

Social Science Constructs in Ecosystem Assessments: Revisiting Community Capacity and Community Resiliency

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This article explores the development of sociological constructs in community assessment components of large-scale ecosystem assessments. We compare the conceptual and operational development of the constructs of community capacity and community resiliency used in three community assessments in the western United States: the Forest Ecosystem Management Assessment Team, the Sierra Nevada Ecosystem Project, and the Interior Columbia Basin Ecosystem Management Project. The policy mandates, research goals, and methodologies of the assessments are considered in order to better understand the evolution of these constructs. We compare the constructs and find them similar in concept but slightly different in application. We suggest further conceptual refinement of community capacity and resiliency by distinguishing foundational assets from mobilizing assets. We present several methodological and theoretical challenges that, if overcome, may increase the effectiveness and relevance of community capacity or community resiliency as constructs in social science research and social assessment projects.

Keywords community capacity, community resiliency, ecosystem assessment, forest-based communities, social assessment, social science constructs

Sociological constructs structure social science research. Constructs guide methodological choices, such as the development of indicators and measures. Constructs define frameworks within which results of research are considered and evaluated. Constructs may evolve or new ones emerge as theory and methods advance. In the past 70 years, numerous constructs related to the well-being of forest-based communities have emerged and evolved in response to the combined influences of resource management policy, evolving social theory, social assessments, and changes in communities. The Forest Ecosystem Management Assessment Team (FEMAT) (FEMAT 1993), the Sierra Nevada Ecosystem Project (SNEP) (SNEP 1996a; 1996b), and the Interior Columbia Basin Ecosystem Management Project

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(ICBEMP) (Quigley and Arbelbide 1997; Haynes et al. 1996) were three large-scale ecosystem assessments conducted in rapid succession in the 1990s. Through the community assessment components of these ecosystem assessments, two constructs were developed: community capacity and community resiliency. In this article we revisit the development of these constructs, describe the context of the large-scale ecosystem assessments with which they were associated, and bring to bear more recent research and theories on their continued development. Our purpose is to contribute to the maturation of capacity and resiliency rather than create new constructs.

We begin by tracing the progression of constructs related to forest-based communities, which suggests a shift in social scientists' views of community from something acted upon to an entity with agency and the ability to act. We then compare the conceptual and operational development of community capacity and community resiliency, considering the political origins, research goals, and methodologies of the community assessments with which they are associated. We conclude by revisiting these constructs and suggesting new approaches and challenges related to their use in social science research pertaining to forest-based communities.

Evolving Concepts of Community in the Context of Forest Management

The concepts used to depict communities and their connections to forest resources and forest management have evolved over the past 70 years. During this time, there has been a growing emphasis on the complex, dynamic, and interrelated aspects of rural communities and the natural resources that surround them. With respect to forest management, the early concept of community stability assumed the link between forest management and community well-being was stable employment in the forest sector. Forest policy played a role in developing and institutionalizing this concept; key legislation reflected the assumption that timber flows from public forest lands could play an important role in providing economic stability for communities. For instance, the Oregon and California Revested Lands Sustained Yield Management Act of 1937 (O & C Act) requires the Bureau of Land Management to provide a "permanent source of timber supply . . . contributing to the economic stability of local communities" (Act of August 28, 1937, 50 Stat. 874). For the Forest Service, the National Forest Management Act of 1976 (Act of October 22, 1976; 16 U.S.C. 1600) requires planners to examine the consequences of their planned actions on the stability of forest-dependent communities.

These policies led to an informal alliance among forest management agencies, the timber industry (those purchasing federal timber), and communities with processing or logging facilities. These stakeholders advocated that the provision of continuous supplies of forest products constituted the basis for determining whether community stability was being achieved. Over time, maintaining status quo in timber employment emerged as the defining attribute of community stability. The original, broader policy intent—the well-being of forest-based communities—became obscured by the adoption of mandates for nondeclining even flows of timber from federal forests.

Early social science research emphasized the importance of communities managing ordered change, rather than maintaining the status quo (Kaufman and Kaufman 1946). Despite this research, the political use of the term "stability" endured for decades as meaning even flows of timber from federal lands. Later research tested the

premise that sustained yields would result in community stability (Drielsma et al. 1990). Questions emerged as to whether even flows of timber ensured stability in aspects of community life such as population and social structure, particularly when technological advances led to the substitution of capital for labor in the timber industry. Some economists questioned "nondeclining even-flow" policies, and sociologists challenged the limited focus on timber harvests. These concerns were echoed in studies emphasizing community diversity (Fortmann et al. 1989) and community well-being (Kusel and Fortmann 1991), which drew on Kaufman and Kaufman's position that "how well they live" was more complex and relevant than "what people do for a living" (Kusel 2001). By the late 1980s, the notion that even timber flows and sustained-yield management led to community stability was questioned (Lee 1990; Schallau 1990).

Although the use of the term "stability" continued to endure in policy debates, many researchers voiced concern about the concept's imprecise definition (Fortmann et al. 1989; Lee 1989; Richardson 1996; SAF 1989). As researchers operationalized concepts related to community well-being, some began looking beyond employment indicators to other aspects of community life to assess community well-being (Kusel and Fortmann 1991). In addition to economic measures, indicators for poverty, education, crime, and other sociodemographic measures were used to assess conditions in communities (Machlis and Force 1990; Doak and Kusel 1996).

This thinking was aided by conceptual development in rural sociology (Flora 1994), political science (Putnam 1993), and economics (Becker 1964) regarding the importance of individual and collective assets or "capitals" in communities. These capitals have been central to current writing about natural resource communities; they are generally described as resources invested to create new resources, and enumerated as human, social, financial, political, physical, and natural (Pretty 2000; Flora and Flora 2004).

Social scientists seeking constructs for assessing communities as part of the three ecosystem projects became key participants in this conceptual development. By the mid-1990s, changes in forest policy, markets, and technology were among many external forces buffeting forest-based communities. Communities traditionally considered "timber-dependent" had historically experienced cyclical periods of stability and decline, and even though new forest policy was expected to contribute to sizeable downturns in an already restructuring timber industry, some communities were demonstrating their ability to adapt. The community assessment teams began with the observation that small, rural communities were complex and in various stages of transition. Community-level constructs were needed to reflect the ways communities related to the forests around them, including economic, recreational, and aesthetic connections, and to reflect the assets generated by a community, including leadership, civic cohesiveness, and physical infrastructure.

Researchers in FEMAT and later in SNEP chose to work with the construct of capacity as a dimension of community well-being. ICBEMP social scientists focused on the resilience of the region's communities. Both assessments shifted the conceptualization of the relation between communities and federal forest lands from one based on community dependency and powerlessness to one focused on the ability of communities to direct their own futures through civic infrastructure and other factors. The community assessment teams operationalized the constructs with indicators and measures appropriate for large-scale community-level assessments. What they did, how they did it, and the policy context within which the assessments

unfolded are described here and form the basis of our analysis and comparison of the constructs capacity and resiliency.

Methods

Data for the analysis of community-assessment processes and community constructs were collected through a combination of participant-observation and postassessment, in-depth interviews with scientists on the community-assessment teams. Documents produced by the assessment teams were reviewed, and retrospectives on the processes and outcomes of the assessments (Johnson et al. 1999; Arabas and Bowersox 2004) were examined to better understand the science and policy interface. One author participated on the community assessment team of FEMAT, assisted in SNEP, and was an occasional consultant for ICBEMP. The other author extensively reviewed the methods of the community assessments for application in a ten-year monitoring project (Charnley 2006) of communities in the Northwest Forest Plan region originally studied by FEMAT.

The Three Assessments

The three large-scale ecosystem assessments implemented during the 1990s in the western United States provided a landmark opportunity for social science because they included not only a biophysical assessment but also a social assessment. FEMAT was initiated by President Clinton and charged with finding a balance between forest protection and utilization. Mandated by Congress, SNEP was to examine alternative management scenarios that could maintain the sustainability of the ecosystem while providing resources to human communities. ICBEMP was initiated by agencies to provide a scientifically sound, ecosystem-based management direction for federal lands across parts of seven states.

The bioregional emphasis of the assessments reflects a shift over the decades by federal land managers from commodity- and single-species-oriented resource management to ecosystem and landscape management. The assessments coincided with heightened social concerns over management of public lands and, in the case of the Pacific Northwest, the listing of the northern spotted owl (*Strix occidentalis caurina*) as an endangered species and subsequent administrative gridlock. They aimed to determine the status and capability of ecosystems to provide for the plants, animals, and humans that depend on them. Therefore, each ecosystem assessment included a social assessment with a community-level component. Together, the biophysical and social components were initiated to build a knowledge base for natural resource planning, meet legal and administrative objectives, and help resolve political conflict over forest management.

Each team of researchers for the community assessments defined its mandate in similar but slightly different ways. In general, each was to elucidate community dependency on, and expectations for, natural resources and assess the ability of communities to respond to changes in land management. They were to provide an understanding of the current, and possible future, social and economic conditions for a wide range of communities, particularly as they relate to resource management, and to inform policymakers and managers about the social consequences of their impending decisions. They were not social impact assessments primarily because management alternatives were not developed prior to the assessments.

Without management alternatives against which to evaluate potential impacts at the community level, FEMAT, ICBEMP, and SNEP social assessment teams chose to develop sociological constructs at the community level related to a community's ability to adapt to change, regardless of its source. The policy contexts and methods used to develop the constructs are described next (see Table 1 for summary of methods).

Forest Ecosystem Management Assessment Team

To address the gridlock over management of federal forests in the Pacific Northwest of the United States, President Clinton held a Forest Conference in April 1993 and asked participants a fundamental question, "How can we achieve a balanced and comprehensive policy that recognizes the importance of the forest and timber to the economy and jobs in this region, and how can we preserve our precious old-growth forests, which are part of our national heritage and that, once destroyed, can never be replaced?" To produce a plan, Clinton chartered three task forces, the Forest Ecosystem Management Assessment Team among them. The team's guiding principle was to "never forget the human and economic dimensions of these problems" (FEMAT 1993, ii).

The community-assessment team was charged with assessing the effects of potential changes in forest management on communities in western Oregon, western Washington, and northwest California, later known as the "owl region." FEMAT researchers had no precedent to follow for this type of assessment. They were asked to produce geographically specific results (referring to communities of place) within a tight deadline (60 days) and within closed doors (public input was tightly controlled), which created real constraints for assessing communities. They sought a methodology that would identify groups within a community who could become disadvantaged, even if the community as a whole might not be negatively affected by changes.

To conduct "a more discriminating examination of community consequences" (FEMAT 1993, vii-47), the community-assessment team convened two workshops to develop constructs and measures to assess the ability of communities to cope with shifts in forest management and other externally based changes (FEMAT 1993). Over 50 researchers and practitioners in community development rated nearly 300 communities and then shared and discussed the written justifications of their ratings. Successive rounds of rating brought further consensus and refinement to the final measure. Private citizens could not be included in the workshops, and because of time and other constraints, results were not shared or validated at the community level. Instead, informants drew from their knowledge of the communities and data provided at the workshops to develop community ratings.

FEMAT researchers considered community capacity in terms of (1) physical capital (community infrastructure and economic resources), (2) human capital (skills, education, and experience of residents), and (3) social capital (the ability and willingness of resident to work together for community goals). Community capacity, as conceived by FEMAT, enables residents to cope and respond to adversity, to create and take advantage of economic and governmental opportunities, and to meet the physical and social needs of residents. Community capacity was considered to be multidimensional, involving both community processes and structures, such as leadership, civic culture, employment options, transportation, human resources, and natural resource utilization.

Table 1. Description of community social assessments and constructs

	Social assessments		
	FEMAT	ICBEMP	SNEP
Construct	Capacity	Resiliency	Capacity
Definition of construct	“Ability of residents, community institutions, organizations, and leadership to meet local needs and expectations” (FEMAT 1993, VII-51)	“The community’s ability to respond and adapt to change in the most positive, constructive ways possible for mitigating the impacts of change on the community” (Harris et al. 2000, 7)	“The collective ability of residents in a community to respond to external and internal stresses; to create and take advantage of opportunities; and to meet the needs of residents, diversely defined” (Kusel 1996, 369)
Indicators	Physical infrastructure, human capital, civic responsiveness	Civic leadership, social organization, economic structure, physical amenities and attractiveness	Physical infrastructure, human capital, social capital
Instrument	Ratings by social scientists and community practitioners at workshops	Community resident questionnaires and workshops	Community and county informant questionnaires and workshops
Measure	Single score capacity rating from 1 to 7 (1 lowest, 7 highest)	Community resiliency index comprised of four components, measured by quartiles as low, medium low, medium high, high	Single score capacity measure from 1 to 5 (1 lowest, 5 highest)
Rank ordering of measure	Relative	Relative	Unique
Number of communities	300	198	182
Region	Western Oregon, western Washington, and northwest California	Portions of Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming	Sierra Nevada ecoregion, defined by 24 river basins in central California

Interior Columbia Basin Ecosystem Management Project

Following on the heels of FEMAT, ICBEMP covered a larger geographical area, under less time pressure, and with more public involvement. The Forest Service and Bureau of Land Management initiated ICBEMP in 1994. The charter called for preparation of environmental impact statements (EISs) for the Columbia River Basin, a scientific framework for ecosystem management, and scientific assessment of the basin.

The full social assessment for the ICBEMP consists of several technical studies and reports produced under contract or by ICBEMP science staff; in some cases, only portions of these reports were incorporated in the final publications and EISs. Although socioeconomic indicators and measures were developed in several ICBEMP reports, the Harris et al. (2000) reports are of interest here because they apply measures to the community resiliency concept (see Table 1 for definition). Resiliency first appeared as part of the ICBEMP conceptual framework which viewed ecosystem health as composed of two parts: ecological integrity and socioeconomic resiliency (Haynes et al. 1996). This became the conceptual blueprint from which the social assessment teams refined and developed the construct of resiliency.

Harris et al. (2000) developed a community resiliency index based on key residents' perceptions of their communities in the ICBEMP area. Community informants were selected on the assumption that active and involved residents representing diverse roles would be the most informed and knowledgeable about their communities. In all, 1300 community informants from 198 communities participated in community self-assessment workshops throughout the region. Participants completed their community self-assessment workbooks as individuals, not position holders. Ratings were done in private, followed by a facilitated group discussion where ratings were revisited. The assessment team developed a resiliency index comprised of four scales relating to the ability of a community to adapt (Harris et al. 2000). The scales were (1) civic leadership, (2) social organization, (3) economic structure, and (4) physical amenities and attractiveness. Scores for the community resiliency index and the four scales were placed along a continuum that was equally proportioned from low, moderately low, moderately high, and high.

Sierra Nevada Ecosystem Project

In 1993, Congress authorized funds for "scientific review of the remaining old growth in the national forests of the Sierra Nevada in California, and for a study of the entire Sierra Nevada ecosystem by an independent panel of scientists, with expertise in diverse areas related to this issue" (SNEP 1996a, 1). Although conceived of earlier, this project followed the FEMAT effort, building on some of its experiences and borrowing some scientists—including social scientists from the community assessment team.

The SNEP social assessment focused on community well-being, based on a broad understanding of the relations between residents of the Sierra Nevada and natural resources (Doak and Kusel 1996; Kusel 1996). Well-being consisted of two dimensions, an index of socioeconomic status created with census data, and community capacity, a construct brought by the researchers from FEMAT. The definition of community capacity was expanded and presented to local community key

informants at workshops where they were asked to assess physical, human, and social capitals.

The SNEP assessment team held 19 workshops across the Sierra Nevada with a range from 3 to 18 participants representing a variety of leadership roles in the communities. Individuals filled out private assessment worksheets, including a narrative justification, and these individual ratings served as material for group discussions during which a final capacity rating was determined. The resultant community capacity ratings were then compared to a socioeconomic status scale developed from census socioeconomic data. Finally, spatial analyses were conducted to determine the relations among community capacity, socioeconomic factors, and location and proximity to public land, transportation, cities, and county seats.

Comparison of Constructs in Community Assessments

The three community assessments broke new scientific ground by choice and by default. By choice, they moved from the "community stability" tradition, which equated jobs and community well-being, to one reflecting the multiple dimensions of community life and the diverse relations residents have with the natural resources that surround them. The community-assessment teams used sociological constructs and measures to assess how communities would be able to respond to changes in natural resource management. The constructs provided a framework within which the assessment teams defined their research objectives and focused on specific aspects of community life. Little systematic, comparative research had been conducted previously on communities in these regions at such large scales, and few methodological protocols existed. Thus, by default, the community assessments had to be innovative, developing new constructs, measures, and methodological approaches.

Although academics debate whether capacity and resiliency are similar or different concepts, arguments tend to be definitional rather than grounded in research that applies indicators and measures to concepts. The community assessments of FEMAT, SNEP, and ICBEMP represent unique examples of both conceptual and methodological development of capacity and resiliency. As such, they provide a solid basis for a comparison of constructs. Our analysis of the use of capacity and resiliency in these assessments indicates their definitions and measurements have minor differences but are fundamentally the same. Both capacity and resiliency emphasized the ability of communities to adapt to change. Each assessment assumed that the higher the capacity or resiliency of a community, the more likely it would be that opportunities existed, or would be created, to expand individual and collective abilities to meet needs and to adapt to changes in forest management. Each assessment used qualitative input from people knowledgeable about the area, as opposed to secondary data as proxies for components of the constructs, although the type of expertise in the workshops differed, with ICBEMP and SNEP using local and regional residents and FEMAT using social scientists, local government employees, and community practitioners.

The constructs used in each community assessment were multidimensional, representing various human, social, and physical dimensions of community life; however, a single rating or score represented a community's capacity or resiliency. In FEMAT, components of community capacity were grouped. Economic diversity, for instance, was included in physical capital along with environmental capital, physical attractiveness, industrial parks, and other physical dimensions. This was

similar in SNEP, where local experts considered the social, human, and physical capital of a community but assigned only a single capacity rating. The community expert workbook in ICBEMP allowed for discrete ratings on numerous variables that through factor analysis were developed into four components of resiliency. Unlike FEMAT and SNEP, ICBEMP reported the community resiliency index together with the scores for the four components of the index.

By collapsing community attributes and dynamics into a single score, all assessments risked assigning similar capacity or resiliency scores to communities quite different in their combination of physical assets or social capabilities. When the assessments compared the capacity ratings with other data, such as socioeconomic status (SNEP), narrative justifications (FEMAT and SNEP), and the four components of resiliency (ICBEMP), assets critical to some communities were revealed. FEMAT found the importance of leadership, networks, civic participation, norms, and trust, even in communities with few economic opportunities. In SNEP, social capital was said to account for the finding that not all communities with high socioeconomic status had high capacity. Using results from factor analysis of workshop data, ICBEMP researchers weighted the components of civic leadership and social organization the highest of the four components of resiliency. By looking holistically at the dynamics of social change, rather than narrowly at sources of stability such as resources flows and jobs, the researchers discovered the importance of social and human capital in forest-based communities. Unfortunately, the focus on single scores and ratings of capacity and resiliency belied the constellation of assets that allow communities to deal with change and act.

Revisiting Community Capacity and Community Resiliency

Community capacity and resiliency have endured as concepts for a decade since the assessments, but definitional and operational complexities remain. The assessments and other literature identify components that collectively indicate a community's "ability" to respond to change, take advantage of opportunities, and meet needs of residents. These components reflect the assets that a community has at present while signaling what a community may achieve in the future. Any given community will have a constellation of assets, and each asset increases or decreases over time. These assets are commonly termed *types of capital* (Flora 1994; Pretty 2000; Flora and Flora 2004) and have become key components of the constructs capacity and resiliency. We deconstruct the constructs into their definitional and operational parts (Figure 1) to clarify them and improve their usefulness in community assessments, research, policy development, and community action.

Assets can be divided into two types that we distinguish as foundational and mobilizing assets. This idea of differentiating between types of assets is supported by findings from the three assessments and elsewhere (Flora and Flora 2004; MacKendrick and Parkins 2004; Boyce and Shelley 2003; Beckley et al. 2002) that indicate the importance of social and human capital as drivers of positive change necessary for producing desired outcomes in communities. Foundational assets include physical infrastructure, natural resources, and economic capital; they are the resources or attributes present in a community. Mobilizing assets are forms of civic and organizational infrastructure commonly referred to as human, social, and political capital; they are the social processes and interaction that make up collective action. We suggest that mobilizing assets such as social cohesion, collective

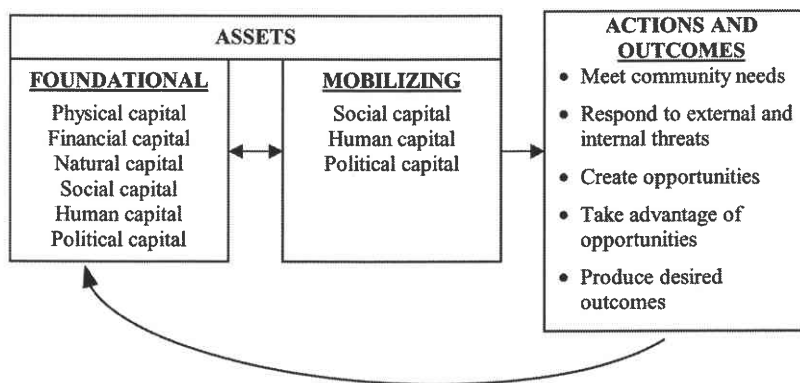


Figure 1. Deconstructing community capacity and community resiliency.

decision making, and leadership merit distinct consideration from foundational assets because they mobilize the foundational assets into productive use by a community to create desired outcomes. For instance, leadership and collective decision making are needed to mobilize financial resources to build or maintain physical infrastructure.

Mobilizing assets, such as human capital, if not activated to address a particular problem, remain foundation assets. Thus, they appear in two places in Figure 1. Mobilizing assets, at whatever level, contribute to on-going processes and structures of community life, but also exist as attributes or conditions that can be called upon when the community needs to respond to internal and external stresses or opportunities. For instance, gated communities, a recent phenomenon in forest-based communities, may have human capital assets, such as skilled workers, diverse forms of knowledge, and financial means, that contribute to the foundation of assets within a community. But individual preference for isolation or independence may mean that such assets are not mobilized for collective community benefit. Breaking down the conceptual and operational aspects of the constructs helps illustrate that the ability of a community to adapt to change and take advantage of opportunities depends not just on a community's stock of assets, but also on whether or not it can activate these assets to solve a problem or achieve desired outcomes.

Different amounts and combinations of assets are mobilized to meet various community needs. Communities that meet needs by mobilizing assets often create additional foundational assets in the process. For instance, social capital may increase as a community builds its civic culture through collective action. Although financial assets may go down as a community mobilizes resources to improve physical infrastructure, such action may contribute to economic development opportunities in ways that increase human capital. In contrast, assets that are not mobilized, such as workforce skills, may decrease as people move to new locations in search of work. The arrow in Figure 1 from actions and outcomes back to assets represents this dynamic aspect of capacity and resiliency.

Conclusion

Social science related to forest management has gone from constructs such as stability that narrowly define community-forest relations as revolving around timber employment and flows of timber products to constructs that relate to more than

forest management, such as community capacity and community resiliency. The contemporary constructs of capacity and resiliency reflect the complex reality of forest-based community life; the consequence, however, is further need for theoretical and methodological advancement. The community assessments of FEMAT, SNEP, and ICBEMP pioneered conceptual and methodological development of capacity and resiliency. We were able to revisit these constructs outside the pressures of large-scale community assessments, including political oversight, budget and time constraints, and temporal and spatial methodological issues.

We suggest that the constructs of capacity and resiliency applied in assessments will be more consistent with the realities of community life if social scientists make conceptual and operational distinctions between foundational assets and mobilizing assets. Rather than contributing to a proliferation of concepts, we encourage social scientists to adopt one of these similarly used constructs into academic vernacular and move beyond definitional debate into much needed methodological development of these constructs. We conclude by discussing some of the challenges associated with moving from conceptual design to the operational practicality needed to conduct community assessments.

One challenge is for scientists to develop measures of capacity and resiliency that reflect not only the inherent complexity of the concept but also the temporal dimension. "Adapting to change" is a dynamic process. A community's assets are in a constant state of flux, increasing and decreasing as people migrate, regional and global economies change, natural and human-induced disturbances in the landscape occur, and other forces influence the composition of communities. Social sciences have yet to develop measures reflecting the dynamic properties of community assets. Although knowing that a community has a moderate level of financial capital indicates the status of its financial assets, a dynamic measure could reveal much more. Knowing that financial capital has increased from a very low level to moderate levels in a short time, perhaps owing to immigration of retirees, gives much more information about an asset and perhaps how, or whether, it will be mobilized. If policy and program development are potential outcomes related to community assessments, then it would be useful to understand not only the level of a particular asset in a community, such as leadership, but also its course and magnitude relative to other communities.

Policy directives and methodological limitations steered the three assessment teams in ways that made it reasonable to attempt to combine the distinct components of the constructs into a single measure. Single scores can be used in statistical analyses with other socioeconomic measures, they can facilitate planning, and they allow decision makers to rank communities for mitigation or policy purposes. We suggest, however, that the constructs of community capacity and community resiliency may be too complex to be assessed only as a single score, and doing so may obscure some of the critical elements necessary in accurately assessing communities. Thus, the dual methodological challenge is to develop measures that reflect the various foundational and mobilizing assets of capacity and resiliency, and to do so in ways that show the dynamic qualities of the assets.

None of the community assessments attempted to create constructs linking community capacity and resiliency to resource management, except indirectly in the notion that capacity relates to the ability to adapt to change, including changes in forest policy and management. However, community assessments continue to play an important role in forest management policymaking and evaluation, as indicated

by the recent completion of the social assessment of the Northwest Forest Plan (Charnley 2006). Also, decision makers and managers have expectations that community assessments will inform their work. But when constructs used in social science, such as capacity and resiliency, relate to community processes and structures with few direct ties to forest management, managers may be disinclined, or not know how, to use information provided in community assessments. More theoretical development is needed about the connections between forest-based communities and forest management. And processes that integrate decision makers and community leaders in the design and implementation of community assessments will increase the usefulness of the work.

We can learn a great deal from past ecosystem assessments to advance theory and methods associated with future community assessments. But some of that work may need to be done outside of large-scale, politically sensitive assessment projects. Incorporating construct development into routine social science programs is one way to ensure that future community assessments rest on firmer conceptual and methodological foundations. Studies designed specifically to validate indicators and measures would contribute to community assessment processes as well. Researchers could work with community development practitioners and agency extension specialists to incorporate constructs into planning, program evaluation, and impact studies. Overcoming these and other scientific challenges associated with the constructs of capacity and resiliency may increase their effectiveness and relevance in large-scale community-level assessments in particular, and social sciences more generally.

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