Institutional Barriers and Opportunities in Application of the Limits of Acceptable Change

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Abstract—Although the Limits of Acceptable Change (LAC) process has been in use since the mid-1980's and has contributed to improved wilderness management, significant barriers and challenges remain. Formal and informal institutional barriers are the principal constraint to more effective implementation. Although grounded in a traditional management-by-objectives model, the LAC is well attuned to collaborative management. However, procedural barriers, such as the Federal Advisory Committee Act, normative beliefs regarding relevant knowledge and power sharing, and structural barriers, such as compartmentalization and institutional capacity, constrain effective application of LAC to wilderness and recreation settings as well as other resource management issues for which it is potentially well suited.

Natural resources management takes place within a tightly proscribed set of formal and informal norms. At the formal level, various codified rules—laws, policies, planning protocols—shape and direct actions. At the informal level are a variety of normative influences, internalized and reinforced through influences such as the educational process and the sanctions that organizations, supervisors, and peers employ. Indeed, the cultural basis of these norms makes recognition of their influence difficult and modifications of resulting behaviors problematic.

Some norms are both formal and informal. For example, a strong belief in, and reliance upon, rationality, science, and objectivity are cornerstones of modern scientific forestry (Wondolleck 1988) and embedded both formally (such as, NFMA, NEPA) and informally (such as, by virtue of how we approach problem solving). Such broadly grounded norms result in profound impacts on how we define problems and the ways we organize to solve them.

We were concerned with such issues in the development of the LAC planning framework. The LAC derived from traditional comprehensive-rational origins, consistent with a "management by objectives" (MBO) approach featuring rational and scientific approaches to identification of issues, inventory, identification of alternatives, evaluation, implementation, and monitoring.

The problem of managing recreation use and impact has long occupied attention but it has been a special concern in wilderness, given the emphasis on protection of natural processes and conditions in such areas. In response, both managers and researchers have relied upon the concept of carrying capacity as the basic framework within which the problem was framed.

A major "driver" underlying development of the LAC was a realization that the carrying capacity model simply didn't work. Many reasons could be cited for this, but a key concern was that the model tended to frame the problem of managing recreation use and associated impacts—social and resource— in technical, mechanistic, and formula-driven terms (Stankey and McCool 1984) rather than as a problem involving value judgments about appropriate types and levels of use and their management. Two changes were seen as needed in any alternative conception. First, we needed a conceptual framework that would help managers and researchers think about the problem as a socio-political, rather than technical, problem. Second, we needed to identify and evaluate new forms of collaboration among managers, scientists, and citizens to deal with the underlying capacity issues.

The LAC framework was a response to the first need. Predictably, the historical attachment to the carrying capacity model proved (and continues to be) difficult to overcome. In part, this likely stems from a conception of carrying capacity, grounded in its central role in fields such as range and wildlife management, as an objective, quantifiable, and scientific framework. At least in theory, carrying capacity offered a rational, science-grounded model consistent with prevailing normative concepts as to how, upon what bases, and by whom decisions about recreation use levels should be made. Thus, we faced a struggle in communicating the limitations of the capacity model because any criticisms challenged core values and beliefs held by managers and reinforced by organizational policies and practices. But as formidable as this challenge was, it was neither the most difficult nor the most important contribution of the LAC, especially as applied in the Bob Marshall Wilderness Complex.

What became apparent early on was the need to recognize the significant, even predominant, political component of establishing limits on the use of public resources and the associated development of management strategies to implement those limits. Ultimately, the underlying questions of limitation, regulation, and management involved *choices:* about values (such as recreation use versus environmental protection), about the distribution of those values (such as, who gains versus who pays, such as between private and commercial users), and about the means through which the distribution of those benefits and costs were achieved (such as, use limits, campsite closures).

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This recognition challenged our response to meeting the second need: How should we organize to implement the LAC? In other words, what were the appropriate institutional arrangements for undertaking the task before us? If the LAC represented, at least hopefully, a new way of thinking about the carrying capacity issue, it followed that there would be a need for new mechanisms, processes, and structures for implementing such a "new" approach. However, the extent to which such mechanisms, processes, and structures were in place, or for which adequate models existed from which we might work, was problematic. In retrospect, I don't believe we fully appreciated how important the development of new approaches was or the kinds of barriers that we would need to overcome.

Following the original work of John Friedmann (1981) and the adaptations of his work to natural resource management settings by McLaughlin (1977) and Stokes (1982), we adopted the transactive planning model as the basic framework around which collaboration would be undertaken. The central thesis of the model argued that dialogue ("transactions") among stakeholders was a necessary component of any planning exercise. As described in the issues paper elsewhere in these proceedings, the technical planning process of the LAC was "married" with the transactive planning model as a means of carrying out the process.

Whether this was a "marriage" made in heaven or one conducted under the auspices of a shotgun remains arguable. What is clear is that it was an unusual union. The LAC was an unadulterated child of social reform planning, rooted in science, rationality, and objectivity. The transactive model derived from an emergent planning tradition Friedmann (1987) calls "social learning". In retrospect, it was a union designed to deal with what Pierce and Lovrich (1983, p. 1) have described as the "technical information quandary": "how can the democratic ideal of public control be made consistent with the realities of a society dominated by technically complex policy questions?"

The transactive model represented a collaborative approach; an institutional structure within which complex environmental management problems could be addressed. This, of course, is a generic challenge facing resource management organizations today. It has implications for the LAC in both the recreation/wilderness settings in which it was applied originally and to efforts to apply it beyond such settings.

Below, I summarize three institutional models of collaboration and relate these to the approach used on the Bob Marshall Wilderness Complex. I then turn to some of the constraints such alternative models face, not only for future applications, but other planning models and approaches as well.

Three Models of Collaboration

In a review of large-scale ecological assessments, Westley (1995) proposes three types of collaborations; *planning-led*, *visionary-led*, and *learning-led.* Each has certain strengths and weaknesses relative to four fundamental tasks: issue definition (defining the problem), action mobilization (empowering people to act), resource mobilization (bringing money and people to bear), and structuring (developing institutions, structures and processes for action, such as rules, norms, and terminology).

Planning-led collaborations often are a component of, or mandated by, government, such as commissions or task forces. They typically possess considerable ability to mobilize resources and usually are characterized by well-defined processes and structures. On the other hand, their capacity to develop adequate and comprehensive measures of underlying issues and questions can be compromised by a rush to premature closure to avoid political scrutiny. They also suffer from limited capacity to mobilize constituents; such as, citizens, who because of cynicism or lack of energy, are unwilling to engage.

Visionary-led collaborations often are stimulated by, and built upon, charismatic individuals. Their use of symbols to capture attention and mobilize resources and action, coupled with intense personal involvement and commitment, lend such groups special capacity. But while strong at issue definition, they are "notoriously bad" at the institutional tasks necessary to see the job through. Ironically, the qualities of independence and creativity that define such groups, tend to operate to their detriment when it comes to developing structures and routinized processes.

Finally, learning-led collaborations emerge from what Westley calls a "groundswell of concern"—the independent reactions of people to a particular issue or problem that eventually coalesce. Starting at the individual level, actions flow outward; such groups have a highly developed emergent quality. They have a well-developed capacity to define issues and are well-suited to developing constituent support. However, given their idiosyncratic nature, they often lack resources and structures that facilitate implementation and legitimization. This can handicap their long-term effectiveness; such as that these collaborations might exist only a short time, making on-going negotiations with established institutions problematic.

As we think about the kinds of institutional structures and processes that facilitate, or constrain, application of the LAC, we need to capitalize on the relative strengths of each collaborative type, while minimizing their respective weaknesses.

For example, the issues paper by Cole and McCool in these proceedings suggests inadequate debate among those of us who developed the LAC concerning the relative merits of "recreation use" versus "environmental protection" goals. This is clearly part of the issues definition stage and is critical. However, getting the question(s) right is always problematic. Differing constituents, driven by differing agendas, perspectives, concerns, and knowledge, mean that the issue definition stage must be broad and inclusive and avoid premature closure.

Being inclusive and comprehensive is important because successful resolution of complex environmental problems requires extensive interaction with others. For example, the relevant knowledge needed to resolve complex problems is distributed widely among various groups and individuals (Lang 1990). However, normative conceptions of what constitutes "relevant" knowledge and even who is capable of holding such knowledge are often tightly proscribed as solely the domain of science and experts; "knowledge" held by local residents, users, and so forth is seen as undocumented and anecdotal and thus inappropriate input to technical

discussions. Such views constrain social learning among participants in any collaboration; they are also inimical to development of trust and credibility (Moore 1995).

In summary, effective implementation of resource management in general, and the LAC in particular, increasingly requires collaborative structures and processes. Although not explicitly recognized at the time, the Bob Marshall Task Force manifested many of the characteristics cited by Westley. Visionaries helped refine our sense of question and direction. Scientists and technical specialists helped build understanding and support. Organizational planners and managers provided essential resource mobilization, follow-through, and organizational infrastructure that turned vision into reality.

Barriers to Collaborative Planning

Given such a typology of collaborative types, what are the key institutional barriers that thwart or stymie their implementation? I contend that institutional limitations are likely the most severe constraint on effective implementation of the LAC (or any other planning framework; see Slocombe 1993; Grumbine 1994). As Thompson and Tuden (1987) argue, institutional structures must be matched with the extent to which agreement exists about both preferred social goals and causal relationships. When disagreement on both goals *and* causation exist, the appropriateness of bureaucratic structures and comprehensive-rational planning models is problematic. Yet, they continue to dominate the institutional landscape, maintained, at least in part, by the assumption that the lack of success is due to deficiencies in application rather than to a fundamental mismatch between problem and process and to the systemic nature of the changes confronting resource managers (Caldwell 1990).

In thinking about natural resource management agencies and their struggle to adopt new approaches and techniques for dealing with complex resource management questions, I see three types of barriers: *procedural barriers*, *normative barriers*, and *structural and process barriers*.

Procedural Barriers

Procedural barriers include formally codified rules of conduct that regulate organizational and individual behavior. Some are grounded in law, others in organizational policies. An example is the Federal Advisory Committee Act (FACA). Although law since 1972, it only gained recent attention when used as the basis for lawsuits appealing the Northwest Forest Plan developed through the Forest Ecosystem Management Assessment Team (FEMAT) process in the Pacific Northwest.

The FACA was designed explicitly to constrain agencies from inappropriately excluding certain public interests from decisionmaking, a move most would support. However, it is important to understand that while FACA was structured to *impede undemocratic participation*, it was not structured to *foster democratic participation* (Nuszkiewicz 1992). Ironically, FACA has, in many ways, fostered the very conditions that it sought to control (that is, undemocratic representation) For example, the Bob Marshall Task Force was probably in violation of FACA. Although the act contains provisions to charter advisory groups, the process is formula-driven and mechanistic.

The FACA has operated to dampen development of creative advisory and consultative groups; more worrisome, it has provided a legal pretext upon which those who have never been supportive of the value of public consultation can turn to as justification for not pursuing creation and use of such groups (this links with another category of barriers—normative—to which I turn next). One result is that agencies lose access to learning-led and visionary-led collaborations that might otherwise be available.

Normative Barriers

Institutional-grounded constraints we label as normative stem from fundamental beliefs about such matters as the role of experts and science, the locus of power and control, and the nature of knowledge. Although normatively based constraints are often informal, their influence is profound and highly resistant to change.

The roots of such constraints are grounded largely in the educational and socialization processes through which natural resource professionals are trained and acculturated. For example, normative conceptions of relevant knowledge derive from the positivist-traditions of western science and reinforce the predominant value of data characterized by objectivity, replicability, and quantification (Bryant 1985). Clearly, such a way of knowing the world is important. However, there is a growing recognition of, and appreciation for, other forms of knowing, especially what is called experiential, personal, or indigenous knowledge (Friedmann 1987). This is the knowledge gained by those who live, work, and play in natural resource settings and can provide important and valuable insight as to processes, history, and outcomes.

But when the knowing that derives from formal scientific knowledge confronts that derived from indigenous or experiential knowledge, problems can develop. Scientists and other technical specialists find it difficult to admit indigenous knowledge as authentic or as relevant or useful to discussions—for example, about the establishment of indicators and standards or an assessment of the consequences of alternative management techniques. But the failure to acknowledge such knowledge carries certain liabilities. First, it can impoverish the information base with which we have to work in dealing with complex problems and uncertain outcomes. Second, it can contribute to the adversarial nature of deliberations, in the form of arguments as to whose "truth" is true. What suffers in the end is the perceived credibility of both those who advance such alternative forms of knowledge as well as those who deny it.

Such a constraint has implications for collaborations between planning-led types and those of a visionary-led and learning-led orientation. Visionary-led groups might possess limited technical or scientific understanding of the processes underlying issues of concern, leading to the purposeful or inadvertent dismissal of their knowledge and concerns on the grounds they "don't understand the facts." Learning-led groups often join people from disparate orientations and perspectives, who share common concerns, but with varying forms of knowledge motivating their interest. Again, it can be easy to dismiss those whose knowledge is not framed in conventional and traditional forms.

A related normative issue relates to the issue of control and power. A recurring issue in discussions about applications of the LAC and, especially, with regard to the use of the LAC within some kind of social learning framework, such as transactive planning, can be summarized by the question "who makes the final decision?" A common belief is that what constitutes an abdication of responsibility is the act of broadening the forum of discussion and inviting wider participation in not only the execution of the mechanics of the LAC process (such as, selecting indicators, defining standards), but also in the actual process of selecting an alternative. In more extreme situations, we have encountered technical staff and scientists who see such participatory forums as detracting from their power and influence upon eventual decisions.

This is not an entirely inaccurate perception. Cortner and others (1996, p. 10) point out that "Changes in institutions mean changes in the location of control. Sharing decisionmaking with citizens may lessen the influence of technical experts; this raises concerns about loss of power …people fear (loss) of jobs, prestige …learning disrupts the comfort of standard operating procedures."

Overcoming such concerns is a key institutional challenge. In part, it must involve recognition of a central political reality; power, in the political sense, has always resided in the wider body politic, not within administrative organizations. What agencies, such as the USDA Forest Service or USDI Bureau of Land Management, hold is *authority*, which is a form of legal power delegated to them through the political process and by society (Potapchuk 1991). Agencies and the staff within them clearly hold certain authorities and, indeed, cannot abdicate that authority short of violating the law. However, such authority ultimately derives from the power held by the wider society and accorded to the organization. And what has been accorded can also be withdrawn. Thus, what is commonly perceived as a "loss of power" is, in fact, not true; rather, it reflects a re-establishment of the appropriate power relationships between government and the society it serves.

However, beyond the political theory, the kinds of concerns spawned by new relationships and roles of society, resource managers, and scientists cannot be ignored. The search for institutional structures and processes that inform, promote learning, and encourage thoughtful deliberation remains a major challenge (Lee 1993).

Structural and Process Barriers

A third category of institutional constraints derive from organizational structures and processes. Their influence on interaction and cooperation, the various sanctions, incentives, and disincentives they impose, and the way they shape, direct, and channel knowledge, resources, and influence profoundly affect organizational and individual behavior. There are numerous examples of such influences. In the following, I examine two specific examples: compartmentalization and institutional capacity.

Compartmentalization—At a broad level, the separation of research and management in the Forest Service is a classic example of compartmentalization. Although valid reasons underlie this separation (such as, to protect scientific integrity), this structural feature influences how these branches interact (or fail to do so). In the Bob Marshall project, this potential constraint was overcome through the initiative and action of individual National Forest managers and researchers, and their academic colleagues. In this sense, the group was an example of learning-led collaboration.

Yet, as noted earlier, such relationships often are idiosyncratic and isolated. The incentives for such joint ventures are not clear and, indeed, in some ways there are overt disincentives for such collaborations. The continuing debate in the research community regarding appropriate measures of output and productivity (such as, role of refereed articles as opposed to involvement in applications) reflects the uncertainty of the value of such collaboration to researchers. Similarly, it is not at all clear what incentives exist for managers to undertake the initiative to collaborate with research; to the extent such collaborations lead managers to be involved in promoting and supporting experimentation, where "success" is problematic, there might be clear disincentives (Lee 1993).

More subtle, but perhaps more insidious, are the biases for bureaucracies to *compartmentalize* actions and responsibilities. In this framework, we find separation founded on disciplines (such as, wildlife, engineering) or tasks (such as, planning, public involvement). An especially revealing example is the distinction between "planning" and "management." Here, there is a separation between the processes to decide what should be done and those that implement. It also promotes a conception of a linear, unidirectional path of progress; such as, after going through a process of problem definition and scoping, we turn to planning, after which, we move onto management, then to monitoring, and so on.

This is an unproductive conception. In the analysis of issues reported elsewhere in this proceedings, a central weakness attributed to the LAC process was that "planning takes too long." However, planning needs to be seen as an ongoing process of implementation, evaluation, and modification; indeed, this is the core of adaptive management (Lee 1993). Both the problems that a process such as LAC focuses upon, as well as the institutional environment within which planning occurs, change. A compartmentalized view of planning, under these conditions, is dysfunctional and virtually ensures the failure of resulting actions.

A significant lesson of the LAC process in the Bob Marshall was how it revealed the flaws and liabilities of compartmentalization. The presumption that planning and management can be somehow decoupled fails to acknowledge the need for continuous feedback, evaluation, and revision. By treating these as separate activities, two significant costs can be incurred. First, the assumptions, context, and rationale for many choices made during the planning phase can be lost or misunderstood. Second, the learning that derives from management implementation can fail to inform planners, so that the learning from applications is lost. Actions and structures that suppress learning warrant special attention; learning represents an alternative to crisis because it introduces into organizations inconsistencies that challenge convention and the conclusive nature of existing ideologies (Westley 1995). Moreover, the failure to be responsive to contradictory signals from the wider sociopolitical environment can be the first step on the road to oblivion.

The distinction and separation of management and planning (and research) also operates to break down the close linkage between knowledge and action. There is an increasing appreciation of the iterative linkage between these concepts, found in the writings of Friedmann ("from knowledge to action" is the subtitle of his 1987 text), Lee (1993) (the core of adaptive management is that action produces knowledge), and Westley (1995) who points to the discontinuities between knowledge from action (management) and planning as dysfunctional.

Rather than a set of compartmentalized functions and activities, there is a need to view the enterprise as a kind of seamless whole. In such an integrated setting, the various activities undertaken inform all others and there is an opportunity for real-time learning, adjustment, and evaluation. This is particularly the case when managing ecosystems (including people); the need to break away from the reductionist and functional-based orientation of the past is at the heart of the growing interest in adaptive management.

However, this is also a case where "saying" and "doing" are two different things. A variety of forces thwart efforts to approach resource management in a more integrative fashion, including structural issues such as budgeting systems and functional organizations. Normative issues of power and control are also involved, both within management organizations, between management and research, and between the bureaucracy and the wider citizenry.

Institutional Capacity—Another type of institutional barrier that our experience in applying and evaluating the LAC process has revealed relates to institutional capacity. Institutional capacity describes the ability of an organization to mobilize the necessary resources—intellectual, fiscal, staff—needed to achieve its objectives. When necessary capacity is lacking, the ability to deliver desired programs, to operate efficiently and effectively, and to secure public understanding and support are all compromised.

A specific illustration in the case of the LAC (as well as other planning frameworks) focuses on the need for constant reinoculation of the management organization of the details and rationale of the LAC process as well as relevant empirical knowledge regarding social and biophysical research. Inadequate mechanisms and processes to ensure institutional memory lie at fault here; these are exacerbated by personnel policies that lead to turnover among managers and by research evaluation criteria that neither adequately nor appropriately reward research staff who consider engaging in such activities.

Collectively, these conditions promote a situation in which learning and experience are lost over time and with the movement of people. The detailed but often undocumented learning that inevitably occurs in a planning effort, such as the Bob Marshall project, is especially vulnerable to inadequate institutional memory. Not only is knowledge of place lost, but also knowledge of process; this includes the rationale, assumptions, and other types of information that accompanied development and application of the planning effort and that are key to successful adaptation elsewhere.

The kinds of relationships developed among members of various collaborative undertakings, often requiring significant commitments of time, are lost as people move; the lack of any formal mentoring to ensure transitions over time means that we virtually start from scratch as an individual leaves and is replaced by another.

Inadequate institutional capacity is often associated with the lack of adequate fiscal resources. However, money is an example of a necessary but not sufficient resource. More critical are structures and mechanisms that capture, retain, and accurately transmit knowledge of place and process. When such structures and mechanisms are lacking, the strengths of any planning process, such as the LAC, are greatly reduced.

Conclusions_____

Overcoming these various barriers will not be easy. However, a key first step is identifying and acknowledging them. It is also important to consider where the problem lies and what might be done in the short-term versus long-term. For example, addressing procedural barriers might prove difficult in the short-term, especially when the barriers are institutionalized as law (such as, FACA). However, one strategy is to help clarify and dramatize how these barriers act to constrain and limit the political process. By activating awareness and understanding of key constituents, who are empowered to act in the political arena, it might prove possible to alter even deeply entrenched legal barriers.

Internally, there is a need for increased focus on incentives for people (managers and scientists) to work across the boundaries that currently separate them. The Bob Marshall Wilderness Complex Task Force, as noted earlier, exemplified a "learning-led" collaboration, with key individuals from the Forest Service (management and research) collaborating with academic colleagues and citizens. It fostered creative and innovative actions on the ground, based on the best available knowledge. It helped frame key research propositions and hypotheses, as the limits of knowledge were challenged by both managers and citizens. And it did much to create an overall learning environment that produced enhanced levels of understanding and trust among participants.

Overcoming institutional barriers is difficult, if for no other reason than that they are literally a part of us. They derive from the way we learn, act, and organize, and to recognize them, let alone challenge them, is hard. Yet failure to do so risks obsolescence and irrelevance. Being open to challenges about our way of thinking is the first step to developing responsive alternatives (Westley 1995).

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