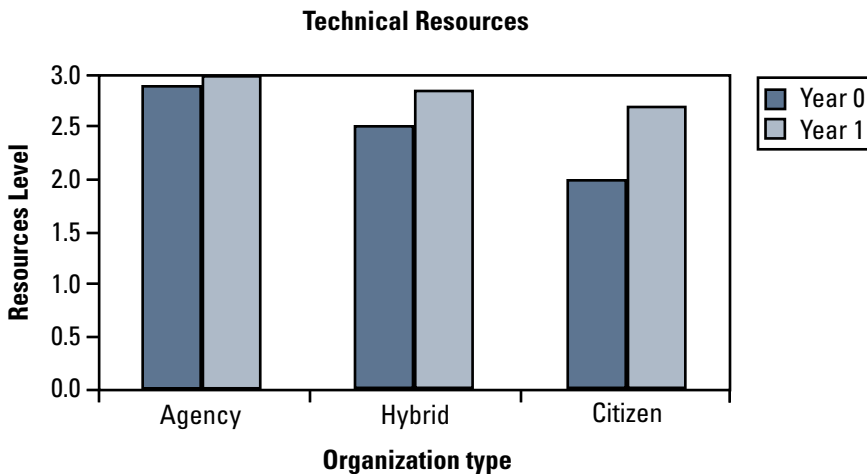


Figure 2: Government Impacts on Technical Resources

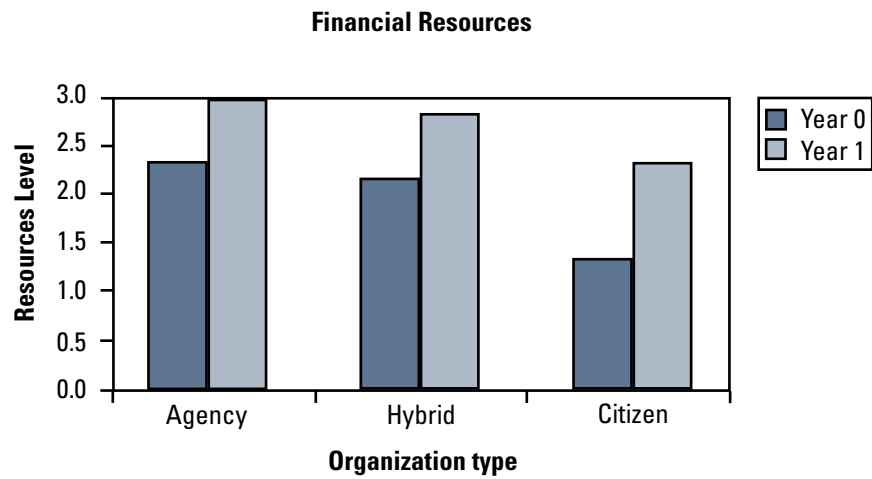


Figure 3: Government Impacts on Financial Resources

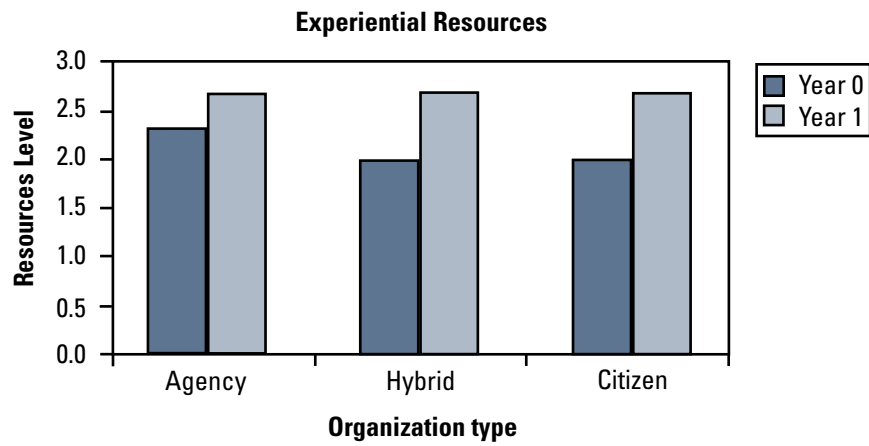


Figure 4: Government Impacts on Experiential Resources

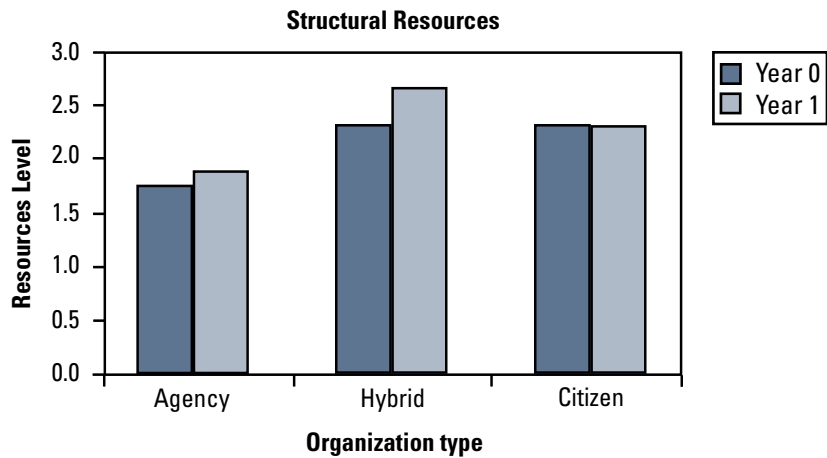


Figure 5: Government Impacts on Structural Resources

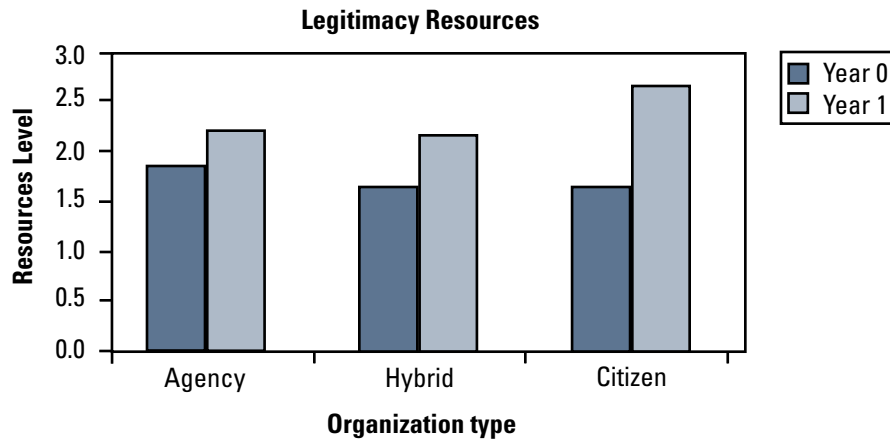


Figure 6: Government Impacts on Legitimacy Resources

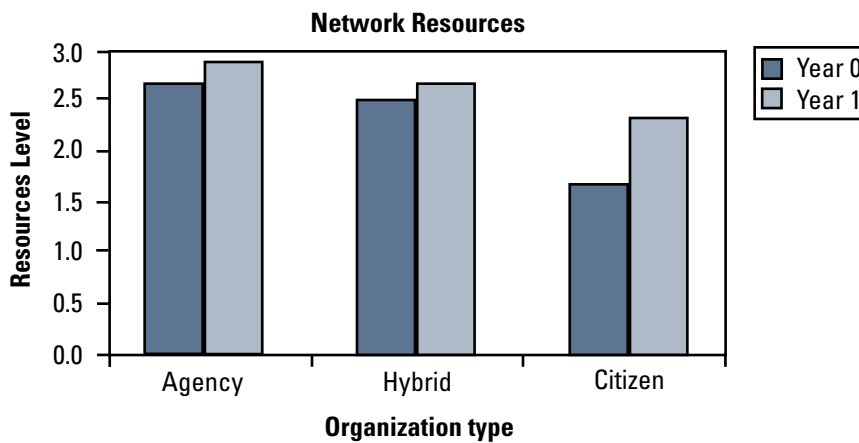


Figure 7: Government Impacts on Network Resources

Discussion

The results suggest that state involvement more greatly impacted citizen-driven groups than agency-driven and hybrid organizations. One explanation for this trend is that citizen-driven organizations had lower resource levels before involvement in the state program, and therefore experienced a greater growth in resources after the financial and technical assistance from the state. As one interviewee from a citizen-driven organization explained, “The [state program] really helped shed light on the issues and situations here. Before the grant I felt I was just running in the dark. [The state] has given me advice and support, and a sense of stability and security.”



Conversely, the state program was unable to impact the resources of agency-driven organizations as greatly as other organization-types. It could be argued that the agency-driven organizations already had such a high level of resources that the state program was not able to have a discernable effect on their overall resources. However, this argument is refuted by the case of hybrid organizations, which had a similarly high level of resources before program involvement, yet demonstrated a greater increase in resources after the program than did the agency-driven organizations.

Another explanation is that the state program was designed in a manner that was consistent with existing resources and activities of agency-driven organizations. Therefore, the state program may have impacted other organization-types to make them function more like agency-driven organizations, without affecting substantial change on the agency-driven organizations themselves. Consistent with this argument, one interviewee from an agency-driven organization said, “The [agency] districts are already in-line with what the state wants. So if something wouldn’t have been allowed under the [state program, then] it wouldn’t have been allowed by our supervisors here anyway.” This explanation is further supported by a state agency employee who stated, “The program was originally planned for [agency] districts. But environmental groups lobbied to get non-profit organizations involved as well.”

If it is the case that the state program changed citizen-driven and hybrid organizations to make them more similar to agency-driven organizations, this has important implications for government involvement in community-based collaborative efforts. Thomas (1999) points out differences between the way in which agency and community-based organizations operate. Community-based (citizen-driven) organizations are viewed as representative and responsive to the communities from which they are created. These are the very qualities that have made community-based organizations an appealing venue for environmental management: that they will succeed where federal and state agencies have not, because they are created and driven by the community and are therefore more likely to influence behavior change at the community level. By shaping citizen-driven and hybrid organizations to mirror agency-driven organizations, the state program may be changing the very aspects of community-based management that it sought to promote.

Recommendations

This study demonstrates that different types of organizations vary in how they are impacted by state involvement. If states seek to have the greatest impact on organizations, they may want to direct funding toward citizen-driven organizations. However if they are interested in helping organizations that are already functioning at a higher capacity, they may want to aim future funding at existing agency-driven and hybrid organizations. In fact, the program’s selection committee sought to target different types of organizations in order to learn the efficacy of



those organization types at achieving the program goals of watershed plan development and implementation, which would subsequently set precedents for future funding decisions. This study supports that process by indicating that resource levels (as a presumed proxy for eventual outputs, such as plan development) do indeed vary by organization-type.

Furthermore, states may want to direct different services to organizations based on their resource needs. For example, the six-month state training program was uniformly heralded by organizations with low experiential resources. However several older organizations with high levels of experiential resources saw less value in the requirement to undergo the same time-intensive training program. Some interviewees perceived that their time and energy could have been better spent on management activities other than training. Modifying the state program to better meet the resources and needs of the individual organizations may yield greater outputs.

Interviews with some organizations also indicated that the goals of the state program might not always be in agreement with the specific mission of the organizations. While the state program's primary goal was to address water quality impairments through creating and implementing a watershed action plan, some organizations have different, although not altogether inconsistent, missions such as issue advocacy or public education. Some organizations expressed conflict with the state over goals and strategies. To avoid these potential conflicts, careful consideration of these potential conflicts should be given before governmental agencies fund local environmental efforts and before such organizations become involved in governmental programs. In addition, any goals and strategies that the state program expects organizations to adopt should be made clear at the onset of the program in order to prevent conflict later.

Conclusion

It is clear that state programs can have tremendous impacts on community-based, collaborative watershed organizations, primarily by augmenting the resources available to organizations to engage in watershed management. Although this study highlights predominantly positive impacts, it is important to note that impacts vary according to the characteristics of the organizations—such as organization-type—and accordingly organizations will respond differentially to state programs. This is consistent with previous research on Ohio watersheds, notably by Moore and Koontz (2003), who found that various types of watershed organizations differed on their composition, strategies and accomplishments. Such organizational characteristics lead to eventual social and environmental outcomes, thus making the comparison of organizations vital to an understanding of how to realize watershed management goals.

Finally, the framework for organizational capacity utilized in this study presumes that higher levels of resources will lead to greater social and environmental outcomes. However, time constraints of the present study precluded a direct measure of these outcomes. It is therefore



critical for future research to evaluate the social and environmental outcomes of these community-based, collaborative efforts, and how organizational characteristics and resources influence such outcomes. Research along these lines could provide a holistic assessment of the success of federal and state trends that favor community-based, collaborative approaches to watershed management, and speak to policy implications that may exist for future governmental funding programs.

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1. To apply technical knowledge and analytical methods to key environmental and natural resource questions identified by clients such as Federal, State, and local management agencies and private entities.
2. To advance the state of knowledge and disseminate findings for concepts and methods concerned with environmental and natural resource issues.
3. To conduct innovative and valuable research that helps frame thinking and debate about environmental and natural resource issues.
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