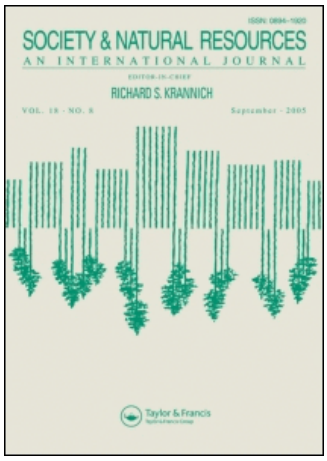

Society & Natural Resources
An International Journal
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713667234

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To cite this Article: Mendis-Millard, Sharmalene and Reed, Maureen G. , 'Understanding Community Capacity Using Adaptive and Reflexive Research Practices: Lessons From Two Canadian Biosphere Reserves', Society & Natural Resources, 20:6, 543 - 559
To link to this article: DOI: 10.1080/08941920601171915
URL: http://dx.doi.org/10.1080/08941920601171915

Society and Natural Resources, 20:543–559

ISSN: 0894-1920 print/1521-0723 online
DOI: 10.1080/08941920601171915

Routledge
Taylor & Francis Group

Understanding Community Capacity Using Adaptive and Reflexive Research Practices: Lessons From Two Canadian Biosphere Reserves

SHARMALENE MENDIS-MILLARD AND MAUREEN G. REED

Department of Geography, University of Saskatchewan, Saskatoon, Sasketchewan, Canada

Community-based ecosystem management requires understanding a community's capacity. We argue that communities can make important contributions not only to specific assessments of community capacity, but also to the conceptualization of the term itself through community-based research methods that are both adaptive and reflexive. A research initiative that illustrates such practices is reported here. We begin by describing our initial conceptual framework of community capacity that identified resource capitals and mobilizing factors. In focus groups, residents of two Canadian biosphere reserves used this framework to assess their capacity to meet biosphere reserve mandates and to provide critical reflections that helped to drive revisions to the framework. Our new framework is more sensitive to temporal and spatial dimensions of capacity, local social relations, and local culture. We conclude that adaptive and reflexive community-based offer methodological alternatives for research, help advance conceptions of community capacity, and help produce social change.

Keywords adaptive research, biosphere reserves, community-based research, community capacity, ecosystem management, focus groups, reflexivity

It is generally accepted that local involvement is a key component of ecosystem management (Conley and Moote 2003; Lawrence and Deagen 2001; Moore and Koontz 2003). However, downsizing of resource management agencies and a heightened demand for scientific and values-based knowledge about ecosystems have raised concern for the capacity of local communities to participate in ecosystem management in a desirable, sustained, and meaningful way (Bradshaw 2003). This context suggests that examining the concept of community capacity is important for promoting a fair, equitable, effective, and desirable set of shared responsibilities between civic and public sectors.

In this article, we propose that local communities can do more than provide instrumental improvements to environmental decision making. Residents can be key contributors not only to specific assessments of community capacity, but also to the conceptualization of the term itself. Additionally, assessing a community's

Received 24 May 2005; accepted 17 October 2006.
Address correspondence to Maureen G. Reed, Department of Geography, University of Saskatchewan, 9 Campus Drive, Saskatoon, Saskatchewan S7N 5A5, Canada. E-mail: m.reed@usask.ca

capacity may also serve to *build* it, thereby meeting a social objective of research—to generate positive social change. These multiple contributions can be achieved if community capacity is assessed through community-based research.

However, just as local involvement in ecosystem management requires power sharing among agencies and communities, involving residents as cogenerators of knowledge requires a willingness by researchers to relinquish some control over the research process. This willingness may require us to reflect on challenges posed by field circumstances and to adapt our work to meet local needs and interests. We draw on aspects of an adaptive research approach discussed by Maureen Reed and Evelyn Peters (2004) to address the question: How can community-based research effectively assess, and even help build, community capacity and inform the concept of ecosystem management? This question is answered through a discussion of the process and outcomes of our research in the context of the ecosystem management approach in two Canadian biosphere reserves. We suggest that adopting adaptive research practices, with particular attention paid to (1) reflexivity (or critical reflective practice), (2) respectful engagement by encouraging varying levels of participation, and (3) a willingness to alter methodological strategies, can help advance both theory on community capacity and community capacity itself.

We begin by introducing conceptual advances, methodological difficulties, and our initial framework of community capacity. We then explain how our approach to community-based research in two Canadian biosphere reserves embraced an adaptive approach. While several data sources were used in this study, we place greatest attention on focus groups and the introduction of an accompanying activity. Analysis of results reveals new ways of thinking about the concept shared between regions, which leads to a reconsideration of theory and a revised framework. We conclude by considering how our research practices can help cocreate theory and promote social change in future research.

The Original Conceptual Framework of Community Capacity

Several related concepts and methods have been used to evaluate communities and their capacity for ecosystem management and/or sustainability. These include community stability (e.g., Machlis et al. 1990), community well-being (e.g., Marchak 1990), community resiliency (e.g., Harris et al. 1998), quality of life (e.g., Vogel 1997), and community sustainability (e.g., Force and Machlis 1997; Parkins et al. 2001). Additionally, early work by Amartya Sen that focused on capabilities (e.g., 1984; 1985a; 1985b) was adapted for the Sierra Nevada Ecosystem Project to "capture the capability of community members to collectively affect opportunities" (Kusel 2001, 374).

From these themes, two common conceptual approaches emerged. The first focuses on developing an inventory of key characteristics of community capacity, typically grouped into natural and social forms of capital (e.g., Doak and Kusel 1996; Kusel 1996; Nadeau 2002). The second considers these characteristics but emphasizes actions that mobilize these assets through social relations (e.g., Reimer 2002; Beckley et al. 2002). These approaches are supported by work on asset-based community development (ABCD) that concentrates on assets, broadly defined, to include physical environment, institutions, skills, and abilities instead of needs and problems (Kretzmann and McKnight 1993; Cameron and Gibson 2005; Mathie 2003; Mathie and Cunningham 2005; Smith et al. 2001).

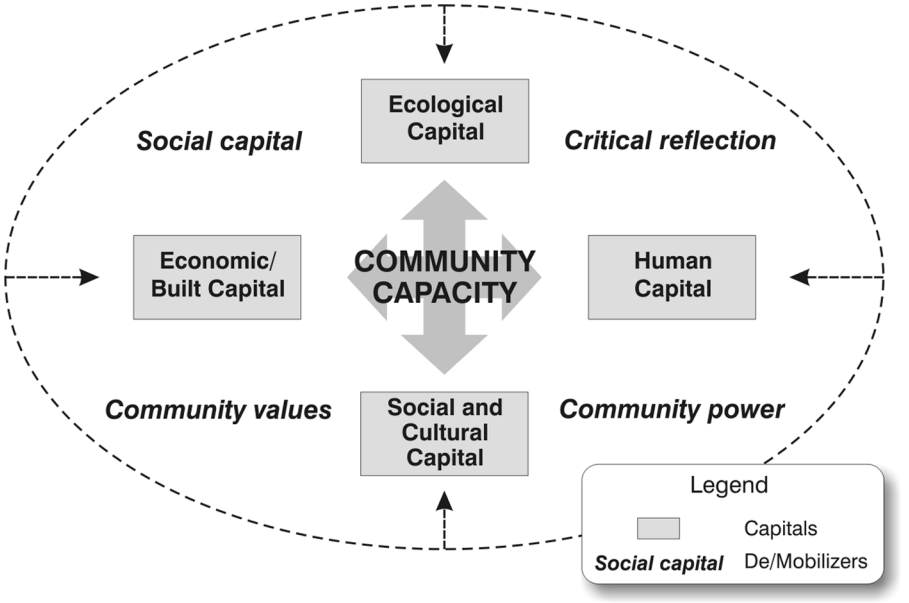

Figure 1. The original conceptual framework of community capacity.

Our original framework conceptualized community capacity as a process and an outcome, suggesting that *mobilizers of action*[1] animate and trigger the interaction of assets or *resource capitals* (Figure 1). Mobilizers were chosen by identifying incentives or barriers to the use of capitals from the literature. Recognizing that authors report different combinations of capital (cf: Beckley et al. 2002; Flora 1998; Kusel 1996, 2001), we considered four types.

Ecological capital refers to the natural endowments and resources of a region, including the stock of natural resources (e.g., trees, soil, genetic resources) and environmental services (e.g., nutrient cycling, carbon sequestration) (Deutsch et al. 2000; Schiller et al. 2001). The financial resources of a community, such as municipal budgets, along with its built infrastructure, such as utilities and business properties, comprise the *economic/built capital* of an area (Deutsch et al. 2000; Flora 1998). *Human capital* concerns the skills, education, experiences, and general abilities of individuals, encompassing formal and informal education, traditional and local knowledge, job experience, health, entrepreneurship, and leadership (Côté 2001; Flora et al. 1992).

Finally, social and cultural capitals were collapsed under the rubric of *social capital*, which refers to relational aspects of society. In the context of ecosystem management, it is defined as ''those features of social life—networks, norms, and trust—that facilitate citizen association and enable participants to act together more effectively to pursue shared objectives'' (Cortner and Moote 1999, 92). Social capital is considered both a capital stock and a mobilizing force for collective action that includes associational relations within a community that bond, bridge, or link family, friends, community members, and even those beyond the reach of individual communities (Woolcock 2001).

Despite the conceptual advances that provided the theoretical foundations for this original framework, there is no single, well-established and widely accepted method to assess community capacity (Doak and Kusel 1996; Nadeau 2002; Beckley

et al. 2002). Identification and classification of attributes into capitals and mobilizing forces do not readily translate into easily measured criteria and indicators. And even if indicators can be identified, they appear insufficient for capturing fluid and intangible aspects, such as the ability to work together toward a common goal (Doak and Kusel 1996). Thus, our research was exploratory, relying heavily on the findings to help build theory throughout the research process (Bryman 2001) and involving local people in generating new and locally specific interpretations of the concept.

The Case Studies: Two Canadian Biosphere Reserves

The original conceptual framework was discussed by residents of two Canadian regions, Clayoquot Sound, British Columbia (BC), and Redberry Lake, Saskatchewan (SK), in assessments of their capacity to function as biosphere reserves. Biosphere reserves are geographic areas designated by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) because of local efforts toward sustainability. All are created to demonstrate three functions: environmental protection, logistical provisioning for scientific research and education, and sustainable resource use (UNESCO MAB 2000). In Canada, biosphere reserves are "managed" by community committees responsible for obtaining funds to undertake educational and demonstration projects and providing logistical support for scientific research. These committees operate within provincial and federal legislative frameworks and/or work with relevant government agencies in cooperative decision-making forums.

Both biosphere reserves in this study were designated in 2000 by the federal government; however, they are quite different. For example, Clayoquot Sound[2] is approximately three times larger (349,947 hectares) than Redberry Lake (112,200 hectares) in area, and its ecosystems, economies, and cultural mix are more diverse. Much of the ecological significance of Redberry Lake rests with the aquatic environment that supports globally and nationally significant waterfowl and shorebird populations (Redberry Lake Biosphere Reserve 1998). The Clayoquot region has gained international recognition as a spectacular example of unlogged temperate rainforests with marine, coastal, and terrestrial ecosystems of high biodiversity and cultural values (Clayoquot Sound Biosphere Reserve 1999). Interviewees in both places identified international trade and the intensification of productive activities as potential threats to their sustainability (e.g., aquaculture at Clayoquot Sound, hog barns at Redberry Lake). They also expressed their commitment to use the biosphere reserve to promote conservation-based economy products (their words), be they agricultural, aquacultural, forestry, or tourism. They identified similar challenges associated with broadening their commitment, raising awareness of the biosphere reserve objectives among residents, deepening local dedication to specific projects and initiatives, and encouraging Aboriginal people to become active participants.

Examination of the 2001 Census of Canada also reveals striking contrasts in population characteristics. Tofino, the primary town in Clayoquot Sound, had a population of 1466—an increase of 25.3% between 1996 and 2001. In contrast, Redberry Lake is located within a region of declining population. Its main town, Hafford, had a 2001 population of 401, a decrease of 5.4% from 1996. Residents in Hafford were, on average, older and with less formal education than those in Tofino, but they reported having a high degree of social cohesion. In Clayoquot Sound, interviews revealed serious tensions between groups of people associated with different aspects of the resource/amenity economy (i.e., forestry and ecotourism).

We began fieldwork with an intensive, if informal, 1-month visit to Clayoquot Sound and several shorter trips to the nearby Redberry Lake region. These trips were followed by 6 weeks of fieldwork in Clayoquot Sound, where Sharmalene Mendis-Millard conducted semistructured in-depth interviews with 34 local Clayoquot Sound residents over the winter of 2003. In spring 2003, both researchers made several shorter-term trips to Redberry Lake to conduct 24 semistructured interviews. Interviews provided insights about each locality, the broad issues confronting each biosphere reserve, and how to make the project locally meaningful and useful (for details, see Mendis 2004; Reed 2007).

Local residents were directly involved in assessing community capacity through focus groups. Participants were introduced to the concept of community capacity and provided with a broad definition of each of the capitals, which led to open discussions about the interpretation of the concept and its components. They were asked to complete worksheets that yielded three sets of data including written descriptions of factors that contribute to and/or hinder each capital and overall capacity. While this account of methods is straightforward, our efforts to ensure that the focus groups were inclusive and locally meaningful required us to continuously modify our research strategy. This led us to adopt adaptive practices to reconsider the data collection process based on our continual reflection and on-going experience (after Reed and Peters 2004).

Adaptive Practices in Community-Based Research

Scholars of environmental management now openly discuss ways for researchers and practitioners to engage in community-based research practices (e.g., Bagby and Kusel 2003; Conley and Moote 2003; Robertson and Hull 2003). Community-based research—conducted for, with, and/or by community members—seeks the active participation of local people in shaping the research design to create an interesting research experience and meaningful outcomes for them. An adaptive research approach is one way for researchers to adhere to the spirit of community-based research; however, specific practices have yet to be described. Adaptive research practices are those that are designed for learning from community participants throughout all stages of research, from conceptualization to write-up. Susan Hanson (1997) suggested that designing research processes that maximize the possibility that we will be "surprised" means reducing researcher control over the research process, which implies that communities should be able to shape the research design even as it is being executed. To be adaptive, researchers need to prepare for surprises, involve diverse research participants in different ways, and, consequently, reconsider their role(s) and redefine research success toward goals of mutual learning and empowerment. With these considerations, we took care to follow an adaptive, community-based research approach by making a conscious effort to practice reflexivity; engaging residents respectfully and flexibly; and anticipating that our research methods would be altered during the research process.

Adopting a Reflexive Approach and Engaging Communities

Critical reflection helps sensitize the researcher(s) to the cultural, social, political, and economic contexts of the research and to acknowledge multiple possible interpretations of the findings. This reflection also helps researchers identify when and

how to adapt methods to meet unexpected outcomes, and encourages them to learn from past and present research experiences (Bailey et al. 1999; Reed and Peters 2004). To remain open to community desires, Mendis-Millard, who moderated the focus groups, "continually reflected upon [her] values, strategies, and beliefs in a conscious effort to present [her]self and the study in appropriate and socio-culturally meaningful ways" (Mendis 2004, 152). We also seriously considered constraints on residents' time and energy for research.

We came to realize the importance of flexibility and adaptability (as observed by Pain and Francis 2003) as part of our commitment to community-based research when we sought to establish and operate our focus groups. Originally, we envisioned two focus groups in each locality: one with community leaders who, by the nature of their civic position, "understand community issues, institutions and resources" (Kusel 2001, 376), and one with a random selection of the "participatory public," referring to those who had been recorded as having participated in previous biosphere reserve planning sessions or public meetings. However, reality and community desires required adaptation of this strategy.

The focus groups varied in method and participation according to community context and expressed desires. We conducted focus groups involving biosphere reserve management at each region (with three participants in Clayoquot Sound and eight participants at Redberry Lake). At Clayoquot Sound, an additional three groups were held: two with the general public, to be sensitive to accessibility issues and sensitivities between factions, and one with youth. At Redberry Lake, two additional focus groups involved youth and a third was open to the general public.

All bands in each area were asked to participate throughout the process as well as for their input on how the research should be conducted. In Clayoquot Sound, five interviews were conducted with Aboriginal participants. Limited time and resources due to treaty negotiations and other demands constrained greater involvement. A focus group with Ahousaht youth was initially established, but was not carried out due to prior commitments of local people. In Redberry Lake, the local band has a nonresidential reserve in the area. Members of the band were contacted by mail and by phone but did not respond. We respected their silence.

These adaptations were part of our effort to maintain the spirit of community-based research by encouraging greater local involvement and listening to resident wishes. For example, both biosphere reserve committees requested youth involvement to serve educational and awareness-building purposes, and local schools assisted in different ways. Hafford School, with an active Students All For the Earth (S.A.F.E.) club, devoted two class periods to this initiative (33 participants), while Ucluelet Secondary School accommodated the focus group after school (8 participants). Additionally, many youth attended the public session at Redberry Lake, where 25 of the 45 attendees undertook the exercise.

Beyond attendance, we found differences in the nature of participation in each locality. For example, focus groups in Clayoquot Sound produced animated debate; in the words of one participant, "We may not be many but we sure are intense!" However, fewer people in Clayoquot Sound finished the worksheets compared to those at Redberry Lake. In both regions, some people simply did not finish the worksheet while others completed them without participating in the discussion. Some refused to complete the form because they perceived it as a surveillance device, they declared fatigue in filling out forms, or simply because they wanted to be informed without direct participation.

These examples demonstrate how accommodating varying levels and types of community member involvement in the research process (e.g., how and when people participate) encouraged more people to become engaged in the project than had we adopted a stricter approach to applying the research design. Based on our experience, we argue that research is not necessarily superficially participatory if residents choose not to provide input on all aspects of research design and/or if they are not conducting the research themselves. We found that residents *wanted* and *expected* us to take control of the research. Beyond the fact that their volunteer time is in high demand, they viewed research as *our* job. This desired division of labor was also observed by Reed and Peters (2004, 29), who found that "participants will vary in their capacity *and willingness* (their emphasis) to contribute time and energy to research projects." Thus, we believe the key to respectfully engaging communities is to keep open to involvement whenever and however it is offered. Being flexible and receptive to community needs and desires helped to establish trust and respect between researchers and locals—a position that served to support both research and community objectives.

Adapting Methods: Introducing a Puzzle Activity

> In your favour, if the way you did your research wasn't conventional, then personally I definitely think yours was the more effective approach and therefore more informative and valuable results were likely acquired. It has been the feeling in the past that most local people aren't fully informed of the "goings on" of the biosphere reserve. Arguably, they have to participate to become informed, but the way you made the effort to be a part of the community helped your work to be received on their level and really helped to have some new people get involved (Redberry Lake Community Committee member, e-mail correspondence, July 18, 2003).

According to Reed and Peters (2004, 10), "Adaptive research methodology may mean continuously evaluating whether or not research strategies are producing the most accurate, useful, or creative possible results, and *a willingness to introduce other methods* if they are not" (their emphasis). Our experience led us to adapt the method of the last focus group.

At the Redberry Lake Community Committee focus group, we found that while members diligently completed the worksheets, their efforts did not spark much discussion. They also stressed the lack of public awareness of and caring about the biosphere reserve. Thus, we created an interactive activity and turned the public focus group into a community event, with the support of the committee and youth, to promote the biosphere reserve concept, how it was being implemented around the world, and how people could take part in this global effort.

The result was an activity to "build your biosphere reserve," wherein people worked in small groups to write on and fit together color-coded puzzle pieces that represented each capital to visually illustrate the strengths and challenges of their region (Figure 2). Committee members helped us work with groups to define the capitals and consider what elements of their community were abundant or limited. The activity worked. Participants reported that their experience was enjoyable and

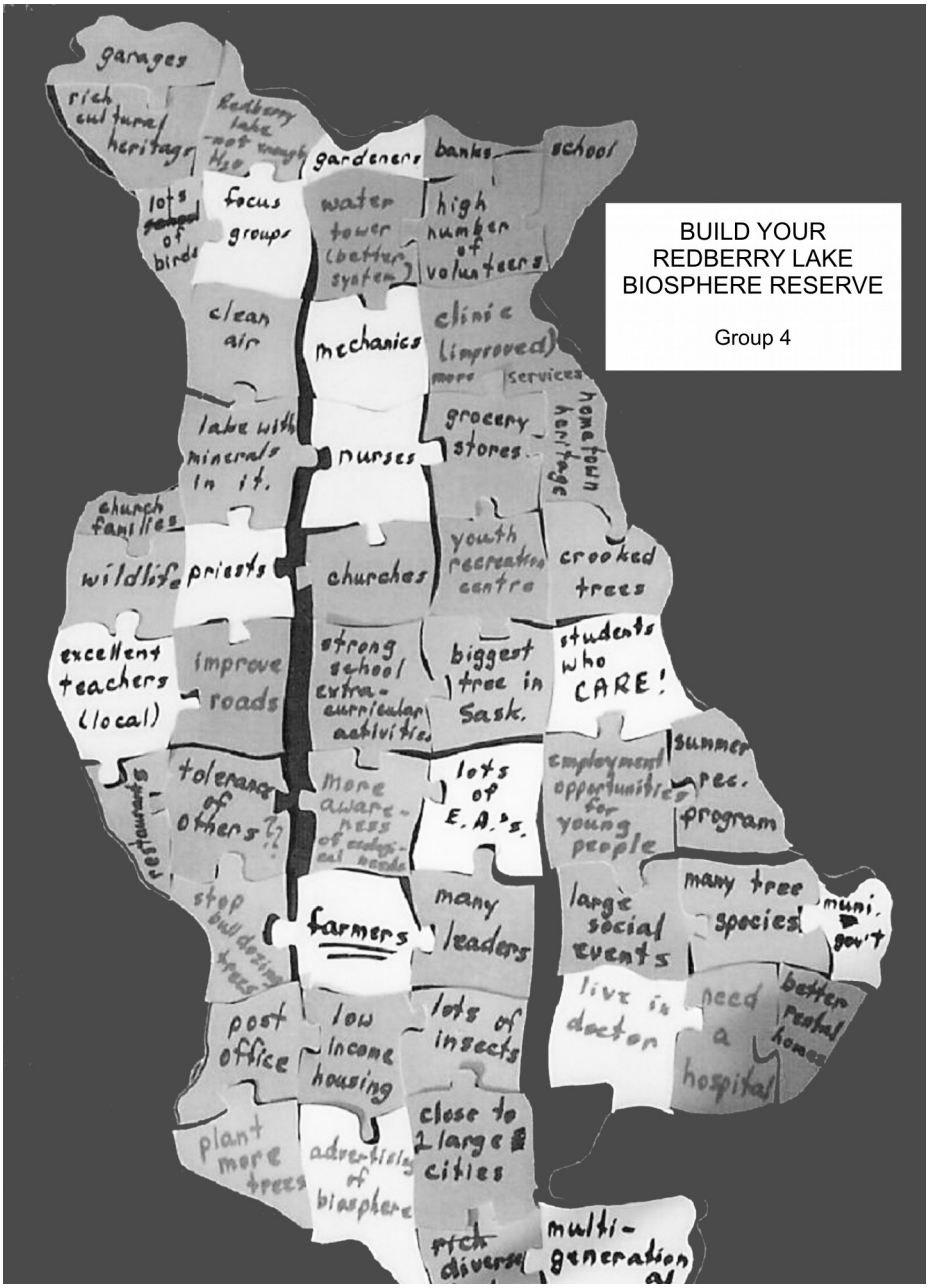

Figure 2. ''Build your own biosphere reserve'' puzzle.

informative, and the puzzle, along with informational material laid out for people to review, helped generate discussion about and interest in the biosphere reserve. Hafford Central School displayed the puzzles in the front lobby afterward. This experience led us to concur with Kruger and Shannon (2000) that interactive exercises provide an important means for gaining a more complete understanding of social

systems and help people better understand their local situation. Such social assessment is a key step for the success of a biosphere reserve, as the period immediately following designation often requires significant outreach activities to encourage local residents to, and determine how they can, contribute to biosphere reserve objectives of conservation, sustainable development, and building capacity for research and education.

Despite the success of this adaptation for our participants, we struggled with tensions between appropriate academic research protocol and conducting community-based research. Our experiences were in direct contrast to those of Krueger and Casey (2000), who argued strongly that focus groups should range in size from 4 to 12 people and may not be appropriate if education is involved or when the researcher relinquishes control of certain aspects, such as participant selection. Our position is that our commitment to community-based research—specifically, to reflexive, respectful and adaptive research practices—indicates that these elements *should* be shared with participants and *requires* us to relinquish some control (after Hanson 1997). As residents participated in varying degrees and ways in each place, different mechanisms were required to capture their interests and engage them. This strategy posed challenges for execution and may contradict the tenets of standard research practice whereby outcomes are predicted at the beginning of the research process. Nevertheless, by being flexible, we attempted to encourage local community development by helping to produce contextualized, socially relevant, and academic knowledge (after Monk et al. 2003; Pini 2002). This effort also contributed to social change by bringing people together to produce a shared set of understandings that would be necessary as they moved to obtain funding for specific development projects that were generated after this study was completed.

Adapting Theory: Reconceptualizing Community Capacity

The research also served academic goals of explaining social phenomena. Data analysis revealed new ways of thinking about the original conceptual framework and the results were presented to each region in person to raise questions and solicit feedback. Qualitative data from the worksheets were coded using a combination of socially constructed (using the analyst's terminology) and in vivo (using the participants' terminology) codes (after Kitchen and Tate 2000). This practice aligned with our view of residents as informed participants about community capacity with the researcher as an equal, if different, participant in developing theory. Coded data segments were then classified according to categories of the conceptual framework and the respondent's location. Table 1 presents a summary of specific aspects both regions considered important for their capacity to achieve biosphere reserve goals. Significantly, newly identified factors helped to reconceptualize community capacity (Figure 3).

As in the previous framework, community capacity is the mobilization of capital resources for communal, rather than individual, benefit. However, our reflection gave greater weight to how capitals are activated through four types of social relations—associative, communal, bureaucratic, and market (Beckley et al. 2002; Reimer 2002). Each region demonstrated different dominant social relations that affected their ability to work together. Clayoquot Sound displayed strong associative relations, while Redberry Lake exhibited strong communal relations.

Table 1. Shared elements of community capacity between biosphere reserves

Category	Key aspects of community capacity common to both biosphere reserves (from focus group worksheets)
Overall capacity	Potential
	Time*
De/Mobilizers	Community pride/appreciation
	Commitment*
	Mis/understanding the biosphere reserve concept and its relevance*
	"Thinking outside the box"/challenging mind sets, perceptions
	Recognition of room for improvement coupled with a willingness to improve
	Leadership*
	Community voice, control*
Ecological capital	Environmental assets
	Drawbacks/threats/what needs improvement
	Environmental values
	Environmentally sound practices*
	Perception of environment
Economic/built capital	Economy:
	Resource-based economies*
	Employment opportunities
	Economic diversity
	Economic viability/sustainability*
	Physical infrastructure for a variety of purposes and needs*
	Housing concerns*
	Monetary resources
	Financial resources*
	Fundraising
Human capital	Population and demographics
	Decreasing population*
	Attract people/youth to area*
	Education:
	Individual education level
	Education about and promotion of the biosphere reserve and related concepts
	Skills, experiences, talents of people in the area
	Types of professionals in the area*
	Educators*
	Characteristics/qualities of individuals:
	Willingness*
	Health issues related to stress from economic uncertainty
	Attitudes, values, beliefs

(*Continued*)

Table 1. Continued

Category	Key aspects of community capacity common to both biosphere reserves (from focus group worksheets)
Social capital	Togetherness and cooperation* Volunteerism and engagement* Communication* Gatherings/events Youth activities

*Indicates themes shared between biosphere reserves that have a locally specific meaning or emphasis.

These social relations became significant in that they affected community capacity over time and across space. For example, we observed a ''3-year switch'' in which biosphere reserve activities and momentum reversed (Mendis 2004). Shortly after the biosphere reserve designation in 2000, Clayoquot Sound was plagued by internal dissention that paralyzed effective action. The associative relations were strained by committee member motivations and actions of the first executive director that reinforced public distrust of the biosphere reserve and longstanding divisions

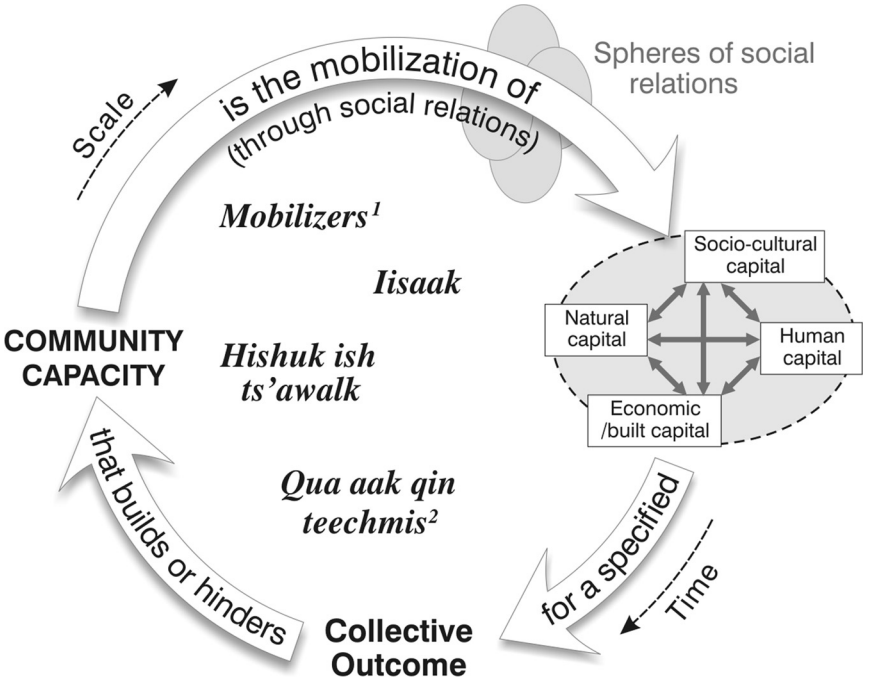

Figure 3. The modified conceptual framework of community capacity. 1, Mobilizer categories: the existence of and changes to capital; individual traits; community consciousness; and, commitment. 2, Teachings of the Nuu-chah-nulth First Nation: *Iisaak* (respect); *Hishuk ish ts'awalk* (everything is one); and, *Qwa aak qin teechmis* (life in the balance).

within the community. Thus, despite a high degree of economic capital obtained by a $12 million trust fund and strong ties to regional and international governmental and nongovernmental organizations, little ground was broken. By 2003, with a new executive director and committee changes, the biosphere reserve was able to overcome some local divisions and involve previously excluded groups. This committee began to effectively draw on its human, sociocultural, and economic capitals by funding local projects across a broad range of interests and by organizing a symposium that highlighted community research and issues. This switch was somewhat tenuous but positive, arising partly from the new leadership, partly from personal circumstances of committee members that helped local residents come together, and partly from the time needed, given a change of local government and the political climate, to make the transition from the nomination phase to implementation.

By contrast, Redberry Lake was, at first, able to draw on its strong communal relations to do "a lot with a little." A small amount of money was raised to hire a consultant who had worked with other biosphere reserves. She held several community meetings and helped guide the development of a vision and plan for sustainability (Sian 2001). Nevertheless, continued lack of provincial and federal government attention strained the internal resources of Redberry Lake. At the end of 3 years, its interpretive center was closed due to lack of funding, and committee morale was low as few people were joining its efforts. From these experiences, we found that community capacity fluctuates over time in that it is affected by past experiences and affects future abilities to work toward a common goal.

This finding was emphasized by new opportunities that emerged after the study was completed. This research project, among others, helped to bring greater community awareness to the goals and operation of the biosphere reserve. In 2005, using some of the findings of the capacity research and working with one of the researchers, the local committee was successful in obtaining a budget line from the provincial government to provide multiyear funding. With these funds, the committee renovated its original interpretive center to become a research and education center, placing greater emphasis on their displays on the cultural and biological diversity in the biosphere reserve and on providing logistical resources for research. They also obtained specific funding for local stewardship projects, bringing local farmers on board with the biosphere reserve objectives. Linkages with the public school were strengthened, a youth member was added to the board, and environmental projects with the school were given international recognition. The board was restructured to include government and university scientists and to make stronger links to local municipalities. The hiring of a new coordinator in the summer of 2006 was viewed as a means to maintain the renewed momentum as she was charged with maintaining the center, continuing to obtain funding for new projects, and encouraging broad-based participation in the region.

The study also revealed that community capacity is influenced by environmental management and political processes occurring at different spatial scales. For instance, long-standing international efforts to protect Clayoquot Sound's natural attributes from logging have gained so much attention that they have constrained *community*-level capacity building by effectively predefining, mainly from the outside, the type of community to be sustained, thereby exacerbating local conflict. To its credit, the region's high levels of human and economic capital have allowed for strong local organizational development, but disentangling the biosphere reserve work from other environmental initiatives (where the reserve may be supportive,

but not necessarily in league with) has been a major challenge. Similarly, part of Redberry Lake's early challenges arose because of its struggle to mobilize (financial and logistical) resources at other spatial scales (e.g., provincial or federal).

Recognizing the vast literature related to social capital, the term *sociocultural capital* was reintroduced to stress the importance and intertwined nature of culture and society that was highlighted in focus groups and interviews. The point is reinforced by including a new set of terms—key teachings of the Nuu-chah-nulth people, who are the original inhabitants of the Clayoquot Sound region. Upon a suggestion from a First Nations participant, these principles now pervade the modified framework. The first, *Hishuk-is ts'awalk*, or "Everything is one," underscores the linkages among people, cultures, economies, and environments. This principle parallels the interconnections among capital resources and between capitals and de/mobilizers as established originally by the review of literature. The second, *Iisaak*, means "Respect" for all living things. Respect is a necessary, yet rarely reported requirement for communities to work together to meet common objectives. Last, *Qwa aak qin teechmis*, or "Life in balance," neatly captures the ultimate objective of biosphere reserves—to achieve sustainability across economic, social, cultural, and environmental dimensions (UNESCO MAB 2000). While these principles emerged from the Clayoquot Sound case, they are sufficiently broad to be embedded in the framework and relevant for other geographic contexts.

Finally, one participant suggested that mobilizers could be grouped. Based on this suggestion, we reviewed the list of mobilizers and created three categories: individual characteristics; community consciousness; and collective commitment.[3] Individual characteristics are factors that motivate others and encourage the use of resources for biosphere reserve functions. Community consciousness refers to awareness and reflective abilities, while collective commitment to place and people recognizes that working with other residents, private operators, governmental agencies, and nongovernmental organizations to meet biosphere goals requires long-term efforts and relationship building. Thus, participants stimulated new ways of considering what aspects of the capitals and mobilizers are important and how they operate.

Conclusions and Implications

> I think your project has probably done more to promote the biosphere reserve here than anyone or anything else so far—thanks—it is up to us now to see what we can follow up with. (Ucluelet public focus group participant, e-mail correspondence, February 16, 2003)

Working *for* and *with* our research participants by adopting an adaptive approach provided results that could be followed up by local communities as well as new theoretical insights. As the preceding quote exemplifies, researchers who practice reflexivity, respectfully engage communities, and alter research methods to fit local needs and desires can leave some participants with a sense of empowerment and trust in the ability of research to provide positive outcomes. Community capacity was both assessed and built through creating dialogue among diverse groups and providing a forum to reflect upon the state and future of their communities and the meaning and potential of the biosphere reserve designation. The research helped to develop local awareness of the biosphere reserve designation, encouraged

broader local participation in meeting its objectives, and stimulated youth interest and participation in the region (especially for Redberry Lake). These efforts helped to create a platform for more specific projects that took root after the research was complete.

The research also revealed that while economic capital (e.g., funding) does not ensure a community's success in working toward a common goal, it does play a key role in activating the other capitals beyond a time frame where social capital and/or communal relations can be the primary driver(s) for activity. In both biosphere reserves, financial capital was a stimulus to specific project development.

Conceptually, the research contributed to our understanding of community capacity by identifying specific mobilizers, grouped into the three categories of individual characteristics, community consciousness, and collective commitment, as key components driving a biosphere reserve's capacity. The research suggests that all four capital resources may be evident in capacity building in both their static and process forms. Furthermore, the findings led to a greater emphasis on how differing social relations (in this study, associative and communal) intersect capitals over time to generate differences in capacity across locations.

Methodologically, we made an explicit effort to emphasize that our research was *for* and *with* communities by ensuring that all local people who wished were able to be involved in their own ways. By adopting a broad definition of community capacity (to be open to new ideas) and remaining faithful to participant contributions (by using *in vivo codes* (after Strauss 1987) and verifying results throughout and after analysis), we explicitly created opportunities for the cocreation of knowledge between participants and researchers in ways that were sensitive to local context, incorporated local knowledge, and provided time for critical reflection of the results. Adapting methods according to local interests allowed for the late introduction of the puzzle activity, which made the research more accessible for local people. Additionally, being adaptive so that community members could identify the benefits they would obtain from the research and how they would be involved helped create reciprocity between academic researchers and community residents. Further, rather than acting solely as academic interpreters, reflexivity allowed us to reconsider our role as *co*creators of knowledge.

Assessing community capacity with local residents improved our knowledge of community capacity. Yet studies are still needed to review the revised framework in other contexts and for different community objectives. Explorations of various social groups within communities might contribute to a richer theoretical understanding. For example, analyzing input of men and women separately or among groups with strong cultural affiliations might have revealed new elements of capacity that were not apparent in this study.

Finally, we observe that conducting community-based research combined with an adaptive approach has implications for academic research and researchers. Adaptive practices require researchers to monitor their work constantly and to be sensitive to many players—researchers and assistants, participants, local organizations, even funding agencies—on a regular basis throughout the process. These efforts may require longer time horizons for projects to allow for these logistical demands—time that may not be allotted due to funding or institutional constraints. Adaptive research practices may also prove difficult to promote given that funding agencies typically seek research questions where outcomes are predictable, rather than emergent. Nevertheless, as we continue to grapple with how best to assess

and animate community capacity, designing a research project to be community-based and adaptive may help meet community needs and interests, build capacity, and contribute to theoretical formulations while generating a research culture committed to nurturing positive social change.

NOTES

1. Our thanks to Diane Martz for her insights.
2. The biosphere reserve region is referred to as Clayoquot Sound even though it extends beyond the spatial area of Clayoquot Sound to include Ucluelet, Tofino, and five First Nations.
3. Some categories can also be considered *de*mobilizers if they restrict community capacity.

Acknowledgments

The Social Sciences and Humanities Research Council of Canada provided funding for this project and two anonymous reviewers helped us improve our manuscript. Thank you to the research participants who generously shared their time and thoughts. Special thanks to the Clayoquot Biosphere Trust and Redberry Lake Biosphere Reserve Association for their support and assistance. Our gratitude to the following biosphere reserve residents who made this research possible: Stan Boychuck, Sylvia Harron, Barb Beasley, Gerry Schreiber, Craig Paskin, Jack Little, Peter Kingsmill, Vicky Herman, Larry Hawrysh, Diane Hawrysh, and Jim Schevchuk. The Central Region Board, Clayoquot Alliance, Rainforest Interpretive Centre, Ucluelet Secondary School, and Hafford Central School generously offered resources. Keith Bigelow provided technical assistance. Final thanks to Scott Bell, Evelyn Peters, and members of the New Rural Economy Project for their feedback.

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