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A Policy Model to Initiate Environmental Negotiations: Three Hydropower Workshops

Berton Lee Lamb
Jonathan G. Taylor
Nina Burkardt
Phadrea D. Ponds

Abstract: How do I get started in natural resource negotiations? Natural resource managers often face difficult negotiations when they implement laws and policies regulating such resources as water, wildlife, wetlands, endangered species, and recreation. As a result of these negotiations, managers must establish rules, grant permits, or create management plans. The Legal-Institutional Analysis Model (LIAM) was designed to assist managers in systematically analyzing the parties in natural resource negotiations and using that analysis to prepare for bargaining. The LIAM relies on the theory that organizations consistently employ behavioral roles. The model uses those roles to predict likely negotiation behavior. One practical use of the LIAM is when all parties to a negotiation conduct a workshop as a way to open the bargaining on a note of trust and mutual understanding. The process and results of three LIAM workshops designed to guide hydroelectric power licensing negotiations are presented. Our experience with these workshops led us to conclude that the LIAM can be an effective tool to begin a negotiation and that trust built through the workshops can help create a successful result.

Key words: conflict resolution, Federal Energy Regulatory Commission (FERC), natural resource management, negotiation

Introduction

If you knew that within one month you would find yourself across the table from your negotiating counterpart, how would you prepare for the encounter? Could you foresee the strategy of the other side, and would you be prepared to address it? The answer is not simple. We all have an idea of what it means to be prepared, but how many of us really understand what our adversaries might do? There are four basic rules to guide

negotiation preparation: (1) Don't take it personally. Natural resource negotiation is a professional activity and should not be approached as a personal contest (Fisher & Ury 1981); (2) Know the process. Are there established ways of doing business? What background information do you need? What are the facts?; (3) Know what to expect. What do your adversaries want from you? What do you want or need from them? What do you expect to happen, and what do you actually know will happen? What are the expected outcomes based upon past experiences?; and (4) Know your role and how much power you have. Before entering the negotiation, the range of your strategies and limits of your control should be clear (Carnevale & Pruitt, 1992). Too many times in a negotiation we let our emotions and opinions replace analysis. Thoroughly preparing for a negotiation—by translating your knowledge of process, roles, and needs into a course of action—is a key to negotiation success (Clark, Bingham, & Orenstein, 1991; Cormick, 1971).

Knowledge of likely strategies can improve understanding of the pending negotiation. Three negotiation strategies are commonly identified: competitive, cooperative, and integrative (Gifford 1985; Lamb, 1987; Lamb & Taylor, 1990). Carnevale and Pruitt (1992) label these strategies "contending," "concession making," and "problem solving." The competitive strategy is the winner-takes-all setting in which you try to persuade the other party to yield. Stakeholders try to get all that they can while giving nothing to their opponents. In a cooperative strategy, concessions are made to elicit concessions from other stakeholders; the tone is manipulative. The emphasis is on getting all that can be gained while giving as little as possible. An integrative strategy emphasizes mutual problem solving in which the problem is seen as open to collaborative solution and opportunities for mutual gain (Fisher & Ury, 1981). Ultimately, all three strategies may be needed to reach an agreement (Carnevale & Pruitt, 1992).

The Legal-Institutional Analysis Model (LIAM) was designed to accomplish three goals: (1) plan for participation in a negotiation, (2) predict organizational behavior, and (3) examine likely negotiation strategies. It is one tool for negotiation preparation (for another tool see: Fang, Hipel, & Kilgour, 1988). The model was developed by the U.S. Fish and Wildlife Service for water resource management conflicts (Lamb, 1980; Wilds, 1986). However, it can be used to assess strategies in most natural resource conflicts (Lamb & Hindman, 1984; Lamb, 1987; Taylor & Lamb, 1989).

Applying the LIAM in a workshop is a technique for beginning a negotiation. The ultimate value of a workshop is the extent to which solutions achieved have an impact on the outcome (Kelman & Cohen, 1976). Conflict resolution is unlikely to occur in the workshop itself. However, a workshop should increase the chance for success in future negotiations (Hill, 1982) by promoting trust and open communication as a means to develop an atmosphere of creative problem solving. We

present details from three workshops in which the LIAM was used in preparing for a negotiation.

Background

The LIAM

The LIAM uses a questionnaire to measure respondent knowledge about an organization's likely behavior and power (Lamb, Wilds, & Taylor, 1993). The LIAM expects that organizations will behave according to a combination of four roles: advocate, guardian, broker, and arbitrator (Table 1; Lamb 1980, Wilds, 1990). To measure organizational behavior, the LIAM asks a series of questions about each role (Table 2). Similarly, the LIAM asks questions about an organization's power in inter-agency decision-making. Power is divided into three realms: information, resources, and support. Information power focuses on the organization's knowledge and its expertise in using that knowledge. Resources power focuses on the available personnel, funding, experience, and legal authorities of an agency. Support power focuses on the organization's constituency in terms of size, cohesiveness, and reputation of groups of supporters. The LIAM contains a library of questions pertaining to each of these factors. The software selects questions at random from the library to construct a unique questionnaire for each respondent. The LIAM then scores respondents' answers for each organization's role and power.

The LIAM software allows an analyst to combine the scores from many respondents. It is anticipated that the most reliable findings will result from the knowledge of at least three respondents for each organization. However, scores from any number of respondents can be used. Relying

Table 1
Attributes of Each Role in the LIAM

Role Type	Attributes	Role Type	Attributes
Arbitrator	1) Prefers Formal Processes 2) Desires Objective and Technical Information 3) Desires Documentation of Need	Broker	1) Desires Negotiation 2) Promotes Political Considerations 3) Distributes Benefits
Advocate	1) Prefers change from traditional 2) Prefers Preservation Values 3) Reacts to Proposals 4) Values Nature	Guardian	1) Prefers Economic Approaches 2) Prefers Traditional Processes 3) Values Markets 4) Physical Control of Resource

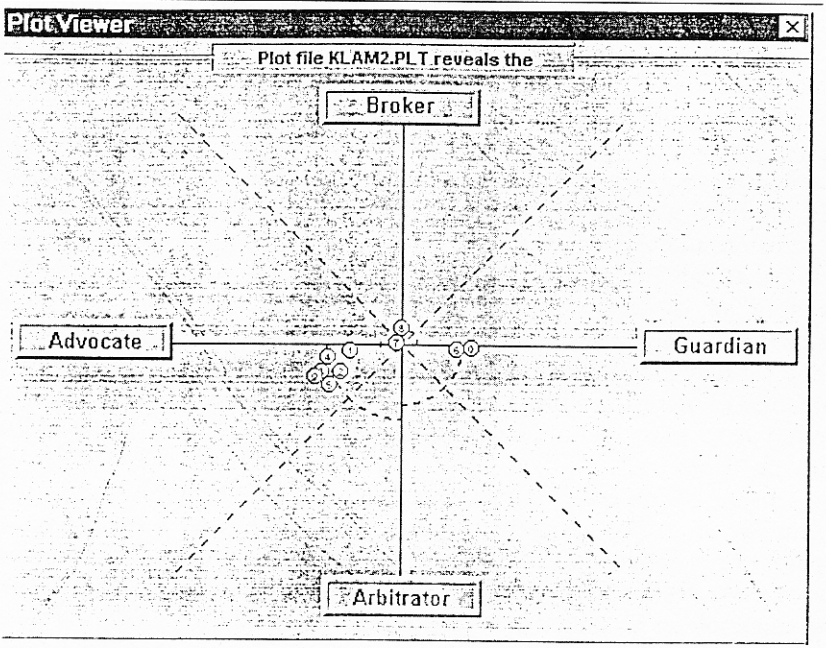
Table 2
Each Role in the LIAM Is Defined by Several Attributes. The LIAM Contains Three Questions to Measure Each Attribute. Questions Displayed to the Respondent Are Chosen at Random from a Library of Possible Questions for Each Attribute. This Table Shows One of the Questions Used to Measure a Single Attribute for Each Role

Role Type	Attribute Measured	Question	Measure
Broker	Desire to Negotiate	This organization will promote a negotiated solution in this conflict	5-point Likert scale range from "Strongly Agree" to "Strongly Disagree"
Arbitrator	Preference for Formal Processes	In actions like this one, does this organization prefer formal, structured decision processes?	5-point Likert scale range from "Almost Always" to "Almost Never"
Advocate	Promotes Change in Traditional Decision Processes	Does this organization urge change from "traditional" land, wildlife, or water resource management practices in actions such as this?	5-point Likert scale range from "Almost Always" to "Almost Never"
Guardian	Promotes Economic or Market Processes	In actions such as this one, this organization urges primary consideration of market values.	5-point Likert scale range from "Almost Always" to "Almost Never"

on findings from one respondent for each organization is not recommended.

The combined results are displayed on a "role map" that depicts an organization's likely role on two continua: a values continuum (advocate-guardian), and a process continuum (broker-arbitrator). In this way, an organization might be said to be a moderate advocate-broker, an extreme guardian-arbitrator, or some other combination of value and process roles. The LIAM also provides a written description of each likely role combination. The likely roles of all organizations may be displayed on the same role map (Figure 1).

Figure 1
Output from the LIAM Showing How Organizations Are Placed on the Role Map. Each Circle Represents the Combined Score of Respondents for a Single Organization. Names of Organizations Have Been Omitted.



Power scores are reported for each of the three realms of information, resources, and support power. Scores from all respondents are averaged and reported in a bar graph and table. The bar graph displays power scores for all organizations. The table of power scores may be viewed in combination or separately for each organization. Analysts may use the power scores to compare strengths and needs for each party. This process can help determine the dimensions of possible collaboration.

The LIAM has been tested in three settings. Wilds (1990) examined the accuracy of the role and power descriptions using a case study of the Terror River hydroelectric power project in Alaska. Taylor and Lamb (1989) tested the discrete characteristics of each measurement question, resulting in revisions to the questionnaire. Lybecker (1996) used the LIAM to assess decision making regarding Lake Chapala in Mexico, which allowed recasting of the LIAM measures into Spanish and illustrated how results may differ across political systems. Soden and his colleagues (1997) studied a multinational water dispute and suggested clarifications of some role and power measures.

An LIAM Workshop

LIAM workshops attempt to increase the chances for successful negotiation by walking participants through several stages. The workshops are usually held over a two-day period in a neutral location. Prior to a workshop, participants are informed that they are to identify the obstacles and opportunities for negotiation and that the LIAM will be used.

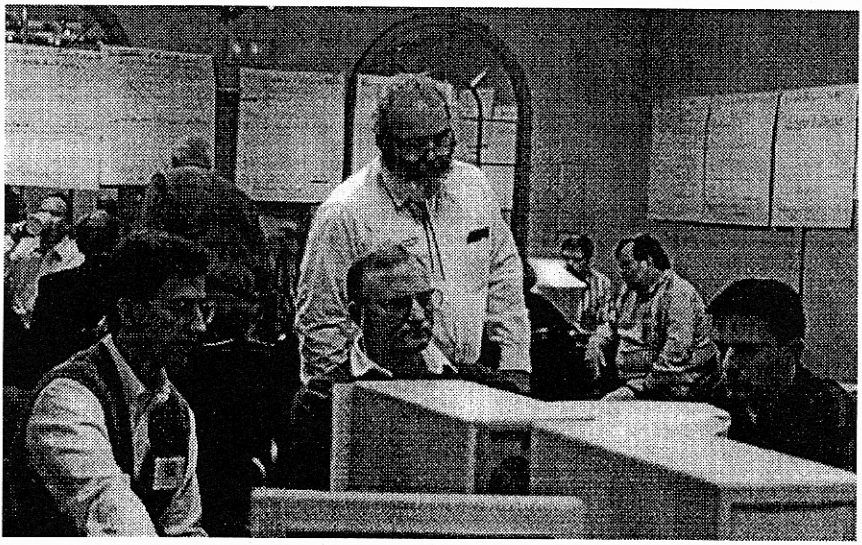
Each workshop consists of five stages. In the first stage, participant introductions are made and the workshop ground rules specified. In the second stage, facilitators conduct a brainstorming session in which participants identify key issues in the conflict. This allows participants to enunciate concerns and openly express their understanding of the issues. In the third stage, a list of stakeholders is generated through a second brainstorming session. A stakeholder is "any person, group or organization that can place a claim on an organization's attention, resources, output, or is affected by the output" (Bryson, 1995). The identified stakeholders are those expected to be involved in the resolution process. The list may include many organizational entities (i.e., state and federal agencies, interest groups, and private organizations). Facilitators must often help participants focus on the organizations most likely to be involved.

In the fourth stage, participants complete the LIAM questionnaire (Lamb et al., 1993). The participants are divided into teams of three participants representing a cross-section of organizations. Each team uses the LIAM questionnaire to analyze at least three organizations from the list of stakeholders identified in the third stage. Figure 2 shows a typical team entering data in an LIAM workshop. In the final stage, the participants review the results. Facilitators provide an opportunity for the participants to view and discuss the scores, strengths, and needs of each stakeholder. The results may be modified based on the understanding participants gain from these discussions.

Three Case Histories

The three workshops we conducted were integral parts of the Federal Energy Regulatory Commission (FERC) hydropower relicensing consultation process. We conducted workshops for the St. Louis River project (1989), the Penobscot River-Basin Mills project (1993), and Cabinet Gorge-Noxon Rapids project (1995). FERC regulations require the applicant for a license to consult with state and federal fish and wildlife agencies, other federal, state and local agencies, Indian tribes, and other interested parties (Bearzi & Wilkerson, 1990). The workshops included two that were the initial meetings of the parties (Cabinet Gorge-Noxon Rapids and St. Louis River) and one (Basin Mills) that was convened after the parties had been bargaining for several months.

Figure 2
A Liam Workshop Showing a Team of Participants Entering Data Answering the Questionnaire



(Photo By Patti Kroen, Published With Permission)

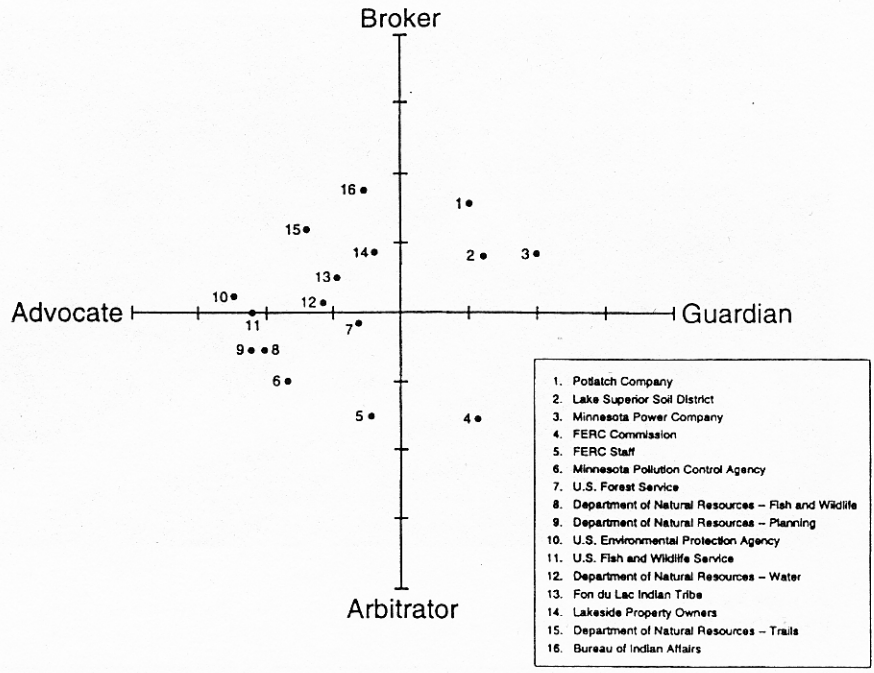
St. Louis River Hydroelectric Project

The St. Louis River Hydropower project was a license renewal for five dams and associated power stations on the St. Louis River and its tributaries in Minnesota. The purpose of the workshop was to evaluate each stakeholder's negotiation role and develop a detailed outline of a plan of study for the environmental assessments of this project. The results of the LIAM are displayed in Figure 3.

The teams evaluated the stakeholders as occupying relatively moderate role positions and generally favoring the Broker role. Without considering the FERC staff and commission, all the parties were scored as preferring a broker role, or at 1 or lower on the arbitrator scale. Although there was a pronounced difference on the advocate/guardian continuum—indicating a wide disparity in goals—the participants were encouraged by the strong indication of a desire to bargain. Further analysis was provided by the LIAM on the power of each party (Table 3).

Participants expressed an appreciation for this exercise and pleasant surprise at the result that negotiation was preferred by most stakeholders.

Figure 3
Liam Role Map from the St. Louis River Hydroelectric Project Workshop Showing Where Participants Placed Stakeholders on the Broker-Arbitrator and Advocate-Guardiam Continua



Later interviews with representatives of the parties indicated that a settlement had been reached and a license application had been forwarded to the FERC that represented substantial agreement among the parties. Although the parties desired a negotiated process, the environmental studies and bargaining were complex and the agreement required several years to complete.

Penobscot River: Basin Mills Project

The Basin Mills project was a proposed new hydropower dam on the Penobscot River in central Maine. The parties to this consultation did not agree on the problem to be negotiated—should it focus tightly on the Basin Mills dam, more broadly on the entire Penobscot River drainage, or on some intermediate set of issues? The question of licensing the Basin Mills project had galvanized into several factions around the issue of water management. The Basin Mills consultations had stalled, a great deal of controversy and hostility had developed among the consulting parties, and communications among the parties had broken down. The purposes

Table 3
Power Analysis for St. Louis River Hydroelectric Project Using the LIAM Showing Principal Strengths of Each Party

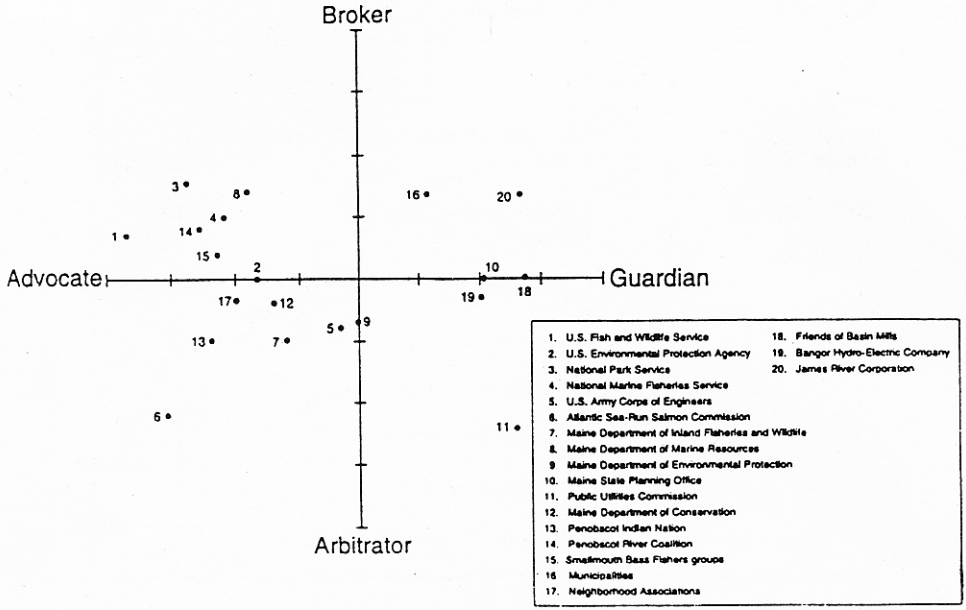
Resources	Information	Support
U.S. EPA	U.S. EPA	DNR Water
Minnesota Power Company	Minnesota Power Company	Fond du Lac Reservation
DNR, Trails	Minnesota Pollution Control Agency	Potlatch Company
FERC Staff	DNR, Planning	Minnesota Power Company
FERC Commission	DNR, Water	U.S. Forest Service
	DNR, Fish and Wildlife	Lake Owners
	U. S. Fish and Wildlife	
	U. S. Forest Service	
	Lake Superior South Dakota	

of the workshop were to (1) assess the degree to which the parties shared a willingness to negotiate and (2) examine their preferred outcomes.

The results of the LIAM role mapping are shown in Figure 4. The greatest differences among stakeholders were evident along the advocate-guardian continuum. The results illustrate the degree to which the Basin Mills negotiations had degenerated into strong polar positions concerning desired outcomes.

Using the LIAM power analysis, participants rated the parties as having a wide variety of strengths and needs (Table 4), indicating that no one stakeholder could control the bargaining. These findings led workshop participants into fruitful discussions. There was general agreement that the talks should continue and criteria for a successful agreement were identified. Each representative agreed to participate in the next negotiation meeting if everyone adhered to the ground rules established at the workshop.

Figure 4
Liam Role Map from the Basin Mills Project Workshop Showing Where Participants Place Stakeholders on the Broker-Arbitrator and Advocate-Guardian Continua



Despite the obvious divisions among participants, the LIAM workshop helped participants clarify the roles and perspectives of all stakeholders. They were already reasonably aware of their own and others preferred outcomes (reflected on the advocate-guardian continuum) but generally had not been aware of process preferences reflected on the broker-arbitrator continuum. Having the roles mapped helped each stakeholder consider, and perhaps expand, its list of potential allies. The participants discussed the power analyses in the context of strengths and needs—especially where strengths might be used to support an ally or influence an adversary.

According to one of the agency representatives (Gordon Russell, U.S. Fish and Wildlife Service, Personal Communication, February 14, 1997), the workshop and LIAM exercise had a positive effect on the Basin Mills project negotiations. Although the negotiations that followed were marked by the same differences evident at the workshop, all of the major stakeholders stayed at the table for the duration of the negotiation. Other factors also affected the consultation. For example, the tentative approval of the Basin Mills project by both the FERC and the state of Maine significantly reduced the appeal of the available alternatives to bargaining and increased the parties' need to negotiate.

Table 4
Strengths and Needs Identified in the LIAM Analysis for the Basin Mills Project

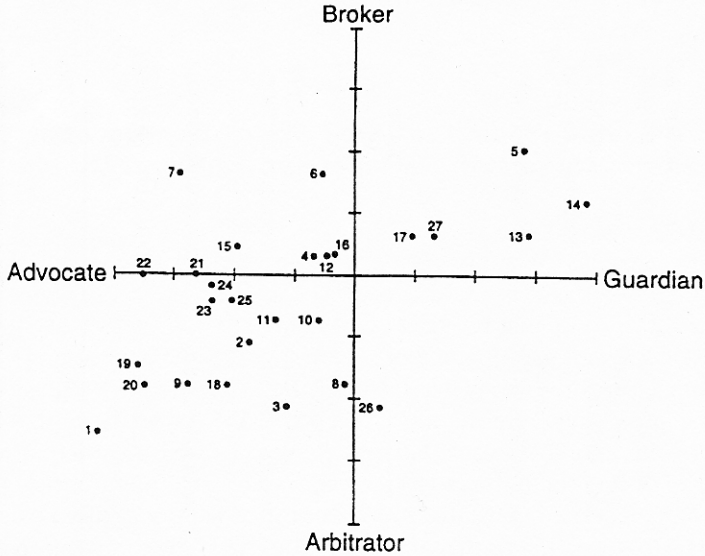
	Federal	State	Local	Private
Strengths	Strongly involved Support groups Aware Involved Information Objective Respected	Statutory authority Frequently involved Public and group support Information Objective Respected	Political skill Intensely involved Support groups Strong and Involved	Political skill Ownership and physical control of resource Support Cohesive Astute Aware
Needs	Lack ownership Physical control of resource Information not always clear	Lack ownership Physical control of resource Limited dollar resources Some not politically astute	Little resource power Information not seen as clear or objective	No statutory authority

Cabinet Gorge-Noxon Rapids Project

Washington Water Power Company (WWP) sought to relicense two hydropower projects on the Clarks Fork River in Montana by combining the two FERC applications. Because they anticipated considerable opposition to the license application, we were asked to conduct an LIAM workshop. The overall objective of the workshop was to foster an atmosphere of mutual trust and problem solving that might endure throughout the consultation.

The workshop participants were not surprised that the role map showed a wide distribution on both the broker-arbitrators and advocate-guardian continua (Figure 5). During a facilitated discussion, they realized that one reason so many parties (more than half) preferred an arbitrated decision was that the trust necessary for a negotiated settlement was

Figure 5
Liam Role Map from the Cabinet Gorge-Noxon Rapids Project Workshop Showing Where Participants Place Stakeholders on the Broker-Arbritrator and Advocate-Guardian Continua



1. Clean Lakes Coord. Council
2. State Historic Preservation Office - Montana
3. State Historic Preservation Office - Idaho
4. Green Mountain Conservation District
5. Sanders County RCD
6. Landowners
7. Coeur d'Alene Tribe
8. Montana Department of Environmental Quality
9. Idaho Department of Environmental Quality
10. Idaho Department of Water Resources
11. Idaho Department Parks and Recreation
12. Lake Pend Oreille Idaho Club
13. Sanders County Commissioners
14. Bonner County Commissioners
15. Kootenai Tribe
16. U.S. Forest Service
17. Noxon Cabinet Coalition
18. Clark Fork Coalition
19. Kalispel Tribe
20. U.S. Fish and Wildlife Service
21. Idaho Fish and Game
22. Montana Fish, Wildlife, and Parks
23. Salish/Kootenai Confederation
24. Trout Unlimited
25. BASS Federation
26. Federal Energy Regulatory Commission
27. Washington Water Power

absent. Given low levels of trust, many believed an arbitrated settlement based on facts and data posed less risk than negotiation.

The wide spread of organizations on the advocate-guardian continuum illustrated the diversity of values represented by the various organizations. Participants explored the meaning of these value differences and the competitive atmosphere this was likely to produce during the negotiation (Table 5). They also explored the potential alliances in the negotiation, and how allies might be able to complement one another's power. It was clear to participants that lack of willingness to negotiate, coupled with wide value differences, was likely to pose problems and should be addressed.

The participants used the information from the exercise to determine what kind of a negotiation was likely to follow, given stakeholders' placement on the role map. Most participants reported that they had benefited from the session by gaining a better understanding of the absolute necessity of preparation for negotiation. Equipped with information about other stakeholders, they felt better able to make strategic choices and more in control of the negotiation process. Subsequent to the LIAM workshop, the parties agreed to hire a mediator to facilitate the negotiation process. At this writing, the relicensing consultation is ongoing.

Lessons Learned From the Three Workshops: How Can LIAM Help Parties Understand What Is Known About Others?

Knowledge Gaps

Before each workshop, participants seemed confident in their own knowledge of the parties and the conflict resolution process. Later, participants told us that the LIAM had helped them plan for negotiation because it showed gaps in their information. When the teams filled out the LIAM questionnaires, many felt unsure of their responses. This uncertainty was translated into role map placements or power analyses that were inconsistent among teams or later challenged by some participants. For example, during the Cabinet Gorge-Noxon Rapids and Penobscot River-Basin Mills workshops, Native American tribes were identified as stakeholders. However, teams that analyzed tribes had little information about tribal goals or resources, and did not know if different tribes were similar or dissimilar in their preferences. In all three workshops, team members discussed the necessity to fill in these rather dramatic information gaps and examined strategies for gaining additional information.

Negotiation Strategies

When organizations are far apart on the advocate-guardian scale, it is difficult to find opportunities to satisfy everyone, and negotiation is likely to be competitive (Lamb, 1987). For example, the Basin Mills project was presented as a competitive negotiation before the LIAM workshop. The

Table 5
Strengths and Needs Identified in the LIAM Analysis for the Cabinet Gorge-Noxon Rapids Exercise

	Federal	Tribal	State	Local	Private	Utility
Strengths	Resource Power Rated high on 5 of 8 measures	Resource Power Rated high on 5 of 8 measures	Resource Power Rated high on 8 of 8 measures	Resource Power Rated high on 3 of 8 measures	Resource Power Rated high on 4 of 8 measures	Resource Power Rated high on 6 of 8 measures
	Information Power Rated high on 3 of 4 measures	Information Power Rated high on 3 of 4 measures	Information Power Rated high on 4 of 4 measures	Information Power Rated high on 1 of 4 measures	Information Power Rated high on 4 of 4 measures	Information Power Rated high on 3 of 4 measures
	Support Power Rated high on 8 of 9 measures	Support Power Rated high on 8 of 9 measures	Support Power Rated high on 8 of 9 measures	Support Power Rated high on 8 of 9 measures	Support Power Rated high on 8 of 9 measures	Support Power Rated high on 3 of 9 measures
Needs	Resource Power Rated low on 3 of 8	Resource Power Rated low on 5 of 8	Resource Power Rated low on 5 of 8	Resource Power Rated low on 3 of 8	Resource Power Rated low on 4 of 8	Resource Power Rated low on 8 of 8
	Information Power Rated low on 2 of 4 measures	Information Power Rated low on 2 of 4 measures	Information Power Rated low on 0 of 4 measures	Information Power Rated low on 1 of 4 measures	Information Power Rated low on 4 of 4 measures	Information Power Rated low on 0 of 4 measures
	Support Power Rated low on 0 of 9 measures	Support Power Rated low on 0 of 9 measures	Support Power Rated low on 5 of 9 measures	Support Power Rated low on 8 of 9 measures	Support Power Rated low on 3 of 9 measures	Support Power Rated low on 0 of 9 measures

LIAM results confirmed that assessment in the broad spread of positions represented on the advocate-guardian scale. The organizations used the analysis to identify tactics that might move the bargaining away from this adversarial context.

In another example, the St. Louis River project was a likely cooperative process. Organizations reported before the workshop that they had expected a competitive negotiation. The LIAM analysis showed that only the FERC was rated as extreme arbitrator while other organizations to the negotiation tended to be brokers or moderate arbitrators. Moreover, after the workshop, participants embraced the hope of a cooperative process and acknowledged the importance of keeping the decision within control of the stakeholders rather than relying on an outside decision maker.

How Can the LIAM Analysis Help Parties Understand Potential Alliances?

Alliances in Bargaining. Stakeholders situated close to one another on the LIAM role map are likely to have similar goals and preferences. Two agencies identified as advocates are more likely to be in agreement about an acceptable negotiation outcome than if one is an advocate and the other is a guardian. Thus, in preparing for a negotiation, it makes good sense to identify common goals and coordinate efforts with like-minded agencies. It is valuable to examine strengths and needs to discern what compatible stakeholders may be able to offer one another in terms of support or resources.

The LIAM workshop can also help the parties learn what opponents have in common and where opposing alliances are likely to form. For example, a review of Table 4 shows that local stakeholders, recognizing their limitations in terms of resource power and objective information, could look to state and federal agencies for objective and respected information to support their positions. Review of Figure 4 suggests that the Penobscot River Coalition, smallmouth bass groups, neighborhood associations, and the Penobscot Indian Nation might benefit from alliances with the National Park Service, National Marine Fisheries Service, Maine Department of Marine Resources, Environmental Protection Agency, and Maine Department of Conservation. Those organizations could, in turn, benefit from local support.

Promoting Negotiation

In order to complete the LIAM questionnaire, participants assigned to three-person teams were required to reach consensus on a series of challenging questions. Some of the people in these teams were initially surprised that they could agree about anything with other members of their team. Ultimately, they were surprised by how insightful the team could be about the upcoming negotiation. Moreover, answering the questions was often the first time these professionals had an opportunity to consider negotiation from a structured analytic perspective. Concurrence within the teams, insightful diagnosis, and systematic analysis led the participants to build a greater willingness to bargain on complex future

issues. Although this was evident after all three workshops, the post-workshop experience in each case—especially Basin Mills—demonstrates that hard bargaining continued to be a necessity.

Conclusion

Nowhere is the admonition to "look before you leap" more applicable than in preparing for a natural resource negotiation. The LIAM provides a means for systematically reviewing the likely behavior of parties in a negotiation so that their preferences, roles, and power are clear. Position on the LIAM role map shows likely allies and indicates the competitive nature of bargaining. Detailed study of specific responses reported from the LIAM questionnaire gives negotiators an opportunity to assess the strengths and needs of both allies and adversaries. Finally, conducting the LIAM analysis in a structured workshop with all the parties can serve as the first step in actual negotiation.

There is a need for more experimentation with this type of exercise to open multi-party negotiations. In addition, the experience of other analysts demonstrates that use of tools like the LIAM is not always straightforward (Lybecker 1996; Soden et al., 1997). The LIAM workshop should be explored in a variety of contexts to develop a better understanding of when, how, and why the LIAM may best facilitate the first stages of bargaining.

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