VIII. CONCLUSION

Facilitating the Evolution Toward Sustainable Forestry

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By almost any measure, the forestry profession is not the same--in its practices, its culture, or its outlook--as it was even a decade ago. Significant constructive change has taken place in forestry organizations involved in research, education, policy, and forest management. This process of evolution is continuing, and although the rate and nature of the change can be expected to vary over time, there is substantial momentum to carry it forward.

Understanding the process by which this evolution has taken place, and ways in which the process can be facilitated from both within and outside forestry organizations, will be essential to further growth and development in forestry organizations. It is also essential to maximizing the effectiveness of everyone's efforts, by minimizing the energy that is unproductively diverted against one another by individuals and organizations who ultimately share the same fundamental goals in sustainable forest management.

Dimensions of Change

Early in this volume, author Terry Tipple described a useful framework for understanding the several dimensions of organizational change:

Scale of change

- Societal (change in the social environment or context in which the organization operates)
- Macro-organizational (organization "culture")
- Micro-organizational (internal policies, systems, and operating procedures)
- Individual (personal values and behaviors)

Sources of change

- Rational/empirical (internally adjusting behavior on the basis of new information or knowledge)
- Normative/re-educative (overcoming and integrating differences in perception through training, team development, and collaborative learning)
- Power/coercive (imposed through changes in the "rules"--corporate policy, legislation, court decisions)

Types of change

- Adaptive (incremental change)
- Innovative (paradigm shift)

As the other authors in this volume have shown in describing events in their own

institutions, every one of these dimensions of organizational change is manifested in some way in the evolution that continues to take place in forestry organizations. Author Jim Wolf points out that there is no centrally directed campaign for change, nor could there be when the change is taking place over an entire sector rather than a single organization. The strength and momentum of the evolution toward sustainable forestry derives from the very fact that it is *not* being directed from on high by a single, overpowerful force, but that it is an organic process driven by many thousands of individuals changing their organizations from the ground up.

We continue to increase our understanding of the effects of forest management activities on both ecological and economic communities. Forestry organizations are increasingly open to cooperation and partnerships with other organizations and individuals. The focus is less on posturing and defending positions than on utilizing one anothers' expertise and resources to achieve mutual objectives. In other words, communication now goes both ways and collaborative learning is becoming something real.

As these trends continue, the sources of change shift increasingly toward the rational/empirical and normative/re-educative, and away from the power/coercive sources. Although coercive mechanisms such as legislation and court decisions have played a major and important role in the past, their future usefulness is increasingly limited relative to more collaborative approaches. Today, many of the important changes being enunciated in high-level corporate and government policy simply ratify changes that have already taken place at the grassroots level, where cross-organizational cooperation and collaborative learning have been the norm for some time now. The collective changes in knowledge, understanding and perspective at the individual scale are increasingly manifest in the "culture" of forestry organizations, and are becoming firmly established in the policies, systems, and operating procedures of these organizations. Individual professionals in the forestry community now routinely reach out to work collaboratively with a wide range of partners.

Recognizing the Change That Has Taken Place

Taken together, the changes in forestry organizations discussed by the various authors in this volume represent a profound and fundamental shift in both practice and attitude toward sustainable forestry. Some of the most important changes that have taken place in forestry organizations in recent years are so pervasive, and have become so much a part of what is now the conventional wisdom, that their significance is often overlooked.

Ecosystem-based approaches to forest management

On both public and private forest lands, the shift in the scale of planning and analysis from the stand level to some ecologically-defined landscape-level unit such as a watershed is a fundamental change in perspective. The increased understanding that this has given us in the analysis of cumulative impacts and resource interactions has helped reveal new opportunities for achieving management objectives while minimizing unintended ecological or environmental consequences (Sample 1994a).

The fragmented ownership of many landscapes when viewed at this scale presents challenges both practical and political. However, it has also opened many lines of communication, cooperation, and information sharing across ownership boundaries by landowners who may have differing management objectives, but who share a common sense of stewardship. We have also learned something about the limits of landscape-scale planning and analysis. If the scale and complexity are so large that the human mind simply can't grasp it, it becomes a questionable basis for resource management decision making and significantly diminishes the odds of effective implementation. There is a marked contrast

between (1) getting diverse interests to agree on changes needed to properly manage a watershed and aggregating up to a larger acreage, and (2) trying to develop all at once a plan for millions of acres and then trying to get ownership--both literally and figuratively--for implementing all the components of such a sweeping plan.

Debate continues over the terminology, but what this change is called is almost irrelevant. What is important is the change itself, and improvements in technologies such as remote-sensing and geographic information systems that help make landscape-scale analysis possible (Sample 1994b). This is a fundamental change in the way forest managers view forests, and the way they work together with other resource managers and with the broader public.

Managing forest ecosystems

Equally fundamental is the increasing acceptance by forest managers, on private lands as well as public, of the obligation to care for and sustain all the resources and values of the forest, not just the trees. Forest managers on all types of ownerships now give more explicit consideration to protecting water quality and aquatic habitat, conserving soil productivity, and maintaining habitat for the full diversity of plant and animal species. Timber harvest levels on public lands--state and tribal as well as federal--have been significantly reduced to provide greater assurance that associated non-timber values can be sustained indefinitely.

The prolonged debate over laws to protect endangered species has not prevented many private forest managers from taking the initiative to do so themselves, particularly where agreements could be reached to provide adequate habitat protection while minimizing the economic impact on forest owners. Many thousands of acres of private forest land have been placed in a protected status, or exchanged to state, federal, or non-profit organizations because the skills and resources to manage these sensitive lands were not in the private sector. Most of the major forest products companies in the United States have publicly committed to management practices aimed at protecting non-timber values on their fee-owned lands, and other private lands over which they have influence through their purchase of timber.

Obviously, this kind of attention by forest managers to non-timber resources and values has not always been the case, yet we seldom stop to recognize how widely accepted this has become in forestry organizations.

Community involvement in forest management decisions

Similarly, the widespread acceptance by forest managers that the public has a role in many decisions affecting forestry is a powerful change whose significance cannot be overestimated.

For many public forest managers, the fact that public involvement has been a matter of law for nearly three decades does not change the fact that this has necessitated a quantum shift in both procedures and attitudes, and with little guidance. Forest managers in public agencies are still on a steep learning curve, moving from early *pro forma* public involvement efforts based on reacting to agency-proposed actions, to facilitative approaches to leadership that rely on community-based initiatives within the broad context of public law and agency policy.

To a great extent, forest products companies and other private forest owners, too, now explicitly recognize that the public has a role in decisions affecting forest management. Some corporate leaders refer to this as "maintaining the social license to practice forestry." This is in part a recognition of the public interest responsibilities of corporations as well as every private citizen. And it is in part a recognition that legitimate public concerns over forest conservation can be addressed either proactively, or at greater expense and

uncertainty in response to legal or political action.

Experiences with voluntary efforts to reflect public expectations in private forest management, some of which are described in this volume, suggest the potential for these kinds of mechanisms is largely untapped and limited only by imagination. Many forest products companies are expressing new confidence that their forest management meets high standards for sustainable forestry by inviting independent groups of scientists, conservationists, and citizens to periodically review their practices in the field. Others are seeking the highest level of public assurance (and increased market share for their products) by inviting formal, independent third-party certification of their forestry activities.

The form in which this substantive engagement with the public in forest management is not as important as recognizing the sheer level of this activity and how much of a change this is from just a few years ago.

The role of private forests

The important role that is played by private forest lands, both industrial and non-industrial, is another major change whose significance we are just starting to recognize. Comprising four-fifths of the nation's forest, private lands will continue to provide major public benefits in terms of protecting soil and water resources, wildlife habitat, and forest recreation opportunities. For a large proportion of the federally-listed threatened and endangered animal and plant species, critical habitat occurs exclusively on private lands.

Public and private forest lands are playing an increasingly complementary role. It is the aggregate mix of public and private ownership of forest lands, managed in different geographic locations and under different prescriptions, that will give us the greatest diversity and the most productive forests in the long run. Given the trend toward reserving much of the forest inventory on public lands for non-timber purposes, private forest lands are absorbing an even greater share of the country's unmatched per capita demand for wood and paper products. From a global conservation perspective, it will be important to meet these demands from our own forest lands to the greatest extent possible, rather than shifting harvest pressures to other areas of the world in which forest management standards and their enforcement are not nearly as conscientious.

Fulfilling this need while continuing the positive trends discussed above will be a major challenge for both industrial and non-industrial private forest manager. The management of private forest lands is driven by a mixture of economics and stewardship, in contrast to many non-forestry businesses that are driven solely by economic considerations. Recognition and positive attention can play a surprisingly large role in getting better short- and long-range management of private lands. The carrot-and-stick approach--positive incentives combined with a regulatory baseline reflecting widely accepted principles of sound land stewardship--is likely to prevail. But over time, a relatively small and decreasing proportion of private forest land managers will still be subject to the stick. Positive public attention will be a powerful tool in bolstering the much larger proportion of private forest land managers who have set themselves on a new course to sustainable forest management.

Building Trust

The process of evolution is seldom smooth. Rather, there is significant unevenness over time and within given organizations. While it is important to recognize the significant changes that have taken place in forestry organizations overall, it is also important to remain cognizant of situations in which significant change is still needed.

In one way or another, nearly every participant in this study indicated that building trust will continue to be an essential process in working toward greater cooperation and collaboration in sustainable forest management. Trust develops

from a commitment by all parties to open, transparent processes. For many decades, the public placed their trust in forestry organizations to be the leaders and teachers in forest conservation. This trust eroded over time and was largely lost in the forest management battles of the 1970s and 1980s. This trust is gradually being rebuilt, but it will not be regained overnight. And the trust building process can be an exceedingly fragile one--it is easily derailed when any one of the parties is perceived to step outside the process or make unfair use of some temporary advantage.

For example, a broad diversity of forestry and conservation interests gradually came together during the two years of planning for the Seventh American Forest Congress in 1996. Late in the process, however, progress was severely undermined when one faction used legislative procedures to in effect skirt environmental safeguards and provisions for public review. Meanwhile, another faction announced a new policy to seek a total ban on all timber harvesting on federal lands. Like the vast majority of the participants in the Seventh American Forest Congress, it will be important to remain engaged and committed to the relationships built upon personal trust, respect, and a recognition of the legitimacy of one another's views and concerns.

Monitoring that involves the public, either directly or through independent third-party evaluations, serves purposes both technical and social. One of the most memorable phrases from the Reagan-Gorbachev strategic arms limitations negotiations in Reykjavik was "trust, but verify." Given the recent history of bitter controversy in forest management and policy in the United States, no one should be surprised at the desire by all parties to verify that performance is in keeping with promises.

From a technical standpoint, monitoring is at the heart of adaptive management--testing the accuracy of predictive models by assessing the actual response of natural systems to various human activities, and utilizing the results to further adjust the predictive models. From a social perspective, it is a way of letting the public see with its own eyes the effort that is being invested, and its results in terms of on-the-ground performance. Over time, doubts will be eased and the public will become more comfortable relying upon forestry organizations' own demonstrated commitment to land stewardship and sustainable forest management. Against this growing background of trust, the process of finding solutions to the specific issues that will inevitably arise becomes far easier.

Accelerating the Evolution Toward Sustainable Forestry

Among the dimensions of change, usually more than one change factor is at work at any given time, and it is the alignment of those factors that will determine the nature and rate of change. Over the past several years, the factors of change have coalesced around each other to create the momentum that we see today. Societal change has led to adaptation at the level of individuals, organizational systems, and ultimately in the culture and value systems of forestry organizations. Coercive forces have had their impact and gradually have been overtaken by normative and rational sources of change. Continuous incremental changes over a period of years has become, in hindsight, a quantum shift in the way forest managers interact with the land and with society.

Rarely does one have the convergence of so many factors as we now have. Today, on the eve of a new century, we have an opportunity to further accelerate the progress in the evolution toward sustainable forestry. It is an opportunity not to be missed.

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