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Beyond the Economic Model: Assessing Sustainability in Forest Communities

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There is a growing interest in both Canada and the United States not only in the sustainability of forests, but also in the ability of forest communities to sustain themselves through fluctuating political and environmental conditions. Interested parties of all stripes are attempting to understand how changes in forest management policies enhance or harm the future of these communities. Although many studies have historically used economic indicators as measures of community stability, more recently researchers have demonstrated that the relationship between a community and its surrounding natural resources goes far beyond economic dependency. Frameworks have emerged that attempt to include factors that more accurately reflect the broader range of socio-political influences on affected locales. For example, the existing set of skills and leadership present in a community, the propensity of residents to work together, and the available physical and natural attributes all contribute to how people might respond to changing conditions. In this chapter we discuss the notion of community from multiple perspectives and examine three conceptual frameworks for assessment: 1) community capacity, 2) community well-being, and 3) community resiliency.

Context

Over the last two decades forest-based communities have faced tremendous changes induced by economic, ecological, and political forces. Economic changes such as technological innovation, market differentiation, and more globalized economies have affected many communities. The results of these changes range from mill closures and employee layoffs to concentration of forest products processing firms to changes in traditional ways of life in rural areas.¹ Increasing concerns about environmental values have also driven forest policies in new directions. In Canada and the United States laws and resulting policies are now reflecting explicit mandates to more fully consider the sustainability of both biophysical systems and a range of human uses of forests. In Canada, a long-term commitment toward sustaining forest ecosystems represents a fundamental shift from traditional forest policies that emphasized sustaining commercial timber output. In the U.S., where an ecosystem-based approach has been adopted for managing public forests, the goal is now on maintaining the health and integrity of ecosystems by balancing social, economic and ecological considerations.²

These changes in policy reflect a growing awareness in both countries of the social and ecological complexity of forest ecosystems, as well as a fundamental shift in environmental values nationwide.³ These changes have also resulted in a growing interest among resource professionals, politicians, and rural residents about the sustainability of forest communities, especially in identifying key factors that could explain why some communities have more facility to cope with change than others do.⁴ Thus far, our ability to monitor and evaluate these community systems is limited due largely to a lack of sophisticated frameworks for assessing change across settings.⁵

In recent years, researchers have attempted to develop more comprehensive explanatory models describing interrelationships between forests and human communities.⁶ This chapter presents a review of these efforts by focusing on the development of several emergent conceptual frameworks now in experimental use. First, however, we set the context for this discussion by briefly examining the historical perspective of forest policy regarding these communities. Second, we describe the notion of community stability which traditionally has held an important role in forest policy and provides the initial basis for assessing the relationship between communities and forests. In the last half of the chapter, we examine the meanings of community and discuss the utility of the community capacity, community well-being, and community resiliency frameworks for evaluating forest communities.

Sustained-yield and Community Stability: A Classic Duo in Forest Policy

At the end of the nineteenth century, many questions arose regarding forest management in the United States and Canada. In both countries, a conservation movement was emerging, characterized by concerns that forests could not provide an infinite source of wood supply if past practices continued.⁷ This movement had common roots in the United States and Canada that came together at the American Forestry Congress meetings held in Cincinnati and Montréal in 1882.⁸ It was during this period of questioning that the concept of sustained-yield emerged as a policy goal to address fears of overharvesting.

During the 1920's in Canada, the concepts of sustained-yield and community stability became intertwined. Elwood Wilson, forester of the Laurentian Paper Company in Québec, and the first forest engineer employed in the Canadian forest industry, argued that forest industries needed to recognize many of the communities that had grown around wood processing mills were highly dependent upon a sustained production of timber.⁹ Accordingly, he believed forest companies had a moral obligation to the local workforce. Wilson and other foresters began promoting policies that would prevent the depletion of Canada's natural resources and the decline of its forest communities. After World War II, as the demand for wood products in North America skyrocketed, fears of a timber famine increased and added to concerns about an eventual destabilization of forest communities. Under the assumption that a prosperous forest industry resulted in prosperous forest communities, natural resource policies in all Canadian provinces were dominated by the need to provide incentives for industry to practice sustained-yield forestry.

At about the same time, supporters for the need to stabilize forest communities in the U.S. inspired creation of the Sustained-yield Forest Management Act of 1944.¹⁰ Under the Act,

community stability became an official goal of the U.S. Forest Service with sustained yield viewed as a means to ensure the prosperity and well-being of local residents.¹¹ These efforts were intended to guarantee economic and political stability through the maintenance of a non-declining flow of timber from public National Forests.¹² In short, the general conception of community stability held by Canadian and American foresters relied on the belief that a regulated forest would provide a steady flow of wood in a sustained and predictable fashion. At the time, foresters were largely unencumbered with alternative views about other values and believed a steady source of timber would ensure employment that in turn would lead to stable communities.¹³ It followed that most research efforts in these locales were oriented toward evaluating sustained-yield and its effect on communities.

Community Stability: A Fuzzy Concept

While the term "community stability" has been commonly used in both forest policy formation and implementation, it raises considerable debate in the research literature. The discussion arises from the various meanings given to the concept of stability and the diversity of indicators used to measure that concept. Nevertheless, the notion and use of the term is important because it represents an attempt to explicitly recognize a relationship between forests and the people who both inhabit surrounding areas and derive their livelihoods from there or otherwise depend on the values that forests provide. One of the earliest applications of the term "community stability" was in Kaufman and Kaufman's¹⁴ seminal study of two Montana forestry towns. They use the term to describe a process of orderly change in rural areas. The authors recognized that stable community processes required economic diversification, community leadership, citizen participation, and a sustained flow of forest resources.

Over time, the concept of stability became associated with a notion of constancy and was usually measured by economic indicators.¹⁵ A synthesis of research by Machlis and Force¹⁶ indicated that measures of community stability have largely focused on the impact of forest industries and include the levels of harvest, production of forest goods, prices of wood products, and employment levels and salary within forest companies. As before, emphasis on economic measures for monitoring community stability arose out of the belief that sustaining timber production was an effective means for ensuring the stability of forest communities.

Over the years other researchers pointed out the limitations of the sustained-yield/community stability assumption. For example, Daniels et al.¹⁷ demonstrated that a constant flow of timber was not a complete solution because more diverse factors such as the cyclic demand for forest products and constant changes in technology and fluctuating transportation costs also created uncertainty in these communities.¹⁸ Other studies began to focus on the effect forest dependency has on the social context of communities, showing that many areas go through typical changes such as rapid shifts in population, employment, and prosperity as the industry upon which they depend follows a boom and bust cycle.¹⁹

The emergence of research regarding non-economic aspects of community stability is reflected in the positions taken by the U.S. Forest Service and the Society of American Foresters

(SAF) in the 1980's. Both organizations proposed revised definitions for community stability that focus on the capacity of forest communities to cope with change.²⁰ A SAF task force noted:

Community stability, as it relates to forestry is closely associated with jobs and economic benefits generated from the use of forest resources. However, the task force also recognizes that this topic cannot adequately be considered apart from several other related aspects, including: quality of life, environmental considerations, and the nontimber and noncommodity uses of forestland. Community stability concerns the prosperity, adaptability, and cohesiveness of people living in a common or functional geographic area and their ability to absorb and cope with change.²¹

Numerous studies conducted in the 1980's and '90's adopted an approach inspired by the early work of the Kaufman's and acknowledge the complex dynamics of the community stability concept.²² In particular, they aimed at developing a more complete understanding of the effect forest dependency has on communities. These studies usually refer to community stability as a process of orderly change observable both in the economic and social realms. This body of work often relies on a rural sociological perspective and this broader conceptualization of the term led to the use of a more diverse set of indicators and provided new ways of thinking about the stability of forest communities.

In one example, Force et al.²³ attempt to establish a connection between community social change (community size and structure, cultural element, cohesion and anomie) and changes in local resource production, historical events, and political trends. Using a range of indicators to monitor variables, they found that timber dependency might only be a minor factor in influences on community change. Drielsma²⁴ used an even broader set of indicators to assess stability in forest, agricultural and tourism dependent communities. He studied population flux, wholesomeness of family life, income, measures of prosperity and standard of living, community life, health, and a range of external influences and controls. His findings suggest that forest dependent communities are among the least stable and prosperous because they tend to have a high population turnover and more social problems (e.g. divorce, suicide, low cohesion) than other communities. Furthermore, forest communities without major industrial facilities tend to have poor housing and public services, poor wages and earnings, and high seasonal unemployment. Similar studies²⁵ largely confirm these findings and indicate that stability of timber production does not necessarily result in prosperous communities. Drielsma²⁶ also noted that a sustained yield policy alone has little chance of leading to a stable community, in part because modern economic conditions encourage further processing of timber outside of forest communities. He recognized that in order to help forest communities support themselves on a long-term basis, policy options must be crafted that go beyond the economic aspects of a community.

The Emergence of New Concepts to Assess Forest Communities

Despite efforts made to clarify and broaden the meaning of "community stability," the term remains ambiguous and frequently leads to confusion. In response, researchers introduced several different frameworks for studying forest communities that allow for more thorough analysis of a range of factors. In addition, researchers also recognized the need to revisit definitions of

"community;" indeed, the various ways in which "community" has been defined in studies of these areas has contributed to the confusion and emphasizes the need for clarification.

What do we mean by community?

In past studies, particularly during the 1950's "community" was defined as a human settlement in a given geographic area.²⁷ Under this definition, community assessments focused primarily on the economic dependency of the geographic community upon the surrounding resources and tended to view community narrowly as simply a source of labor for the local forest industry. This offered a rather reductionist vision of "community". Much earlier studies²⁸ used a more inclusive definition that integrated both social and economic components. They defined community as a human system with specific needs that should be included as a part of forest management. This emphasis on broader human needs in describing forest communities re-emerged in the 1980's.²⁹

Certainly, this difficulty of defining the term "community" is not new. After reviewing the various meanings of "community" in sociological studies, Hillery³⁰ suggested three general approaches to clarify the concept. His typology, which is still widely used, refers to community by:

- Geographical location: a human settlement with a fixed and bounded territory;
- Social system: the interrelationships between and among people living in the same area;
- Sense of identity: emphasizing a group of people who share a particular set of values even if they do not live in physical proximity.

Regardless of the type of community studied, we can begin to understand the linkages between humans and their natural environment at different levels of analysis. The first approach emphasizes a geographical analysis and suggests there is a relationship between social life and a specific, identifiable location. A strength of this territorial approach is that it allows the use of data that are collected on a geographical basis (e.g. county tax records, national census), to examine community demographics and the use of forest lands. However, from a social science perspective, this approach is limited in that it considers neither the nature nor the patterns of the relationships between people.

The social system approach provides a more in-depth examination of the interactions between individuals who are linked by geography. This form examines the network of relationships among people, including livelihoods, the local economy, community institutions and residents' uses of the forest; however, it may give little attention to the quality of those relationships. Finally, the third approach recognizes that people may hold shared values, but places no constraints on geographical proximity. It helps us understand the role that forests play in people's lives; how forests affect social and family life, and the values that people attach to forests. Thus, this approach is concerned by the quality of relationships between members of a non-territorially bound form of community.

Emergent frameworks for assessment

Beckley³¹ recognized that the type of community studied is an important factor in how assessments should be designed and conducted. He proposed that three dimensions should be addressed in defining forest communities, suggesting that we specify the scale of the unit of analysis (individual, household, community, county, state, region), the type of dependence (timber, forest service, tourism/recreation, non-timber products, subsistence or ecological), and the degree of dependence (i.e. high, moderate or low dependence). These three dimensions remind us that community can refer to a variety of diverse human settings. Therefore, special attention needs to be given to describing the major features of what we call a "forest community".

In parallel with these ideas, social scientists began organizing their study of forest communities around several conceptual frameworks that were first introduced by researchers in the sociology and ethnography disciplines. In particular three were adapted for assessing communities affected by recent turbulence over natural resource policies in both Canada and the U.S. In the remainder of this chapter we describe these frameworks and their intended use:

- *Community capacity*: concerned with the characterization of a community's ability to face changes;³²
- *Community well-being*: focuses on understanding the contribution of the economic, social, cultural and political components of a community in maintaining itself and fulfilling the various needs of local residents;³³
- *Community resiliency*: concerned with capacity of humans and their institutions to adapt to changes over time while minimizing their effects on communities.³⁴

These conceptual frameworks were first used in forest community assessments because they provided an opportunity to analyze the effects of forest dependency on various dimensions of communities. They were brought to the attention of many resource professionals with the advent of large-scale ecosystem studies in the United States. Although these assessments achieved mixed success, they provide an important means to supply policy makers and forest managers with information about the social, economical and ecological conditions in ecosystems for which management policy is being designed.³⁵ In the mid 1990's at least four such bioregional assessments were conducted and each included an analysis of forest-based communities:

- The Forest Ecosystem Management Team (FEMAT) was appointed by President Clinton to identify alternatives to break the policy gridlock over the pacific northwest forests;
- The Interior Columbia Basin Ecosystem Management Project (ICBEMP) was launched to assess the natural resources and socioeconomic conditions of the intermountain west;
- The Sierra Nevada Ecosystem Project (SNEP³⁶) modeled similar conditions and factors in California and Nevada;

- The Southern Appalachian Assessment targeted biological diversity, economic uses, and cultural values in the southeast region of the country.

Collectively, an essential contribution of these assessments is that they all illuminated the role and importance of forest communities. Not only did researchers provide details about the social, economic and political nature of affected areas, they also encouraged decision-makers to more fully consider the ability of these communities to respond to change. Because each bioregional assessment had a different mandate, these studies provided little agreement on a common model for assessing forest communities. Nevertheless, the three concepts—community capacity, community well-being, and community resilience—emerged as recognizable and useful ways of thinking about the human/ecosystem dynamics within these systems.

Community capacity

The concept of community capacity emerged from a synthesis of research in human ecology, rural studies, and sociology.³⁷ In forestry the concept has been used to estimate the collective ability of residents to respond to external and internal stresses, to create and take advantage of opportunities, and to meet their diverse needs.³⁸ The major challenge of community capacity assessment is to identify the specific attributes of a community that facilitate or impede its ability to respond to problems or external threats. Various attributes have been assessed in studies of community capacity and can be generally grouped into four basic categories:

- *Physical and financial infrastructure*: physical attributes and resources in a community (e.g., water systems, open space, business parks, housing developments, schools, etc.) along with financial capital.³⁹
- *Social capital* (also called *civic responsiveness*): the ability and willingness of residents to work together for community goals.⁴⁰
- *Human capital*: skills, experience, education, and general abilities of residents in a community.⁴¹
- *Environmental capital*: quality and quantity of the surrounding resources including water, air, soils, minerals, scenery, and general biodiversity.⁴²

The underlying assumption of community capacity is that the interactions between these elemental categories determine the ability of a community to face changes. Thus, positive and negative consequences of change are more likely to be balanced in a community with higher capacity, while communities with low capacity are more likely to be negatively affected. The level of capacity is influenced by the presence of each element and also by its quality. However, because complex interrelations exist among these elements, a change in one can affect the others in various (positive or negative) ways. For example, enhancing human capital by encouraging in-migration of highly educated people might lead to a reduction of civic responsiveness if those new residents tend to act independently and do not become involved in community affairs. It is not only the presence of an element that is important but also the effect it has on the others and, thus, on the

overall community capacity.

Two researchers have been studying these ideas under the category of social capital, sometimes also referred to as civic responsiveness. Cornelia Flora⁴³ and Jan Flora,⁴⁴ who are working in rural communities in the midwestern U.S., have been particularly interested in the source of norms, trust, and reciprocity that might develop with a community. They suggest that social capital at this level can be characterized largely by assessing three items: the respect for multiple points of view, resource mobilization, and the diversity of horizontal and vertical communication networks. They argue that while horizontal networks facilitate the inclusion of a diversity of groups, values and ideas, vertical networks reflect the interaction between the community and external organizations and institutions. Thus, these two types of communication perform different, but complementary roles in the development of social capital. This form of capital is also regarded as fundamental in sustaining or even enhancing democratic attitudes and practices in communities.⁴⁵ As such, social capital seems important to empowering communities to use local resources to meet their needs.

Community capacity was a major focus of the FEMAT social assessment. The assessment of 300 communities in the western U.S. was conducted through workshops where panelists familiar with the local setting rated the communities on a capacity scale. Overall, the assessment team found that numerous factors such as community size, location, level of economic diversification, and leadership all contributed to a community's capacity to cope with changes in forest management. The team also concluded that many timber dependent communities were rated particularly low because of their sensitivity to changes in harvest levels and a low level of leadership.⁴⁶ Although the FEMAT study provides interesting insights about key influences on the ability of communities in the Pacific Northwest to adapt to changes in forest policy, it tells us little about how these changes might affect the welfare of residents or their quality of life. These concerns are embedded in another concept: community well-being.

Community well-being

While community well-being has been used as an assessment framework in recent studies of forest communities,⁴⁷ the concept of "community well-being" is a difficult one to grasp. Although the term appears in many scientific papers, it is rarely defined. Wilkinson⁴⁸ offered an initial attempt by describing the concept as one that reflects and recognizes the social, cultural and psychological needs of people, their family, institutions and communities. This description reveals the complexity of the concept; and because of this complexity, studies on community well-being have adopted different approaches. Some studies of forest communities look at specific factors such as poverty or economic development⁴⁹ and rely mainly on social indicators. Others focus on more general well-being⁵⁰ by including a mix of social indicators, historical information, and something relatively new—primary data collected directly from community residents about how they evaluate different aspects of their life.

For example, in their studies of Alabama's forest communities, Bliss et al⁵¹ compared the social, economical and environmental well-being of two forest dependent counties. Their assessment relies on a comprehensive analysis of social structures, ownership patterns, forest sector

utilization and historical development patterns in the communities. They observed that a high concentration of resource ownership and product specialization posed problems for the overall well-being of residents. This finding was due in part to the fact that landowners had few, if any, incentives to participate in the improvement of the social well-being of the community in which their forests or mills were located. While these economic actors can make important contributions to the economic well-being of a community, their overall contribution to *community* well-being can be reduced by their negative impacts on the social environment. Other research⁵² has also noted that concentrated ownership and control of natural resources can negatively affect the well-being of forest communities.

Aspects of community capacity have also been identified as important factors that can influence well-being.⁵³ For instance, in the Sierra Nevada Ecosystem project, Doak and Kusel⁵⁴ assessed well-being through an analysis of socioeconomic status and community capacity. Their strategy was to complement socio-demographic measures with self-reported measures collected in specific communities. They used indicators of housing tenure, poverty, education level, and employment to construct a scale to measure socioeconomic status. A series of workshops with key public officials were then used to assess community capacity. Results indicate that communities with a high socioeconomic status do not necessarily have a high community capacity. The authors attribute this weak correlation to the critical role of "social capital;" that is, a community's ability to work towards common goals. While socioeconomic status provides information about the wealth of people in a community, community capacity informs us about the willingness of these people to share this wealth. Thus, these two concepts contribute in different ways to the general well-being of forest communities.

Community resilience

It is not clear under what circumstances the concept of community resiliency was first introduced in the community assessment literature. In 1990, Machlis and Force suggested resiliency as an alternative to the concept of stability because it emphasized the ability of a community to cope with change. More recently, community resilience has been described as the capacity for humans to change their behavior, redefine economic relationships, and alter social institutions so that economic viability is maintained and social stresses are minimized.⁵⁵ In many regards, community resilience is similar to the concept of community capacity; however, the concept of resilience expresses a clear concern about the development and maintenance of a community's adaptability over time. In this sense it contributes a new element to the assessment of forest communities.

Unfortunately, one concern with the use of this term is that the social definition of resilience may be confused with the ecological meaning of resilience. Ecologically, resilience refers to the ability of a system to recover from a perturbation and the speed with which it returns to its original condition.⁵⁶ As a result, people may erroneously believe that community resilience is a concept for assessing how human communities return to pre-existing conditions after having responded to change. In contrast, the intended use of the concept emphasizes the prosperous evolution of a community and recognizes that a return to the status quo will not necessarily promote resilience.

Fortunately, the social science team of the Interior Columbia Basin Ecosystem Management Project helped operationalize the concept of community resilience. In their study researchers conducted workshops involving 198 communities and led participants through self-assessments of each town's ability to manage change and adapt in a constructive way. A resilience index was developed⁵⁷ to monitor communities by aggregating measures of resident's perceptions of certain community characteristics and conditions:

- aesthetic attractiveness
- proximity of outdoor amenities
- level of civic involvement
- effectiveness of community leaders
- economic diversity
- social cohesion among residents

Because researchers were also interested in how local people perceive their future, they also assessed how communities thought about and prepared for future events. Results indicate that the most resilient communities are those whose residents have a clear vision of desired future conditions and have taken into account biophysical, social, and economic changes.⁵⁸ The researchers suggested that communities who have collectively considered change and approach it with a pro-active attitude are better able to adapt and move forward. However, the ICBEMP assessment did not support FEMAT's conclusion that forest communities most dependent upon timber are the least adaptable communities. Unfortunately, this part of the assessment was abbreviated and provides few clues about the source of that difference. It therefore remains unclear whether the difference rests on the various aspects studied under the different assessment frameworks or if it is embedded in the community characteristics themselves. Further studies of community resiliency would help clarify the important elements that confer to a community the ability to maintain itself over time. Such research could also help clarify subtle differences between resilience and community capacity.

Conclusion

In this chapter we have retraced historical perspectives to describe essential terminology and provided a brief summary of several conceptual frameworks for assessing forest-based communities. We acknowledge there may never be a single definition for these concepts. Their value lies in providing us with ways to think about sustaining communities and remind us that the communities are continually evolving entities.

Because community stability initially evolved with an economic connotation, more inclusive terms such as community capacity, well-being, and community resilience are now more useful replacements. These concepts encompass the previous elements expressed by the notion of stability, but also provide a means to incorporate other current concerns and values held by community residents. These concepts also possess several common features—the most obvious being that community capacity is an important element of community well-being.

Another important common feature is that each of these approaches requires researchers to go into forest communities because they cannot adequately evaluate these places on secondary data alone. Consequently, community members have come to play a larger role in assessments than under previous models. It is likely that these new forms of evaluation will be more meaningful to those affected and, as such, they have a better chance of being implemented over the long-term.

In addition, these frameworks recognize the contextual differences among communities and these tools help answer different questions about places and local residents. Community well-being is the most far reaching concept as it assigns importance to the roles of historical background, quality of life, and concerns about peoples' capacity to adapt to change. Therefore, the notion of well-being is likely to lead to a more comprehensive description of a community than an analysis based solely on community capacity. Finally, while community resilience also shares certain elements embodied in the other two concepts, it is the one that prompts us to look forward, providing insights about the hopes and trust that residents place in their community's future.

Our intent in this discussion has been to help broaden our understanding of the interrelationships between humans and the forest settings in which they live and work. Hopefully, further refinement of these conceptual frameworks will also lead to agreement on more specific criteria and indicators for evaluating the sustainability of forest communities.

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