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## **Assessing Impacts on Volunteers who Participate in Collaborative Efforts to Manage Environmental Disputes**

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### **Abstract:**

*This study identifies several criteria to use in assessing impacts on volunteers who participate in collaborative efforts to manage environmental disputes. Study participants were volunteers who worked together over a two-year period to manage an environmental dispute involving water. Major findings are as follows: the collaborative effort raised general awareness of the dispute and increased knowledge about issues underlying the dispute. Volunteers heard diverse viewpoints, learned about technical aspects of the problem, interacted and networked with diverse parties involved, and shared their views. In addition, volunteers improved communication and relationship building skills, and learned how to manage a complex environmental dispute collaboratively. Results from this study may help establish guidelines for future impact assessments. Results indicate additionally that volunteers who participate in a collaborative effort may benefit potentially from education in many of the skills and concepts identified in this study.*

### **Key Words:**

volunteer, impact, evaluation, environment, mediation, dispute management

### **Introduction**

Increased competition for natural resources, including land, water, air and wildlife, has spawned unprecedented numbers of environmental disputes and lawsuits. Since the 1970s, the United States has witnessed a steady increase in collaborative efforts to manage environmental disputes as an alternative to litigation (Bingham, 1986). These approaches include alternative dispute resolution, principled negotiation, consensus building and public issues education (Bingham, 1997; Fisher & Ury, 1981; Dale and Hahn, 1994).

Experts offer two major reasons for collaborating to manage environmental

disputes. First, many believe conventional litigation and legislation are ineffective. Such actions inevitably result in winners and losers. These approaches encourage losers to get even by undermining implementation of the solution (Deutsch, 1973; Carpenter & Kennedy, 1988; Gray, 1989; Susskind & Cruikshank, 1987). Second, people are demanding more involvement in public decisions affecting management of natural resources in which they have a vested stake (Susskind & Field, 1996; Sirmon, Shands, & Liggett, 1993; Selin and Chavez, 1995; Inkpen, 1996).

Volunteers are required for most collaborative efforts to manage environmental

disputes. These volunteers typically are key stakeholders in the dispute. As such, they act as representatives for a number of stakeholders who share similar concerns or have a similar stake in the issue. This study focuses on the impacts on volunteers who participate in a collaborative effort to manage an environmental dispute.

### **Theoretical Framework for Study**

Research illustrates that there are two objective criteria used to measure the impacts of a collaborative effort. The first objective is whether or not the effort manages the dispute through a negotiated agreement and the second is whether or not an agreement is implemented. Although an agreement, and its implementation provide objective measures of successful collaboration, they are not conclusive. This is especially true if the agreement is economically infeasible to implement, is arrived at unfairly and does not solicit full participation, and the dispute resurfaces soon after it is managed.

Gray (1989) maintains there are other more subjective criteria that indicate the impact of collaborative efforts. In particular, these are the impacts on the volunteers who participate in the collaborative effort. Gray (1989) suggests that a collaborative process can alter attitudes and thus behavior towards dispute and collaboration. She suggests that criteria to measure these changes include improved communication, networking and relationship building skills, in addition to increased hope of resolving the dispute. Further, a formal collaborative effort involves numerous operational details. These include how volunteers learn to share power and whether they treat one another fairly and with respect.

Similarly, Innes (1999) suggests that even a collaborative effort that produces a high-quality agreement satisfies only a

"first-order effect." Innes maintains that "secondary" effects achieved in a collaborative process are as beneficial in the end as a high quality agreement. These effects include increased knowledge about the issues; increased awareness of the dispute and the diverse viewpoints of stakeholders; new personal and working relationships among stakeholders; scientific analyses that stakeholders accept and understand; shared knowledge with others, and stakeholders regard the process and its outcomes as fair. Other effects can include a change in behavior, such as responding to future disputes civilly and cooperatively rather than in an adversarial way.

In addition, Innes (1999) suggests that researchers measure secondary effects retrospectively. That is, the assessment should take place at least one year after it is completed. She contends that assessments of collaborative efforts to date have not adequately assessed these types of effects, partly because the assessment takes place too early. Poor timing of an assessment does not allow volunteers to adequately digest and perceive these effects.

### **Purpose and Objectives**

The purpose of this study is to assess the impacts on volunteers who/participated in a collaborative effort to manage a water dispute. Research guidelines suggested by Gray (1989) and Innes (1999) were adapted to conduct this assessment. Impacts measure the degree to which volunteers perceive they have increased their knowledge about underlying issues, technical aspects of the problem, and possible solutions to the dispute. Other impacts measure the degree to which participants perceived that improved communication, relationship building, networking and collaboration skills were improved. Additional impacts measure increases in awareness of the dispute and diverse viewpoints represented, increased

citizen involvement, and increased hope that lasting solutions to the dispute are possible.

A diverse group of stakeholders indicated an interest to volunteer in an effort to manage the dispute collaboratively and avoid litigation.

### **Overview/History of a Collaborative Effort to Manage an Environmental Dispute**

The dispute highlighted in this study is centered in the Walker River Basin. The Walker River drains the Sierra Nevada southeast of Lake Tahoe and flows 160 miles to its terminus at Walker Lake in northwestern Nevada. The basin includes Mono County, California; Lyon and Mineral Counties in Nevada; and the Walker River Paiute Reservation located adjacent to Walker Lake.

The water of Walker River, as is the case with many western rivers, is over-allocated. In 1992, the United States joined with the Walker River Tribe to file claims for a water right for the Reservations' Reservoir (est. 1934) and to irrigate lands added in 1936. All water right holders upstream of the reservation are defendants. In addition, since 1882, Walker Lake's surface elevation and water quality have declined steadily. Additionally, there is a build-up of salts in Walker Lake, stemming from low inflows which have caused the Lahontan Cutthroat trout population to decline precipitously.

The Walker Lake Working Group, a special interest group was organized to protect Walker Lake and its wildlife, moved in 1994 to intervene in existing litigation and file a new and senior claim to water rights in order to establish a minimum lake level at Walker Lake (Horton, 1996).

In 1998, a diverse group of stakeholders indicated an interest to volunteer in an effort to manage the dispute collaboratively and

avoid litigation. This group identified themselves as the Walker River Basin Advisory Committee (WRBAC). Eight individuals comprised the WRBAC representing interests from headwaters of the Walker River in California to its terminus at Walker Lake. Goals established by the WRBAC included: a) identify issues causing the dispute, b) identify and investigate possible solutions, c) acquire funding to conduct scientific research to investigate potential solutions, d) direct the research and dissemination of the results, and e) inform the public of all activities and findings. The efforts incorporated field tours and public forums to clarify and prioritize issues.

Social activities were held to encourage volunteers to develop relationships with one another. These activities included lunches and refreshment breaks. All events of the groups were publicized to encourage broad public participation by notices in community newspapers and postings in public buildings. Announcements were mailed to any interested individuals who offered their mailing addresses. Journalists were invited to attend all meetings and events in order to publicize further the group's activities. Additionally, a web page was established to inform citizens with Internet access about project goals, volunteers, research, and education activities.

Attendance at activities varied from 20 to 100 persons with an average attendance of 35. Most activities were held in Yerington, NY, a community located in the center of the basin and selected by WRBAC as a reasonable location to meet. Public forums to garner input and disseminate research were held in Yerington at the public library. On-site tours were held in four different areas of the basin to educate volunteers about technical issues unique to those areas and to provide volunteer stakeholders an opportunity to formally voice their concerns on site. All activities were free and open to

any interested party.

## **Data Collection**

### **Participants/Subjects in the Study**

In September 2001, 16 months after the collaborative effort concluded, 121 volunteers who had provided mailing addresses collected from event attendance sheets were chosen as study participants/subjects. In addition to the eight key volunteer stakeholders (WRBAC), these included all other volunteers such as private citizens, water users, irrigation district board members, county government officials, tribal officials and special interest groups, including Ducks Unlimited, Sierra Club and Nature Conservancy. Federal and State resource management agencies were represented at nearly every meeting and included Bureau of Land Management, Bureau of Reclamation, Nevada Fish and Game, California Fish and Game, Nevada Department of Agriculture and Nevada Division of Water Planning. These individuals were also considered volunteers in the collaborative effort as they indicated they were not directed but rather volunteered to participate and support the collaborative effort.

### **Instrumentation**

A questionnaire was developed to collect data from participants/subjects in this study. The instrument was adapted from guidelines outlined by Innes (1999) and Gray (1989) to assess secondary impacts on volunteers who seek to collaboratively manage environmental disputes.

One of the professionals involved with the WRBAC volunteer group drafted the initial survey. That professional has extensive experience in survey development. Survey questions were based upon Innes (1999) and Gray (1989) and adapted for local needs.

Prior to mailing the questionnaire, a

panel of Walker River Basin residents knowledgeable about the dispute, but not involved as volunteers, reviewed several drafts of the questionnaire for content validity. These individuals reviewed and approved the final draft. A panel of survey methodology experts reviewed the final draft of the questionnaire. The investigators modified the questionnaire based upon their recommendations. Finally, the questionnaire was tested using three volunteers excluded from the study sample. The purpose of this review was to identify missing attributes, wording clarity, and time required to complete the instrument.

The questionnaire that was mailed to participants is shown in Table 1. The questionnaire featured 17 Likert-type scale items to assess impacts on volunteers. These included eight items intended to measure the extent to which, as a result of their participation in a collaborative effort, volunteers increased their knowledge about: a) the dispute and issues causing the dispute; b) diverse viewpoints involved in the dispute, c) technical aspects of the dispute; d) possible solutions and; how to participate in a collaborative process. Six items measured the extent to which volunteers improved communication, relationship building, networking, and similar collaborative skills. Two items measured the extent to which the collaborative effort raised public awareness of the dispute and increased the number of citizens involved to manage the dispute collaboratively. The remaining item measured hopefulness about resolving the dispute. Specifically, it asked volunteers to what extent 'they believed lasting solutions to the dispute were possible.

Each of the seventeen items on the questionnaire were Likert-type items using a five-point equal weight increment scale where 1=ineffective and 5=Very effective. A "DK" option, where DK=Don't Know, was

included as an option on each scale. Content validity, of the questionnaire was established using an expert panel discussed previously. A Cronbach's coefficient alpha was calculated to estimate internal consistency or reliability of the 17 items. The average alpha score for all 17 items was high ( $r = .90$ ) (Carmines & Zeller, 1979).

Six items measured the extent to which volunteers improved communication, relationship building, networking, and similar collaborative skills.

### Procedure

Each volunteer was mailed the two-page (front and back) questionnaire with instructions and a self-addressed, stamped return envelope. A cover letter was included that explained the purpose of the survey, ensured confidentiality and thanked them for their input. This one-time data collection protocol received exemption from the University Human Subjects Committee and did not require consent forms. Due to the legal nature of the dispute and concern that volunteers would not respond candidly, if they believed their names and addresses were "traced," the researchers concluded a one-time mailing would encourage the highest response rate.

### Results

Thirty-six of the 121 volunteers returned completed questionnaires resulting in an approximately 30 percent (.297) response rate. This is a robust response rate given that the average response rate to a more rigorous mail survey is around 10 to 12 percent (Dillman, 1978).

Data were analyzed using the Statistical Package for Social Sciences for Windows (SPSS, 2001). Descriptive statistics were employed to analyze the results and the means ranked for each item.

Table 2 presents ranked mean scores for each of the 17 items to assess impacts on

volunteers who participated in the collaborative effort. The top five items are: a) more citizens became aware of the dispute; b) I was treated fairly and with respect; c) I heard diverse viewpoints from others; d) more citizens learned about issues causing the dispute; and e) I interacted and networked with diverse interests.

A concern, when assessing the impact of any effort, is the sensitivity of the instrumentation. This was a particular concern for investigators of this effort, given the diverse perspectives of the volunteer stakeholders involved. Therefore, an additional analysis was conducted to determine if there was congruence in the responses. The additional analysis, a Spearman's rank order correlation, was used to measure congruence among the impact variables. Spearman's rank order correlation was chosen because the data were finite, collected using a Likert-type scale questionnaire.

Preliminary indications are that the positive secondary effects helped to establish the sustainability of the volunteer group over the long-term.

Table 3 illustrates the results of the correlation analysis. The variable that showed the least congruence among the 17 impact variables was the variable [that the volunteer was] "treated fairly and with respect." This variable, which ranked second in the mean scores provided by volunteers (see Table 2), is very important when working with volunteers. Such a high mean ranking by volunteers, however, may not necessarily translate into success (or a belief by participants that the collaborative effort has been effective) or a positive impact on volunteers. The correlation results from the survey data indicate that serious interaction issues may have existed among volunteers

who participated in this effort. The results suggest further that when assessing impacts of collaborative efforts, researchers go beyond simple ranking of variables to use tests of association to determine if key impact variables show congruence with other variables.

While most of the impact variables significantly correlated with being "treated fairly and with respect" in Table 3, the relationships were not strong enough to make meaningful predictions and, in fact, several were very low. These results indicate that ensuring fairness and respect among participants, while an ideal and necessary goal in shaping 'a collaborative effort, does not guarantee real impact or positive change among volunteer stakeholders.

### Conclusions

An assessment of impacts on volunteers who participated in this collaborative effort to manage an environmental dispute indicates overall positive impacts.

- Volunteers indicated that the program raised awareness of the dispute and allowed citizens to express their diverse viewpoints about the dispute.
- The collaborative effort increased volunteers' knowledge about the technical aspects of the dispute.
- Volunteers believed that they interacted with other stakeholders involved in the dispute and improved their understanding of others' viewpoints:
- Volunteers felt they received fair and respectful treatment during the collaborative effort and learned how to work together to manage a dispute.
- Volunteers indicated that participation in the collaborative effort helped to improve their communication and relationship building skills.

Secondary impacts on volunteers who participate in collaborative efforts are

somewhat subjective and may be difficult to identify precisely. Volunteers' perceptions are invaluable in assessing these impacts, which can include increases in knowledge, skills and awareness. Although these secondary impacts were generally positive, the measure of hopefulness that lasting solutions to the dispute were possible (questionnaire item #16) rated comparatively weaker.

Additional secondary impacts may include a change in attitude towards a dispute as demonstrated by increased skills and confidence to manage a dispute collaboratively rather than through polarized behavior and litigious action. Volunteers who participated in this collaborative effort continue to remain involved in collaboratively managing the dispute. Approximately two years after this effort ended, the majority of key volunteer stakeholders requested federal and state government leaders to support and fund an "alternative dispute resolution process," in order to resolve the dispute out of court. Elected officials agreed and to date, parties identified to participate in that process include the majority of key volunteer stakeholders who participated in the WRBAC effort.

Environmental disputes involving the Walker River and many other rivers in the western United States are likely to continue. The secondary impacts assessed in this study may contribute to the skills of the current group in continuing to resolve differences. The willingness to manage and potentially resolve disputes through collaborative volunteer efforts rather than litigation is clear.

Results of this study suggest that collaborative volunteer efforts can

- increase knowledge about the dispute
- increase awareness of diverse viewpoints, and
- improve skills needed to manage the dis-

pute collaboratively.

Results also suggest a potential need to educate volunteers involved in environmental disputes in communication, networking, relationship building and other collaborative skills. These skills will empower volunteers to participate more equitably and effectively in collaborative processes should the opportunity arise.

Results from this study helped the professionals involved in this effort to establish guidelines for design, management and impact assessment of future collaborative efforts. An assessment of the group, one-year after completion of original goals, provided valuable information about the knowledge and skills required to sustain a group of volunteers interested in on-going work on environmental issues and disputes. Preliminary indications are that the positive secondary effects helped to establish the sustain ability of the volunteer group over the long-term.

Managers must help volunteers establish written goals for the collaborative effort.

### **Implications For Volunteer Management**

Volunteers who participate in collaborative efforts to manage environmental disputes require thoughtful and diligent management. Managers must first identify and prioritize the educational needs of volunteers. More than likely, volunteers will need to learn about what defining features comprise a collaborative effort. This implies that managers educate volunteers on how to communicate with one another so that collaborative efforts remain civil and purposeful. Often the manager helps volunteers establish "ground-rules" to guide and support effective communication.

Managers must help volunteers establish written goals for the collaborative effort. Goals should be clear, concise, practical and meaningful to all volunteers. The manager should periodically remind volunteers about their goals to keep them "on track." Managers may also help volunteers decide when and how to bring closure to discussions and perhaps the overall effort.

Finally, managers must avoid personalizing issues that characterize the dispute. An effective manager does not voice his/her viewpoint about the dispute or potential solutions offered. Rather, the manager educates volunteers and guides the collaborative effort, encouraging volunteers to voice their views.

Collaborative efforts to manage disputes are seemingly complex and overwhelming to some volunteer managers. Unless managers understand their role in these efforts as educators and guides, their efforts are unlikely to produce the desired results.

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### About the Authors

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Marilyn Smith has 28 years of professional experience working with volunteers in community settings. This is her first effort in dealing with volunteers regarding an environmental issue. Her efforts in evaluating program impacts received national recognition in 2002.



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**TABLE 1**

Questions Included in WRBAC Impact Assessment

1. WRBAC project provided me adequate opportunities to learn about technical aspects of the problem .....	1	2	3	4	5	DK
2. WRBAC project provided me adequate opportunities to hear information presented by diverse interests .....	1	2	3	4	5	DK
3. WRBAC project provided me adequate opportunities to interact and network with diverse interests involved .....	1	2	3	4	5	DK
4. WRBAC project helped me to better understand the viewpoints of others involved in the dispute.....	1	2	3	4	5	DK
5. WRBAC project offered me adequate opportunities to share my views with others involved in the dispute.....	1	2	3	4	5	DK
6. WRBAC project improved my ability to communicate my views to others involved in the dispute.....	1	2	3	4	5	DK
7. WRBAC project improved my relationship with others involved in the dispute .....	1	2	3	4	5	DK
8. Through the WRBAC project I learned about collaborative ways to manage disputes.....	1	2	3	4	5	DK
9. Through the WRBAC project I was treated fairly and with respect.	1	2	3	4	5	DK
10. Through the WRBAC project I improved my skills to participate in a collaborative process .....	1	2	3	4	5	DK
11. As a result of the WRBAC project, I helped others to clarify the problem.....	1	2	3	4	5	DK
12. As a result of the WRBAC project, more citizens became aware of the dispute .....	1	2	3	4	5	DK
13. As a result of the WRBAC project, more citizens learned about the issues causing the dispute .....	1	2	3	4	5	DK
14. As a result of the WRBAC project, more citizens learned about some possible solutions to the dispute .....	1	2	3	4	5	DK
15. As result of the WRBAC project, more citizens became actively involved in the dispute.....	1	2	3	4	5	DK
16. As a result of the WRBAC project, I believe lasting solutions to the dispute are possible.....	1	2	3	4	5	DK
17. Overall, I believe the WRBAC project was a success in terms of educating the public about how to work together to manage a dispute.....	1	2	3	4	5	DK

Code Rating: 5 = very effective; 1 = ineffective; OK = don't know

**TABLE 2**  
**Ranked Mean Scores for Impacts on Volunteers**

Impacts on Volunteers	N	Ranked M
More citizens became aware of the dispute	34	4.39
I was treated fairly and with respect	34	4.38
I heard diverse viewpoints of others	36	4.31
More citizens learned about issues causing the dispute	35	4.31
I interacted and networked with diverse interests	35	4.29
I shared my views with others involved	34	4.21
I learned about technical aspects of the problem	34	4.19
I better understand the viewpoints of others involved	35	4.17
Educated the public about how to work together to manage a dispute	34	4.15
I improved my ability to communicate my views to others involved	33	4.06
More citizens became actively involved in the dispute	34	4.00
More citizens learned about some possible solutions to the dispute	34	3.97
I improved my relationship with others involved in the dispute	30	3.87
I learned about collaborative ways to manage disputes	31	3.81
I helped others to clarify the problem	32	3.50
I improved my skills to participate in a collaborative process	32	3.44
I believe lasting solutions to the dispute are possible	32	2.94
Code Rating: 5 = very effective; 1 = ineffective		

**TABLE 3**  
**Intercorrelations for Impact on Volunteers by "Treated Fairly and with Respect."**

Impacts on Volunteers	N	r
More citizens became aware of the dispute	35	.232
I heard diverse viewpoints of others	35	.413*
More citizens learned about issues causing the dispute	35	.232
I interacted and networked with diverse interests	35	.388*
I shared my views with others involved	35	.684**
I learned about technical aspects of the problem	35	.425
I better understand the viewpoints of others involved	35	.693**
Educated the public about how to work together to manage a dispute	35	.366*
I improved my ability to communicate my views to others involved	35	.693**
More citizens became actively involved in the dispute	35	.171
More citizens learned about some possible solutions to the dispute	34	.472*
I improved my relationship with others involved in the dispute	35	.624**
I learned about collaborative ways to manage disputes	34	.600
I helped others to clarify the problem	35	.422*
I improved my skills to participate in a collaborative process	34	.285
I believe lasting solutions to the dispute are possible	35	.114

\*significant at the .05 level

\*\*significant at the .01 level