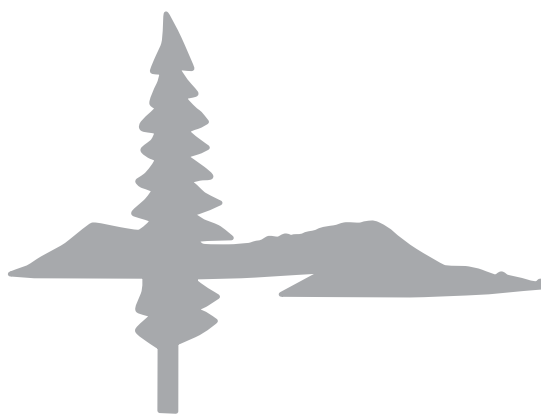# Ecosystem Workforce Program

WORKING PAPERS

Keys to Success for Watershed Management Organizations

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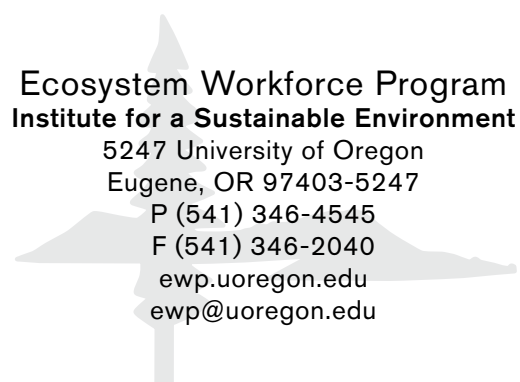
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Keys to Success for Watershed Management Organizations

A paradigm shift in natural resource management has occurred over the past twenty years in the United States. Resource managers and federal agencies are embracing a new approach focused on collaborative or community-based resource management. Increasingly, this new management approach is being adopted in watershed restoration and management. Several states have adopted legislation to support collaborative and community-based management strategies, and various state and federal agencies also are supportive and actively implementing this approach (Bonnell & Koontz, 2007; Hibbard & Lurie, 2006; Leach, Pelky, Sabatier, 2002; Lurie & Hibbard, 2008). The appeals of collaborative and community-based watershed management are multiple. By uniting diverse stakeholder groups in the decision-making process, collaborative watershed management has the potential to reduce litigation and confrontation, which draws resources and time from implementing restoration activities, while making resource management more democratic and responsive to the unique physical, social, and economic characteristics of individual watersheds (Lurie & Hibbard, 2008; Moore & Koontz, 2003). Finally, community-based watershed management offers the opportunity to more effectively manage streams and rivers at the basin-wide scale, creating more holistic management and restoration plans (Bonnell & Koontz, 2007).

The collaborative and community-based approach to resource management, however, remains relatively new, and it is unclear to what degree collaborative watershed groups can meet these expectations. Nonetheless, this new approach to resource management has drawn the interest, support, and criticism of researchers who have begun to examine the multiple facets and implications of collaborative partnerships. Many of these investigations explore the factors that contribute to successful partnerships and successful management. Why have some of these collaborative partnerships or watershed groups done so much while others failed or stagnated?

Physical, social, economic, and political circumstances all contribute to the success or failure of watershed groups, making it difficult to isolate the factors that lead to success. Yet, existing studies have begun to address this question by focusing on a limited set of contributing factors. This literature review explores a variety of work that investigates why some collaborative and community-based groups succeed in the their goals while others idle. The articles included in this review meet two basic selection criteria: they were written within the last ten years, and they address some aspect of the question, "what makes a watershed partnership work?" The support for, and quantity of, watershed partnerships has increased greatly in a short amount of time, so newer studies were selected to give a more accurate picture of the current status of these partnerships. Some articles were selected from the reading list for the University of Oregon's Managing Oregon's Watersheds class. Others were found through online database searches or were identified from the bibliographies of other works. While the selection process was not systematic and the number of works selected arbitrary, the works selected appear representative of the main body of research on the topic. As a group, they often share citations and are based on similar theoretical frameworks, but are divergent in their approach to the question. Some of the works study one particular case; some try to find similarities between multiple watershed partnerships; and others simply synthesize existing research. Some works focus on the successes of watershed partnerships, while others analyze their failures. The works included also represent a mix of qualitative and quantitative research. Although the approach and methodology may vary, all of the research draws conclusions as to what makes watershed partnerships successful. Several general areas for discussion emerge: the membership composition of the group, the operation of the group, and the political framework or climate in which these groups operate.

Group Composition

"Watershed group", "watershed council", "watershed partnership", "watershed management organization", "community-based resource management group", "collaborative management group" are used interchangeably to describe groups formed by a collection of stakeholders to address natural resource or watershed management issues. Such groups include private citizens, landowners, environmentalists, public agencies, and private non-profit organizations. Their collaborative and cooperative focus is viewed by many in resource management as a welcome alternative to management decisions forced or delayed by the threat or pursuit of litigation (Moore & Koontz, 2003). Because multiple and diverse stakeholders are involved, the literature suggests that collaborative management creates management solutions that are more carefully tailored to the complex issues of a particular watershed or site. Stakeholders participating in these collaborations help provide diverse perspectives and knowledge of a watershed and its problems, in an effort to create solutions

that are acceptable to a wider range of stakeholders (Hibbard & Lurie, 2006). Many also consider collaborative management a more democratic and inclusive approach to resource management because a diverse collection of stakeholders has the opportunity to participate in decision-making and management actions (Clark, 2001; Hibbard & Lurie, 2006).

Because stakeholder participation is a central tenet of the collaborative management approach, it not surprising that the majority of the literature reviewed asserts that a diverse, participating membership contributes to the success of a watershed group. Leach and Pelkey (2001) reviewed 34 studies from the U.S., Canada, and Australia, and find that the third most commonly listed key to group success is to "establish inclusive membership rules or to encourage diverse participation" (p. 381). Curtis, Shindler and Wright (2002) similarly note that one of the strengths of the Landcare program in Southeastern Australia is its inclusive local stakeholder participation. Their study emphasizes that broad stakeholder participation at the local level, when combined with a strong regional management network, is critical to that program's success. For watershed groups that are agency-initiated or have parent organizations, broad stakeholder participation often is essential to forge a shared group vision that is independent from that of the sponsoring agency or organization (Bidwell & Ryan, 2009; Genskow, 2009). A study by Bonnell and Koontz (2007) notes that the Little Miami River Partnership achieved little in its first four years due, in part, to its failure to maintain the participation of a diverse membership. Similarly, Smith and Gilden (2002) find that groups with strong social networks are more likely to successfully convert plans and assessments into actions.

Another set of research suggests that group composition bears on the activities and project outcomes of watershed organizations. These studies propose group typologies and indicate that membership composition directs the focus or the activities in which a group is involved. From their study of 64 watershed groups in Ohio, Moore and Koontz (2003) create a typology of watershed groups, classifying groups as "agency-based", "citizen-based", and "mixed". Each group type has a distinct member composition and tends to achieve a distinct set of accomplishments. Agency-based groups are predominantly made up of pubic representatives and are more likely to work behind the scenes to inform and educate policy-makers and implement technology. Citizen-based groups are predominantly composed of private citizens and are more likely to cite increased public-awareness and policy changes as accomplishments. Moore and Koontz (2003) contribute this to the more direct, confrontational activities of direct petitioning and public activism that are common strategies of citizen-based groups. Mixed groups are composed of a roughly even mix of private citizens and public agents,

are more likely to be collaborative in nature, and are more likely to complete a management plan than either agency or citizen-based groups. Additionally, mixed groups list increased public awareness and group development as significant group achievements (Moore & Koontz, 2003).

Research by Bidwell and Ryan (2006) on the relationship between groups' "organizational affiliation" and their group structure, supports the work of Moore and Koontz (2003). Their study, based on interviews with 29 Oregon watershed councils, confirms that group composition frequently directs a group's activities as well as its results and strategies. Watershed groups that were connected to an agency had less stakeholder diversity, were less likely to create an action plan, and were more likely to allow the associated agency's priorities to guide project selection and implementation. Additionally, groups with agency affiliations were more likely to implement projects based on member interests rather than selecting projects from an action plan informed by a scientific assessment. According to these findings, Bidwell and Ryan (2006) assert that diverse stakeholder participation is the best way to ensure that management and restoration decisions address high priority concerns identified by scientific assessment.

Margerum (2008) also proposes a typology of watershed groups, similar to the typology of Moore and Koontz (2003), but Margerum's typology focuses on the "institutional level" at which groups are actively implementing projects (p.488). A group's institutional level, in turn, may influence group membership and stakeholder participation. Groups may be active primarily at the "operational or action level", in which they focus on implementing on-the-ground projects; at the "organizational level", in which they concentrate on influencing the administrative policies and programs of other organizations and agencies; or at the "policy level", in which the emphasis is on influencing policy and legislation. All of the group types use collaboration, but they may employ it during different phases of project implementation. Each group type also may involve a slightly different set of stakeholders and may implement change in varying ways. Action/operational level groups typically are composed of stakeholders representing themselves, tend to use collaboration throughout all portions of project implementation, achieving change through stakeholder influence, education, and networks. Policy level groups often are composed of representatives of agencies, organizations, and interest groups or elected officials. Policy level groups may have high stakeholder involvement during the policy formation stage, but a separate management group is often formed to implement and monitor the policy. Change is implemented through broad consensus in the policy creation phase to ensure support and efficient implementation of the policy. Organizational level

groups are primarily composed of representatives from governmental and nongovernmental organizations, who, through collaboration, work to change the priorities and programs of organizations, seeking greater coordination in the implementation of programs. Stakeholders in organizational level groups may stay involved throughout the process, but if the problem evolves to become more policy oriented, stakeholders involved in the initial policy changes may defer to a management group to implement the changes (Margerum, 2008). Margerum's work differs from that of Moore and Koontz (2003) and Bidwell and Ryan (2006) in that he sees group activities and operational levels as dictating group membership rather than group membership driving group activities, but all three works show a relationship between group composition and the activities in which they engage themselves.

Although the majority of research indicates diverse stakeholder participation is an important factor for the success of watershed groups, not all agree. Eight of the 34 studies reviewed by Leach and Pelkey (2001) cite large and diverse stakeholder groups as an impediment that can slow down or block decision-making. Clark, Burkardt & King's (2005) national survey of watershed management organizations finds that many groups did not make decisions based on consensus or with the involvement of all group members even though 73% of the groups indicated stakeholder participation and collaboration were "fundamental to their organization and decision-making structure" (p. 304). The authors attribute this inconsistency and its greater prevalence among watershed groups in the eastern US to the larger size of these groups, which makes inclusive decision-making difficult.

While the majority of research reviewed indicates that diverse group membership and stakeholder participation are essential to the success and effectiveness of watershed groups, it may not be as simple as "more is better." A more nuanced picture of the relationship between group membership and group activity, process, and accomplishment emerges when one considers the work of Moore and Koontz (2003), Bidwell and Ryan (2006), Margerum (2008), Leach and Pelkey (2001), and Clark, Burkardt & King (2005). In general, active recruitment of a diverse membership is important to maintaining community-based collaboration, but the problem the group wishes to address, the operational level at which that problem is best addressed, and the operational implications of a larger membership also are important considerations. Does group composition limit the ability to address particular problems? Is there a broad spectrum of members who are active at the same operational level as the problem? How might group composition and size influence operations? Watershed groups need to ask themselves these questions in an effort to be more self-aware, recognizing that group composition has

implications for their success.

Group Operation

While the composition of group membership may contribute to success, the majority of the literature reviewed explores the relationship between group operations and group success. What actions or decisions led watershed groups to success or failure? The reviewed works emphasize the importance of several factors: membership recruitment and retention, action planning, leadership, technical knowledge, funding, social capital, and scale.

Membership Recruitment and Retention

As discussed in the previous section, the majority of works reviewed emphasize the importance of diverse membership and broad stakeholder participation. Thus, most stressed the need for group operations and procedures that would attract, retain, and engage diverse members (Bidwell & Ryan, 2009; Bonnell & Koontz, 2007; Clark, Burkard & King, 2005; Curtis, Shindler & Wright, 2002; Genskow, 2009; Margerum &Whitall, 2004). Only a few of the reviewed works, however, discuss how this can be accomplished. Curtis, Shindler & Wright (2002) note that watershed groups both in Oregon, and in Australia's Landcare program, successfully attract and maintain broad stakeholder participation by facilitating activities that are responsive to a variety of volunteer interests and motivations. Other operational procedures of these groups also reinforce diverse participation: members alternate group leadership positions; potential members are recruited personally, and groups check-in with members after absences. On-the-ground work is used both to keep members interested and to help members feel they perform a valuable role (Curtis, Schindler & Wright, 2002). In Ohio, the Little Miami River Partnership failed to attract many stakeholders, in part, because it had little on-the-ground progress to show for its efforts (Bonnell & Koontz, 2007). Other group characteristics may affect member participation as well. For example, groups perceived to have sufficient technical capabilities, candid communication between members and leaders, and member agreement reported greater member participation (Koehler & Koontz, 2007). Bidwell and Ryan (2006) urge that groups should not rely solely on "open door" policies to attract diverse participants but also should actively recruit members. The collaborative management process benefits from the contributions, ideas, and perspectives contributed by a diverse stakeholder group, and the ability of a group to recruit and maintain a diverse membership is often an important element of success.

Action Planning

The creation of an action plan is another operational

concern frequently mentioned in the literature as contributing to group success. An action plan is important because it clearly outlines a group's vision and goals (Genskow, 2009). Genskow's (2009) study of agency-initiated watershed partnerships in Wisconsin reveals that many watershed groups struggled or failed because they found their mission too broad and ill defined; groups that were able to narrow their focus survived. Bonnell and Koontz's (2007) study of the Little Miami River Partnership (LMRP) finds that "the most critical organizational development challenge [for LMRP] was defining the purpose and role of the partnership" (p.156). The LMRP had a broadly defined mission and no action plan, which caused confusion and frustration when the group attempted to design and select activities in fulfillment of their mission. Due to their lack of a clear group action plan, grant-funding opportunities became the de facto driver of project selection (Bonnell & Koontz, 2007). Leach and Pelkey (2001) also note that a limited scope of operation, matched to a group's available resources, helps create success. Yet, Genskow (2009) suggests that group goals and plan of action should strike a balance between being narrow enough to implement effectively and broad enough to maintain and attract a broad stakeholder group. Additionally, Leach, Pelkey, and Sabatier (2002) argue that monitoring should be part of a group's action plan. They propose evaluative criteria containing multiple measures of success, which can be used to evaluate and encourage group performance on a range of short-term, medium-term, and long-term goals (Leach, Pelkey & Sabatier, 2002). These works indicate that an action plan is important not just to guide group actions, but also to evaluate the group's implementation of those actions, measure its successes, and highlight its accomplishments.

Leadership

In addition to maintaining a diverse membership and creating a clearly defined plan of action, the literature indicates that fostering effective leadership also is essential to successful group operation (Bonnell & Koontz, 2007; Clark, Burkardt & King, 2005; Curtis, Shindler & Wright 2002; Genskow, 2009; Koehler & Koontz, 2007; Leach & Pelkey, 2001). The most commonly mentioned key to success from the literature reviewed by Leach and Pelkey (2001) is maintaining an effective group coordinator or leader. Since effective leadership factors heavily in a group's ability to achieve success, it potentially affects other important group components. Koehler and Koontz (2007) note greater stakeholder participation in groups that are perceived to have adequate technical support and are able to show achieved goals. Many watershed groups, however, have found that volunteer coordinators, or part-time coordinators loaned from partner agencies, are inadequate to maintain effective group leadership (Leach & Pelkey,

2001). Clark, Burkardt and King's (2005) national survey of watershed groups notes that 69% of the watershed groups surveyed had paid staff members. While a paid coordinator appears to be an important leadership component of most groups, some research emphasizes the importance of also building additional leadership capacity within a watershed group's membership (Curtis, Shindler & Wright, 2002; Genskow, 2009). Genskow (2009) notes that among agency-initiated partnerships in Wisconsin, many were unable to sustain themselves once the sponsoring agency withdrew its provisional leadership. While Genskow (2009) warns of the potential for groups to become dependent on agency leadership, he also asserts that agencies should increase activities aimed at building group leadership capacity and maintain support for these endeavors for a sustained period of time as watershed groups cycle through several of the inevitable transformations associated with new organizations. In their assessment of Australia's Landcare program, Curtis, Shindler, and Wright (2002) also highlight the importance of agency support to cultivate, but not supplant, leadership capacity within groups. Another benefit of cultivating group leadership skills is that group members, who expand their leadership skills by participating in the operations and activities of a watershed group, often draw on their new skills in other areas of civic life, creating new connections between the watershed group and other community organizations. Additionally, the leadership capacity that communities gain through involvement with watershed groups can be one of the socio-economic benefits watershed groups contribute to their communities (Hibbard &Lurie, 2006). Effective leadership contributes significantly to a group's ability to maintain itself, successfully achieve its goals, and contribute to its community.

Technical Knowledge

While successful watershed groups need effective leadership, they also need access to adequate technical knowledge and support. Smith and Gilden (2002) cite technical knowledge as an important asset that helps watershed groups implement their assessment plans. Lurie and Hibbard (2008) surveyed 58 watershed councils in Oregon and find that many councils felt they had inadequate technical assistance to implement their action plans. Volunteers rarely had the technical skills required, so watershed councils were forced to use limited funding to hire technically skilled staff or rely on inconsistent or part-time assistance from partner organizations (Lurie & Hibbard, 2008). Eleven of the 37 works reviewed by Leach and Pelkey (2001) also indicate that adequate technical knowledge is highly important to the success of watershed groups.

Technical support is important for more than the design and implementation of projects; it also is central to effective member participation. Adequate technical

support can draw increased stakeholder participation (Koehler & Koontz, 2007). Technical support also helps stakeholders better understand particular watershed issues and the implications of group actions (Lane & Mc Donald, 2005; Margerum & Whitall, 2004). Several studies emphasize the importance of strengthening group members' technical knowledge and capacity (Bidwell & Ryan, 2006; Lane & Mc Donald, 2005; Margerum & Whitall, 2004). Lane and McDonald (2005) assert that adequate technical knowledge improves stakeholders' understanding of the biophysical processes at work in a watershed, increasing their ability to see the regional nature of problems and avoid parochialism. In the Rogue River basin, Margerum and Whitall (2004) describe a collaborative effort to create a coordinated management plan for the entire basin, which involved the creation of a highly technical basin-wide model by a specialized technical team. The final model, however, was not overwhelmingly embraced by other members of the collaboration, or the local watershed councils, because the technical team ineffectively communicated the technical aspects of their process to stakeholders outside of the Technical Team (Margerum & Whitall, 2004). Groups whose members have developed technical knowledge or have access to it are more likely to employ and embrace technically informed strategies to solve watershed problems.

Funding

Watershed groups often struggle to incorporate strong leadership and technical support in their operations due to lack of funding. Without adequate funding, watershed groups are frequently unable to hire qualified coordinators or technical staff, and group success may suffer as a result. Funding, in fact, is the most frequently mentioned key to group success listed in the 37 studies analyzed by Leach and Pelkey (2001). It is also one of the seven group assets identified by Smith and Gilden (2002) that aid a watershed group's ability to effectively put plans into action. Curtis, Shindler, and Wright (2002) note that within Australia's Landcare system there is a correlation between increased group productivity and the availability of adequate funding and agency support. The authors also assert that some of the operational problems encountered in the Landcare system can be attributed to the lack of funding for paid staff, group coordinators, training for group leaders, administrative costs, and implementation of on-ground work (Curtis, Shindler &Wright, 2002). Bonnell and Koontz's (2007) study of the Little Miami River Partnership in Ohio illustrates how limited funding can hinder group action. The LMRP relied entirely on grant funding to implement projects and pay staff, and even with only one paid staff member, most of the group's time and energy was spent pursuing grant funding. In this case, grant availability, not strategic planning, directed

project selection (Bonnell & Koontz, 2007). There also is evidence that the reliability and stability of funding are persistent issues especially for long-term planning, larger-scale projects, and projects involving long-term monitoring (Lurie & Hibbard, 2008). Clark, Burkardt and King's (2005) national survey of 211 watershed groups indicates that only 34% of watershed groups believed their funding to be stable. Some states, like Oregon, have state funding available to watershed groups, but as the number of watershed groups increases, the competition for that limited grant funding also increases (Lurie & Hibbard, 2008). Sufficient funding allows watershed groups to provide for critical leadership and administrative needs, to implement projects, and to select projects based on strategic management concerns rather than funding availability.

Social Capital

The success of watershed groups also depends on their ability to generate social capital as well as financial capital. Social networks and broad citizen support are very important to the work of watershed groups, since these groups typically do not have regulatory powers, membership is voluntary, and they often rely on volunteer labor (Lurie & Hibbard, 2008). Instead, watershed groups rely primarily on their power to convene diverse interests. Additionally, grants, if available, often require a local match in funding, so an extensive network of stakeholders and partner organizations is essential to develop a direct source of financial and in-kind contributions. Establishing trust with stakeholders and partner organizations is the basis of strong social networks. Sixteen of the 37 different studies evaluated by Leach and Pelkey (2001) assert that trust and interpersonal relationships are important to group success. Smith and Gilden (2002) list trust and social networks as two of the seven assets that contribute to a watershed group's ability to move from planning to implementing activities. Hibbard and Lurie (2006) also indicate that trust and relationship building is often a key component of a watershed council's outreach strategy. Some watershed groups noted that once trust was established with one landowner, it had a "snowball effect", bringing other landowners into a project (Hibbard & Lurie, 2006, p. 900). Group members who perceive that open and frank communication is welcomed and practiced within a watershed group are more likely to participate, and participation also is greater among members who perceive general agreement within a group (Koehler & Koontz, 2007). There also is evidence that the collaborative planning and decision-making process itself establishes trust. For example, in Northeastern Oregon, Wallowa County residents and Nez Perce tribal members, groups who had formerly been at odds over land and natural resource issues, came together through the collaborative process to create a salmon recovery plan (Waage, 2003). Watershed groups

that successfully build trust within the organization and between group members create forums for open member communication, facilitate activities that foster common group values and understanding, and are more likely to have the social capital they need to successfully plan and implement projects.

Scale

Watershed groups also must consider the appropriate scale at which to focus activities. Watershed groups have been informed by some of the same theory as community-based natural resource management, which calls for a decentralized approach to environmental management. Collaboration among local stakeholders is said to create solutions that better address the nuances of a particular social and physical environment and are, therefore, potentially more robust and democratic. At the same time, watershed groups are seen as a vehicle for making coordinated management actions at the larger, more inclusive scale of the watershed (Barham, 2001; Lane & McDonald, 2005). There is thus a potential mismatch between the scale and boundaries of human systems and the scale and boundaries of the biophysical world, which watershed groups must span. Striking a balance is critical – the challenge is often between scales too small to address biophysical systems and too large to be responsive to local social and economic systems (Barham, 2001; Curtis, Shindler & Wright, 2002).

Some watershed groups have addressed the challenge of scale better than others. The Little Miami River Partnership, for example, was overwhelmed by the task of implementing management and restoration activities at the large scale of the Little Miami Watershed, especially during its first years of formation (Bonnell & Koontz, 2007). LMRP attempted to address the management challenges created by the very large scale of the watershed by dividing it into management units at the subwatershed level. This approach has been a successful strategy for managing large watersheds in other locations, but for the LMRP, it was problematic and garnered limited local participation for several reasons. The LMRP attempted to actuate subwatershed groups across the entire watershed simultaneously, but encountered difficulties due to the new organization's limited financial, social, and staff resources and the large physical area covered by the Little Miami watershed. A critical mass or a concentrated cluster of subwatershed groups was needed to avoid the "shotgun" approach to resource management, but LMRP was unable to attract that level of participation (Bonnell & Koontz, 2007). Bonnell and Koontz (2007) suggest that the LMRP might have had better success if they had initiated a limited number of smaller projects first, showing quick success and attracting interest and momentum for the program. Australia's Landcare program more successfully addressed the problem of scale due to its ability to attract a critical mass of locally organized groups. Individually, these groups operate at a smaller scale, but they also operate under the umbrella of the Catchment Management Committee, a regional organization that sets regional goals (Curtis, Shindler & Wright, 2002). This combination of small-scale local groups that coordinate with a larger-scale regional organization appears to be a potential solution to the mismatch of scale.

In addition to presenting significant operational challenges, scale also affects how people understand and connect to a given place (Cheng & Daniels, 2003). At smaller scales, a person's comprehension of a particular place is detailed, more often based on personal experiences, and more likely to involve social connections to that place. At larger scales, people are more likely to construct an abstract appreciation for a watershed and to embrace scientific knowledge and technical information as a means to better understand it (Cheng & Daniels, 2002). The success of collaborative management depends on the ability of stakeholders to forge a common understanding of a watershed, allowing them to effectively collaborate on solutions to resource management issues. Watershed groups that utilize available resources at the appropriate scale and understand the significance of scale are more likely to be successful in implementing their missions, and may better cultivate within their membership a shared understanding of a watershed and its pertinent management issues.

Political & Institutional Framework

Not only does a watershed group's composition and operations affect its success, but so does the political framework and political climate in which the group functions. Certainly, to some degree, watershed groups inherit the political climate in which they operate and must learn how to operate effectively within it. For example, as mentioned previously, historic conflicts over resource management between the Nez Perce tribe and Wallowa County residents in Northeastern Oregon created a difficult political environment that the salmon planning group had to overcome (Waage, 2001; Waage, 2003). Other elements of the institutional landscape, however, can be influenced. Federal and state legislation can provide financial support and regulatory oversight that can aid watershed groups. Additionally, the policies and budgets of state and federal agencies also influence the type and degree of assistance or collaboration agencies can provide to watershed groups. Some of the reviewed works discuss the influence of the political and institutional landscape and the elements beneficial to successful watershed groups.

Agency support and assistance were frequently cited in the literature as factors that contribute to the success of watershed groups (Bonnell & Koontz, 2007; Clark, Burkardt & King, 2005; Genskow, 2009; Hibbard & Lurie,

2006; Koehler & Koontz, 2008; Lane & McDonald, 2005; Leach & Pelkey, 2001). Agency provision of technical assistance is one of the most frequently needed forms of aid. Of the 37 studies reviewed by Leach and Pelkey (2001), thirteen stressed the importance of technical assistance from agency staff. Partner agencies also assist watershed groups with group organization, administration, and development. Genskow's (2009) examination of Wisconsin's agency-initiated partnerships indicates that agency staff also may have a role in building organizational capacity within watershed groups. Agency policies and programs also can affect their working relationships with watershed groups. For example, the soil and water conservation districts, supported by the Natural Resources Conservation Service, have been the seeds for the formation of many watershed groups (Clark, Burkardt & King, 2005). The ability of an agency to participate as a partner on a consistent and continuing basis, however, is often limited by its own operating budget. Nine of the studies reviewed by Leach and Pelkey (2001) highlighted this problem. Lurie and Hibbard's (2008) study of Oregon watershed councils reiterated this problem, noting that sporadic technical assistance from agencies was problematic. Additionally, agencies must be aware of the potential to create financial and technical dependency instead of capacity in the watershed groups they assist (Genskow, 2009). While the consistency and effectiveness of agency assistance could be improved, it is clear that an important factor in the establishment and success of watershed groups is agency support in the form of technical assistance, organizational capacity building, and internal policies that support and encourage the work of watershed groups.

Enabling and appropriating legislation also creates a framework that can support the formation and operation of watershed groups. Oregon is a well-known example of a state that has legislated support specifically for watershed councils. In 1995, the state of Oregon created a program for a system of state-sponsored, locally organized, volunteer watershed councils, and the Oregon Watershed Enhancement Board was created in 1999 to oversee and award state grant funding to those councils (Hibbard & Lurie, 2006; Lurie & Hibbard, 2008). State and federally sponsored programs also operate in Ohio, Washington, California, Colorado, Massachusetts, Wisconsin, Pennsylvania, and West Virginia (Bonnell & Koontz, 2007). The Landcare program in Australia is an international example of a successful program to create and enable state-sponsored watershed groups (Curtis, Shindler &Wright, 2002). Such legislation and programs provide essential assistance to watershed councils.

Regulatory legislation also has contributed to the success of some watershed groups. Threat of regulation from legislation like the Endangered Species Act (ESA) and the Clean Water Act has motivated a wide variety of stakeholders and partners to participate in collaborative management efforts. For example, in Wallowa County, Oregon, the listing of Chinook salmon under the ESA motivated two historically antagonistic groups, the Nez Perce tribe and Wallowa County residents, to form a collaborative partnership (Waage, 2001). In other cases, legislation has formed a management framework. In the Rogue River Basin, the Northwest Forest Plan (1993) created a mandate and a framework for organizing basin-wide management activities (Margerum & Whitall, 2004). State and federal legislation also frequently helps avert potential abuses of decentralized resource management, preventing local groups from acting entirely out of self-interest at the expense of broader public or national interests (Lane & McDonald, 2009).

The institutional framework in which watershed groups operate ideally offers both incentives and regulation. Adequate regulatory threat may often be the catalyst needed to bring individual and agency stakeholders to the table, but the political framework must also include voluntary incentives and alternatives that watershed groups are in a position to promote or embrace. To do so, watershed groups and their supporting agencies must have sufficient funding to coordinate their efforts, adequate staff to support their organizations, and resources to develop internal organizational capacity. Legislation can provide financial and organizational support, as well as the policy mechanisms for those efforts to attain success.

Discussion and Conclusions

Watershed groups are diverse entities organized in different ways to address different problems with a variety of stakeholders involved in work at a variety of scales (Moore & Koontz, 2003). Their success is dependent on a host of factors, some of which they control and some of which form the institutional landscape around them. Despite the diversity of these groups and the political and physical environment in which they operate, the reviewed literature indicates that there are several common key issues related to the composition and operation of watershed groups and the institutional framework in which they operate that contribute to their success.

First, to be successful watershed groups need to be thoughtful in how they structure themselves. Groups should consider the scale of the issue they wish to address and the institutional level at which it can be best addressed. Research indicates that watershed groups may find greater success if their available resources and member composition match the scale and nature of the issue they wish to address (Margerum, 2008). The scale at which groups anticipate operating can and should guide how they recruit and maintain members and partners (Bidwell & Ryan, 2006; Margerum, 2008; Moore & Koontz, 2003). Watershed groups should be thoughtful

about the appropriate complexity of the issue or issues the group chooses to tackle.

Additionally, watershed groups should strive to attract and maintain a diverse membership, representative of the diverse interests operating within a watershed. Typically, greater member numbers help ensure a diversity of opinion and allow watershed groups to cultivate a more extensive social network, but member numbers may vary depending upon the scale at which the group chooses to operate (Bidwell & Ryan, 2009; Hibbard & Lurie, 2006; Margerum, 2008). Large groups also may suffer from challenges in agreeing upon fundamental goals and making operational decisions due to the increased coordination required to manage a large number of group members. Achieving a balance between diversity and group size is important to effective and efficient decision-making.

Thoughtful consideration also should be given to the operational framework of a watershed group. Operational goals can impact the membership of a watershed group, its actions, and the potential success of those actions. New members are drawn to organizations that they perceive to have a clear set of goals, a plan of action, effective leadership, open communication, and the technical assistance necessary to put plans into action (Bonnell & Koontz, 2007; Genskow, 2009; Koehler & Koontz, 2008; Leach & Pelkey, 2001). Once new members are recruited, watershed groups should maintain their participation by actively involving members in group activities, helping them feel they serve an important role, and giving them access to the technical skills and knowledge they need to make decisions and take action (Curtis, Schindler & Wright, 2002; Lane & McDonald, 2005). Watershed groups can provide for a variety of member interest and commitment levels by creating a range of short-term, mid-term, and long-term goals. Monitoring mechanisms also can help groups illustrate to their members their progress and accomplishments (Lane & McDonald, 2005; Leach, Pelkey, & Sabatier, 2002). The Landcare program in Australia is one model that has been successful at recruiting and maintaining members by engaging them in a variety of activities pertinent to the goals and maintenance of the group, including leadership roles, member recruitment, and a variety of other activities (Curtis, Schindler & Wright, 2002).

Watershed groups should engage in activities that foster open and candid communication between group members and increase the leadership and technical capacity of its members (Hibbard & Lurie, 2006; Koehler & Koontz, 2007; Leach & Pelkey, 2001; Smith & Gilden, 2002). Yet, they also must recognize when the group's staffing needs cannot be met from within the membership and seek out leadership and technical assistance externally. Much of the literature agrees that, typically, watershed groups need a minimum of one paid staff member in a leadership role and reliable access to technical staff and resources. (Bonnell & Koontz, 2007; Clark, Burkard & King, 2005; Leach & Pelkey, 2001; Lurie & Hibbard, 2008; Smith & Gilden, 2002).

Agencies can play an important role in the success of watershed groups. Much of the literature agreed that technical assistance from agency staff helped watershed groups find success. Partner agencies also can be a valuable source of leadership, leadership training, and technical training for group members, especially in new organizations. Agencies also have the potential to help watershed organizations connect their goals and projects to greater regional planning and management goals (Genskow, 2009; Lane & McDonald, 2005; Leach & Pelky, 2001; Leach, Pelkey, & Sabatier, 2002). Watershed groups, however, were significantly hindered when the availability of agency staff and resources was inconsistent or unreliable (Lurie & Hibbard, 2008). To successfully aid watershed groups in their endeavors, agencies need to provide consistent yet flexible assistance. Agency policies and resources that allow agency staff the flexibility to assist watershed groups only when and where it is needed may help watershed groups become strong organizations in their own right without creating dependency (Genskow, 2009; Lane & McDonald, 2005; Leach & Pelky, 2001). In particular, more intensive assistance from agency staff appears to be most often needed within the first several years of a watershed group's operation (Leach, Pelkey, & Sabatier, 2002). However, the benefits of local community-based management may be lost, if watershed group capacity fails to develop independently from its supporting agencies.

Adequate funding also is central to the successful operation of watershed groups. Funding for administration and group development is often limited, hindering the ability of watershed groups to advance their organizational capacity (Lurie & Hibbard, 2008). Limited funding for partner agencies also reduced their ability to provide technical, group development, and administrative assistance to watershed groups (Leach & Pelkey, 2001; Lurie & Hibbard, 2008). Increased state and federal funding may help watershed groups increase their success if that funding is available for group capacity development and program administration.

The stability of funding for watershed projects also should be addressed. Many watershed groups expend a great deal of time and energy pursuing funding instead of implementing projects (Bonnel & Koontz, 2007; Clark, Burkardt & King, 2005; Lurie & Hibbard, 2008). In Oregon, state funding is available for watershed councils, but as more watershed partnerships are formed there is increased competition for these limited funds (Lurie & Hibbard, 2008). Unstable funding impedes the ability of watershed groups to implement longer-term and larger scale projects and can drive project selection in lieu of

scientific assessments of watershed health (Bonnell & Koontz, 2007; Lurie & Hibbard, 2008). Federal and state sponsored programs should consider strategic funding approaches that cultivate long-term project development and organizational capacity.

Legislation also is an important component in the future success of watershed groups. State and agency managed programs can provide essential assistance to watershed groups. Authorizing and appropriating legislation that creates additional state-sponsored programs for watershed management may help create the institutional framework within which groups can succeed. Regulation can motivate the participation of reluctant stakeholders and help ensure that watershed groups avoid prioritizing local concerns over regional, national, or ecological interests. Legislation that dictates a management framework, like the Northwest Forest Plan, also may have potential to encourage collaboration, but it is unclear if this may subvert some of the benefits of locally organized watershed groups (Margerum & Whitall, 2004; Lane & McDonald, 2005). Further research on programs that support both local and regional management

bodies, like Australia's Landcare program, and research that investigates the outcomes of different institutional frameworks may help direct the design of future legislation to support collaborative watershed management.

The history of watershed management through collaborative local groups is relatively new; however, as institutions watershed groups have developed a wide diversity in a short amount of time. This diversity provides for an interesting laboratory to study the strategies and frameworks that lead watershed groups to success. Improving the effectiveness and probability of success for these groups is an important goal for policy makers, community leaders, and natural resource managers as they represent a democratic and responsive institution that can address the unique physical, social, and economic characteristics of individual watersheds. Continued efforts to provide watershed groups with sufficient skills, knowledge, resources, and support will help to further embed watershed groups in the institutional landscape and ensure they continue to find success in the future.

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