Learning From Each Other:
Biosphere Reserves & Model Forests in Canada

Discussion Paper &
Workshop Report

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Compiled by Rebecca Pollock,
with contributions by workshop participants

Learning from Each Other Workshop Report

Canadian Biosphere Reserves (BRs) and Model Forests (MFs)

Canada has an extensive network of Biosphere Reserves and Model Forests. These organizations have similar mandates, and play similar roles for engaging communities in regional sustainability initiatives. Although some overlap geographically, there have not been many opportunities for people working in these networks to learn from each other.

Who?

At this workshop on February 13, 2013, a number of people working in BR/MFs met with researchers to discuss their experiences and to exchange ideas. This report is a summary intended to be shared with anyone interested in BR/MFs in Canada. See list of participants, page 8.

What?

This workshop was part of a larger research project called "Environmental Governance for Sustainability and Resilience: Innovations in Canadian Biosphere Reserves and Model Forests" led by Maureen Reed[1] at the University of Saskatchewan.

This report provides a brief summary of the discussions, structured around three key themes: (1) Community Engagement, (2) Building Resilience, and (3) Collaboration.

Why?

The goal was to exchange experiences, information, and ideas on these themes, and identify a few next steps and share the outcomes nationally, between the two networks.

Canada's Biosphere Reserves and Model Forests have similar mandates in that they aim to integrate three main activities:

(1) Conservation of biodiversity,
(2) Sustainable livelihoods, and
(3) Community participation, learning, and outreach.

The organizations involved in this work approach these tasks through collaboration with other groups (across the region) to define critical issues, set priorities and goals, secure resources, and develop actions for sustainability.

[1] For more information, contact: mreed@usask.ca.

Both the Canadian Model Forest Network (CMFN) and the Canadian Biosphere Reserves Association (CBRA) experienced a loss of federal funding in 2012, and these circumstances may provide an incentive to learn more about one another, their strategies and approaches, and identify opportunities for closer collaboration.

Discussion on Workshop Themes

THEME 1. Community Engagement:

What approaches to engaging communities have you tried that worked particularly well, and why?

1.1 Typically, BR/MF organizations strive to be inclusive of diverse interests; they have built trust over time, and use a consensus-based approach.

- *In many cases, BR/MFs are a facilitator for collective action, a trusted broker, and a key node in network development. By acting as neutral forums, BR/MF organizations enable diverse partners to engage and share ideas, build relationships, and identify mutual interests and goals in order to develop common plans that address uncertainty and change in pursuit of local and global sustainability objectives. Strong examples of this include: Prince Albert MF, Northeast Superior MF, Frontenac Arch BR, and Manicouagan-Uapishka BR.*

While BR/MF organizations have been often found to play the role of "broker" regionally, they are one organization among many in even larger network of conservation and sustainable development stakeholders, provincially, nationally, and internationally.

1.2 These organizations act as a bridge for some unusual partners to work together; they often assess sustainability needs and "fill gaps" in areas where a catalyst is needed.

- *For example, the Northeast Superior Forest Community (NSFC) set out to create economic opportunities in the struggling forest sector and engage local residents and enterprises in innovative development initiatives. However, socio-economic and environmental objectives would not be obtainable without addressing the immediate need for building relationships and trust among neighbouring Aboriginal and non-Aboriginal communities. Through their commitment to cross-cultural learning and growing recognition for the legitimacy of Aboriginal rights, the NFSC has evolved into a collaborative organization involving 2 informal networks of political leadership: 1) the Northeast Superior Mayors' Group representing the 6 municipalities, and 2) the Northeast Superior Regional Chiefs' Forum.*

It was noted that sometimes partnerships arise from a direct threat (such as loss of livelihoods); a key challenge is to maintain neutrality yet contribute to addressing the issue. The question was raised: how can these organizations use crises effectively to engage people but maintain engagement long enough to address broader sustainability concerns?

1.3 Long-term success comes from having champions, finding the "right partners" and using culturally-appropriate mechanisms for engagement (e.g., knowing when/where/how to host meetings).

- *For example, during the 10-year nomination process of the Bras d'Or Lakes BR in Nova Scotia, champions worked hard to ensure that the designation process was inclusive. At the same time, chiefs of the Mi'kmag First Nations who saw the collective benefits of the BR model were effective champions in their own communities. During the years leading up to the designation, the BLBRA became known among the organizations within the Bras d'Or Lake watershed as an open and respectful organization. Board meetings are still held in various geographic locations around the Lakes, to maximize community participation.*

Examples of First Nations' leadership and engagement in BR/MFs

- Clayoquot Sound, BC – model of a Tribal Park (Tla-O-Qui-Aht & Ahousaht Nations)
- Bras d'Or Lakes, NS – the Mi'kmaq Nation support for UNESCO Biosphere Reserve
- Waswanapi Cree Model Forest - only Aboriginal Model Forest
- Northeast Superior Model Forest - Regional Chiefs' Forum (includes 7 First Nations)
- Prince Albert Model Forest – Aboriginal caucus and projects such as youth engagement in collection of the knowledge of elders.

1.4 "Actions can speak louder than words" to demonstrate commitment; focus on what communities do well; make the goals clear and know your audience.

- *The Georgian Bay BR contains several small, rural communities (spread across 6 municipalities, 6 First Nations and Métis) and hosts a large population of seasonal visitors and cottagers. The GBBR actively participates in projects such as Community Gardens, where there are numerous benefits including donations of fresh produce to food banks, and an outdoor setting for the interaction of a cross-section of the population. Rather than leading this type of project, the GBBR shows commitment by raising modest funds through grants, fundraisers like the annual Dragon Boat races, and raises awareness by hosting "Harvest Nights" at the local community college.*

THEME 2 Building Resilience:

"Surviving without funding" – Have you identified strategies that might help you survive without funding?

2.1 At a minimum, organizations require one part-time or full-time, paid position to coordinate partnerships; volunteer energy is not sustainable for the long-term; however, a small amount of funding can be leveraged many times by obtaining grants at all levels (local, municipal, businesses/employers in the community, larger corporate, provincial, foundations, national, and other sources, such as internship subsidies).

2.2 Federal funding has helped these organizations achieve their mandates; organizing further collaborations can sometimes tap into funding.

2.3 Several BRs and MFs have secured contracts in a variety of fields, because they have connections and credibility; they are able to provide services in a cost-effective manner. For example, staff in these organizations have provided services in the areas of:

- Education and interpretive services (e.g., developing trail signage)
- Strategic Planning or Board Governance training workshops
- Grant research and writing for client organizations
- Workshop and conference organizing; special event planning
- Scientific or technical services (e.g., GIS, Mapping, Ecological Impact Studies)

2.4 Some are exploring recurrent contracts with local and regional governments (e.g., NFLD and Labrador). Are there any services that BR/MFs could provide for the province (e.g., Prince Albert MF, SK) in the areas of conservation action plans, public education campaigns, or stakeholder facilitation and coordination during public consultations?

2.5 At a national level, services could be coordinated centrally but delivered regionally, based on a pool of resource people within the BR/MF network. For example, the CMFN is developing a database of services that can be provided across the network. They can then advertise these services with different agencies or organizations that might seek them.

- *Some sites have effectively partnered with industry as corporate investment in regional sustainability. For example, Manicouagan-Uapishka BR (Quebec) has worked closely with Alcoa aluminum; the company has representatives that sit on the BR's issue table and provides financial and technical support that helps the organization to fulfill its mission. In 2012, Alcoa invested $1 million in a "Fund for Sustainable Communities" to support sustainable development and public engagement efforts over the next 25 years, in the municipality of Baie-Comeau.*

2.6 Could BRs & MFs be viewed as "social enterprises" led by "social entrepreneurs" who might guide or advise on corporate social responsibility efforts? Are there any international clients, potentially?

2.7 Funding agencies want programs to demonstrate their value to core objectives, but also to the local economy or the increase of regional GDP. For example, by presenting not just the operating budget of a BR/MF but also the total economic value of joint partnerships, employment, spin-off benefits, and matching funds, a small organization can indeed have a regional impact and claim a larger impact.

2.8 Could a new national-level fund be defined by BR/MFs together? Given the similar goals and objectives of BR/MFs in sustainability scope and landscape scale, it could be advantageous to create a new federal portfolio that would support both types of organizations, through a new funding model. A challenge faced by both BR/MF programs is their wide-ranging mandate for community sustainability (more so BRs than MFs) that make them difficult to house in any single government ministry or department.

2.9 Such a "Sustainable Rural Communities" type fund might increase the overall recognition of these two smaller programs, and indeed provide them with the core support required to build regional capacity to fulfill their respective mandates. Such a proposal should be explored with senior bureaucrats and politicians, in order to strategically align with the best timing (election or otherwise).

THEME 3 Collaboration:

Collaborative models & prospects for BR/MF activities:
Can BRs and MFs work more closely to mutual benefit?

3.1 There are strong similarities between the models, locally and nationally, due to their mandate, their non-government structure, and the roles they play to foster sustainability – as a facilitator and broker for regional initiatives.

3.2 Many of the sites are working on similar issues; how could this be coordinated? Would it be appropriate to consider regional configurations?

3.3 Where there are BR/MFs with geographic overlap, some organizations find it helpful to have reciprocal Board members (such as in the Fundy BR/MF).

3.4 Perhaps each respective national network Board could create a seat for the other; a summary of projects across the country within each network would be interesting and

further help explore alignment; these issues could be examined at different scales, and include other organizations.

3.5 As noted above, both programs suffer from lack of recognition – they are perceived as too small and could creatively align to draw attention to their similar mandates for mainly rural regions (e.g., what is the combined landbase and populations of BR/MFs? How many First Nations? How many municipalities, etc?)

3.6 BR/MFs might learn from the dozens of organizations that have similar sustainability mandates (e.g., Vibrant Communities, Transition Towns, Healthy Communities, etc.). There are excellent learning platforms online, which seek to share successful strategies through webinars, online blogs and newsletters, and networking events across the country.

3.7 Is there potential for a broader exchange of knowledge on some common issues? (e.g., climate change, rural resilience, caribou management, sustainable tourism, etc.)

Next Steps

- Share contact information.
- Send reports to Executive of each national network.
- Identify a champion within each organization to foster collaboration between them.
- Circulate this summary & the Discussion Paper through the networks.
- Exchange any project inventories, key statistics, and upcoming events.
- Identify who will do this and how.

Other Resources

Canadian Model Forest Network	modelforest.net
Canadian Biosphere Reserves Association	biospherecanada.ca
Canadian Biosphere Research Network	biosphere-research.ca

To learn more, visit the project website

homepage.usask.ca/~mgr774/Research.php

Thank You

Drs. Bob Gibson and Maureen Reed would like to extend our appreciation to all the people who attended and participated and to Canada's Social Sciences and Humanities Research Council of Canada.

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Learning from Each Other:

Canadian Biosphere Reserves (BRs) and Model Forests (MFs) Discussion Document

For a Workshop on February 13, 2013

Based on a collaborative research project called
"Environmental Governance for Sustainability and Resilience: Innovations in Canadian Biosphere Reserves and Model Forests"

Compiled by Rebecca Pollock with assistance from *Maureen Reed*[1]*, Robert Gibson, George Francis, Ryan Bullock, Kathryn Jastremski, Oksana Zbyranyk, and Colleen George*

This research was funded by the Social Sciences and Humanities Research Council.

[1] We welcome comments to be submitted to Maureen Reed, maureen.reed@usask.ca

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Preamble

This project is based on the premise that sustainability of social-ecological systems is enhanced by governance systems that foster social innovation and resilience. This report is a preliminary collection of observations and findings from a variety of people – and it is intended to stimulate discussion and further study. It is not a report of final results.

To explore the theme of governance for sustainability in the Canadian context, we selected two models – Biosphere Reserves (BRs) and Model Forests (MFs) – that are defined as models for integrating ecosystem and community well-being.

Q. **What are the characteristics of environmental governance established in Canadian Biosphere Reserves and Model Forests[2] that foster or hinder sustainability, resilience, and social innovation?**

By examining these ideas we hope to identify lessons learned about sustainable livelihoods and community well being, social-ecological resilience, and social innovation that can be shared with other landscape-scale initiatives across Canada and internationally.

Specifically, we looked at the resilience of these BR and MF organizations in terms of their response or adaptation to a changing context (e.g., new pressures and issues arising locally or from larger global, social, ecological or economic shifts; new opportunities and unexpected openings; community expectations, leadership and capacity to fulfill their mandate; funding availability, etc.).

Where resilience and innovation issues are identified, the role of the BR or MF organization was examined to see how it has led, facilitated, or participated in promising governance responses to complex issues.

Stories: Throughout this paper we highlight a number of examples of BR or MF organizations and some of the activities, approaches, and roles they have adopted in response to sustainability issues in their local context.[3]

It is hoped that other examples and experiences will be shared during the workshop, and that together, we will address three themes:

(1) Approaches to engaging communities
(2) Building resilience: “Surviving without funding”
(3) Collaborative models and prospects for BR/MF activities.

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[2] Note that terms Biosphere Reserve and Model Forest can refer both to the organizations and the places involved. In common use, most people seem to associate a Biosphere Reserve or a Model Forest with a place. However, the focus of this research is on the roles of the organizations in the governance of the places (e.g. the directors or staff of the respective organization) and this will be indicated as much as possible.

[3] This collection is meant to be illustrative and is not exhaustive.

1. Introduction

Canada's Biosphere Reserves and Model Forests have similar mandates in terms of aiming to integrate three main activities:

(1) Ecological conservation,
(2) Sustainable livelihoods, and
(3) Community participation, learning, and outreach.

The organizations involved in this work approach these tasks through collaboration with other groups (across the region) to define critical issues, set priorities and goals, secure resources, and develop actions for sustainability.

Their partners include Aboriginal organizations and governments, private industries and operators, rural communities, government agencies, civil society organizations, and researchers.

A landscape focus is interesting because:

- It provides a wider regional perspective beyond local level management and can help with land use planning (e.g., watershed management).
- Organizing efforts around a familiar landscape often involves people's sense of place stimulates a stewardship ethic or caring for that place.
- Drawing boundaries at a larger scale is essential for understanding complex sustainability issues.

Canadian BRs and MFs are potentially innovative in two complementary ways – (1) in the substance of their mandate and (2) in their roles as contributors to public deliberations and decision-making. How they have served as contributors to enhanced sustainability and resilience in governance is the issue being addressed in this research.

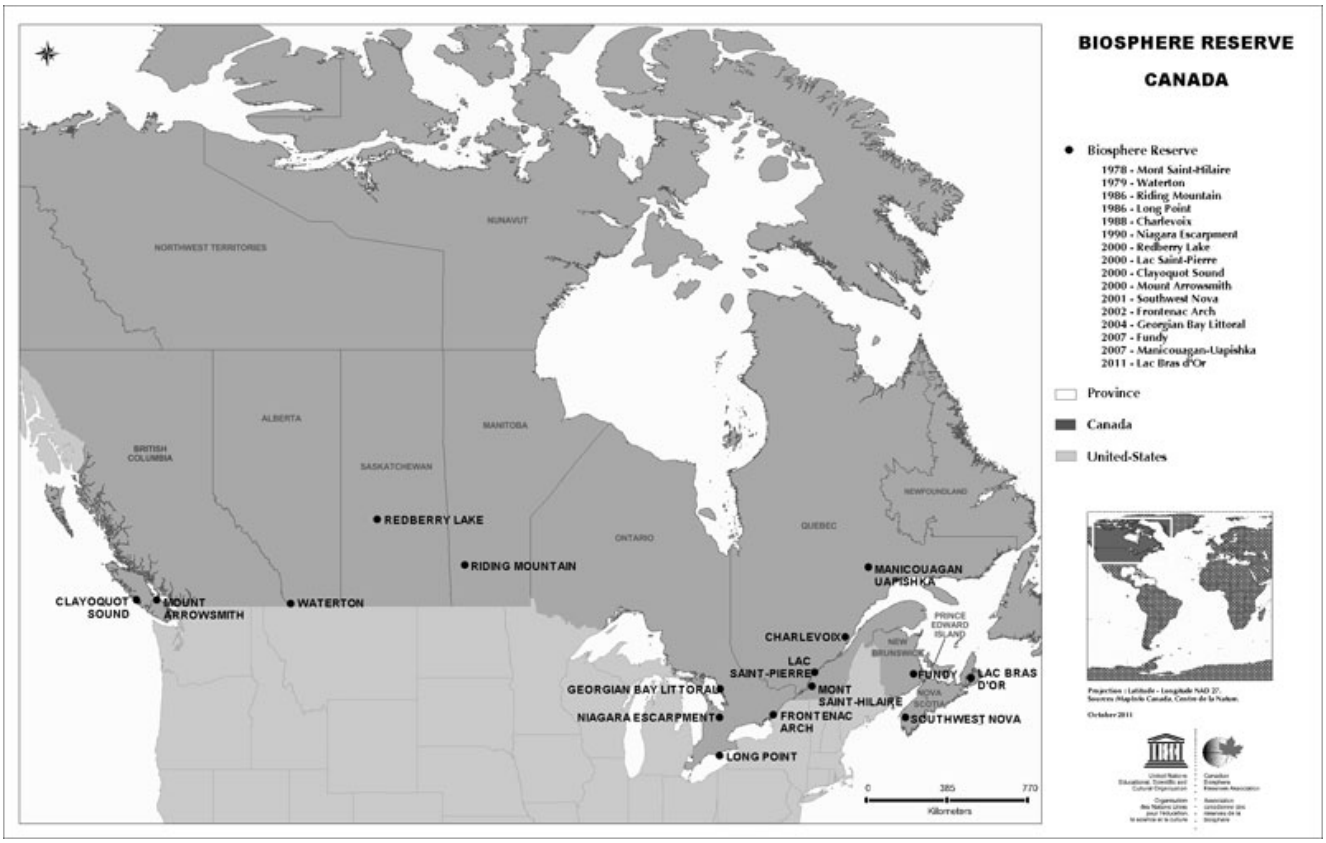
The preliminary findings for discussion here are the result of a loose collection of student research, comparative case studies, practitioner experience, and networking with member sites from both the Canadian Biosphere Reserves Association (CBRA) – which currently has 16 members and the Canadian Model Forests Network (CMFN) – which has 14 member sites in the network.

In four cases, BRs and MFs overlap geographically. Their mutual interests have also created opportunities for collaboration:

Clayoquot Biosphere Trust (2000)	Clayoquot Forest Community (2007)
Fundy BR (2006)	Fundy MF (1992)
Southwest Nova BR (2001)	Nova Forest Alliance (1998)
Frontenac BR (2002)	Eastern Ontario MF (1992).

Biosphere Reserves	Date of Designation		Model Forests	Date of Designation
Mont Saint-Hilaire (QC)	1978	1	McGregor MF (BC) now Resources North	1992; 2007
Waterton (AB)	1979	2	Prince Albert Model Forest (AB)	1992
Riding Mountain (MB)	1986	3	Fundy Model Forest (NB)	1992
Long Point (ON)	1986	4	Eastern Ontario Model Forest (ON)	1992
Charlevoix (QC)	1988	5	Waswanipi Cree Model Forest (QC)	1992
Niagara Escarpment (ON)	1990	6	Manitoba Model Forest (MB)	1992
Clayoquot Sound (BC)	2000	7	Western Newfoundland Model Forest (NFLD)	1992
Redberry Lake (SK)	2000	8	Nova Forest Alliance (NS)	1998
Mount Arrowsmith (BC)	2000	9	Clayoquot Forest Communities (BC)	2007
Lac Saint-Pierre (QC)	2000	10	Northeast Superior Forest Community (ON)	2007
Southwest Nova (NS)	2001	11	Le Bourdon Project (QC)	2007
Frontenac Arch (ON)	2002	12	Lac-Saint Jean Model Forest (QC)	2007
Georgian Bay Littoral (ON)	2004	13	Lake Abitibi Model Forest (ON)	1992
Manicouagan-Uapishka (QC)	2006	14	Foothills Model Forest (AB)*	1992
Fundy (NS)	2006	15	Weberville Community Model Forest (AB)*	2010
Bras d'Or Lakes (NB)	2011	16	Bas-Saint-Laurent Model Forest (QC)	1992-2007
		17	Long Beach Model Forest (BC)	1994-2002

*These sites are not funded under the current Forest Communities program.



2. Background & Framework for "Governance for Sustainability & Resilience"

One of the main reasons BRs and MFs were selected for study is that their respective mandates have common elements. Their necessary learning is impressive because the scope of sustainable development is very wide. As extensive writings on the subject show, the work by BRs and MFs include protection for ecosystems and conservation of environmental goods and services, best practices for resource stewardship, technical innovations and other adjustments to maintain community economic vitality, and social inclusion with justice and equity among people. All are essential for individual and community well-being. And they have to be tailored to the particular circumstances of any given place, such as a BR or MF. The necessary social learning to do this has to be based in part on appropriate research, monitoring, demonstration projects, education and provision of public information. Some general observations and definitions that guided our thinking are provided below:

- No one organization can do sustainable development on its own. Developing the local capacities entails citizen engagement from civil society organizations working with others from governments and the private sector.

- "*Governance*" refers to collaborative arrangements among people from these different backgrounds and the kinds of networking arrangements they develop to take up the challenges. BRs and MFs, among other places, are striving to develop these capacities.

- The sustainability ideals have to link society with ecology, in part by viewing them as complex social-ecological systems. Complex systems have their own internal dynamics that respond to external influences in ways that are not well understood. They can organize and re-organize themselves in many interconnected ways, quickly and slowly at various scales, often following some discernable pattern but typically also with unpredictable and surprising results.

- Governance for sustainability has to deal with the indeterminacies in the systems themselves along with substantial uncertainties resulting from our limited understanding. Vulnerability assessments, building resilience, and adaptive management strategies become important objectives in these situations.

- "*Resilience*" refers to the capabilities of individual components and a social-ecological system at large to respond to unanticipated shocks as well as the capacity for renewal, reorganization and development.

- "*Social innovation*" is a process through which a social entrepreneur or group explores opportunities and then acts to introduce novel concepts, programs, and/or knowledge and skills that will address persistent social-ecological problems, especially those long thought to be intractable. The process involves obtaining support, developing the ideas more explicitly, giving them some programmatic or organizational form, and then findings ways to replicate or adapt these approaches to other similar places or circumstances at the same scales, and/or to draw upon more secure policy, legal and funding support that will allow widespread adoption of innovations.

3. The UNESCO Mandate for Biosphere Reserves: "People & Nature in Balance"

The United Nations Educational, Scientific and Cultural Organization (UNESCO) developed the Man and the Biosphere (MAB) program in 1970. Under the UNESCO program, each biosphere reserve is expected to fulfill three basic functions, which are complementary and mutually reinforcing:

(1) a conservation function – to contribute to the conservation of landscapes, ecosystems, species and genetic variation;

(2) a development function – to foster economic and human development which is socio-culturally and ecologically sustainable; and,

(3) a logistic function – to provide support for research, monitoring, education and information exchange related to local, national and global issues of conservation and development.

Biosphere Reserves acknowledge human activities in a "working landscape" across a gradient, from strictly protected areas through adjacent buffer areas and their surrounding communities. The zonation scheme is applied in highly diverse geographical conditions and socio-cultural settings. Since only the core area requires legal protection, the model can be used creatively (incorporating available protection laws and respecting local constraints). This flexibility "is one of the strongest points of the biosphere reserve concept, facilitating the integration of protected areas into the wider landscape" (UNESCO/MAB, 2002).

They were not intended to be protected areas set aside from human use, but to be working examples of integration:

> Rather than forming islands in a world increasingly affected by severe human impacts, they can become theatres for reconciling people and nature; they can bring knowledge of the past to the needs of the future; and they can demonstrate how to overcome the problems of the sectoral nature of our institutions. In short, biosphere reserves are much more than protected areas (UNESCO1996).

To enhance the core agenda of enhancing stewardship and livelihoods, there is a strong emphasis on participation and learning. The UNESCO/MAB program endorses activities that are multi-stakeholder by design, foster dialogue and prevent conflict. It emphasizes the role that BRs might play as "platforms for knowledge-sharing" and for being "experiments in sustainable development" that might be usefully shared by adjacent regions or other BRs in the world network. Given the impressive breadth of their mandate and the limited capacity of any single organization to fulfill it for a whole region, the lead organization often finds itself being a facilitator for a variety of multi-stakeholder sustainability initiatives.

3.1 Governance of Biosphere Reserves

UNESCO BRs require that local governance arrangements be in place for developing collaborative capacities to address local and regional issues about the ecological, economic and ethical components of enhancing the sustainability of local communities and individual livelihoods. In Canada, each develops its own organizational arrangements according to what is locally appropriate and possible in terms of multi-stakeholder collaboration, government participation, and citizen engagement. These "convener" organizations most commonly evolve from the original steering committee that prepared the nomination to UNESCO.

Some become incorporated not-for-profit organizations, led by volunteers and/or staff; some of these are membership-based; some secure charitable status. Another model in Canada is where a sponsoring organization (initially) takes leadership for the administration of activities related to the BR mandate, e.g., a national park (such as Waterton (AB) or Riding Mountain (MB) or an academic institution, such as McGill University in Mont St. Hilaire (QC).

It appears that once a credible local convener organization is established and the UNESCO mandate for sustainability embedded in their internal operations, the people involved with the organization translate the BR agenda into local discourse that enhances engagement. Indeed, the mandate for sustainability is so broad, that the day-to-day operations of many BR organizations may encompass dozens of projects and partnerships at any given time. Several BRs identify themselves as "non-advocacy" organizations and are perceived by the community as a "neutral forum" where issues of concern can be addressed fairly.

The highly participatory and cross-sectoral BR model creates an opportunity to establish new norms for sustainable development in a given region. As a "pact" for sustainability between the local community and society as a whole, "management of a biosphere reserve needs to be open, evolving and adaptive. Such an approach requires perseverance, patience and imagination. But it will allow the local community to be better placed to respond to external political, economic and social pressures, which would affect the ecological and cultural values of the area" (UNESCO, 2008).

At the same time, there has been little direct support for BRs from the federal government – or from most provincial governments – which has certainly been a factor in the capacity of these local organizations to fulfill their mandates. With the exception of some important administrative support through Parks Canada through the 1980s-1990s, and the official acknowledgement of the program through the Canadian Commission for UNESCO, there has been only four years (2008-2012) of direct financial support from the federal government. The non-governmental volunteer network, known as the Canadian Biosphere Reserves Association (CBRA), has managed to hold annual meetings since 1998, and exchange information and strategies among the now 16 members.

Despite the primarily volunteer nature of Biosphere Reserves, new BR nominations continue to emerge locally from different parts of the country. Viewed in social innovation terms, it takes the champions (social entrepreneurs) of these initiatives from 5 to 7 years to achieve recognition; often there is consultation with members of the CBRA network and an attempt to replicate a similar approach but in a different context. In some cases, the initiatives go forward for consideration by UNESCO, in other cases they do not. Nevertheless, interest in the model continues and those established sites – some now over 30 years old – maintain their core mandate by engaging a variety of stakeholders, around a variety of issues – some persistent and linked to the locality and landscape – others newly emerging from a larger social-ecological context.

Almost a decade after the initiative was proposed, the **Bras d'Or Lake** (NS) and its watershed was designated as a UNESCO Biosphere Reserve in 2011. Key champions held several presentations in various locations to ensure that the designation process was inclusive. At the same time, chiefs of the Mi'kmag First Nations who saw the collective benefits of the BR model were effective champions in their own communities. During the years leading up to the designation, the BLBRA became known among the organizations within the Bras d'Or Lake watershed, including the Collaborative Environmental Planning Initiative (CEPI), the Bras'Or Preservation Nature Trust, the Bras d'Or Stewardship Society, the Pitu'Paq Partnership, the Unama'ki Institute for Natural Resources, as well as many others.

Following the designation celebrations, the BLBRA wanted to ensure that they did not lose the momentum that had led them to the celebration, especially because they were (and still are) entirely volunteer-based. They decided to establish themselves as a knowledge broker and coordinating body. They undertook an inventory of all of the organizations within the watershed that have shared values and mandates in order to enhance opportunities for collaboration within the BR. They established 3 priorities: marketing to raise awareness; education to increase knowledge of sustainable behaviours; and the development of a web-distributed atlas. The BR holds regular meetings around the lake to encourage equitable representation and involvement. They are targeting keen members who will spearhead and engage in specific projects.

The **Fundy Biosphere Reserve** Association (NB) has been working to fulfill their mandate since 2006 by developing incremental and engaging projects that will secure their credibility as an organization, as well as boost their profile in the region. The flexibility of their mandate has allowed them to be opportunistic in terms of the projects with which they have become involved and by entering into partnerships with more well-known organizations - including the United Way, Mount Allison University, and the Trans Canada Trail – they have been able to engage community members in issues that include local food security, climate change, health and wellness, environmental education and stewardship. These include the "Amazing Places" and "Explorer" programs that engage families and youth in environmental education and outdoor recreation activities. These programs encourage community members to discover and appreciate the places in the BR that make it such a special place. The Fundy MF is represented on the BR Board.

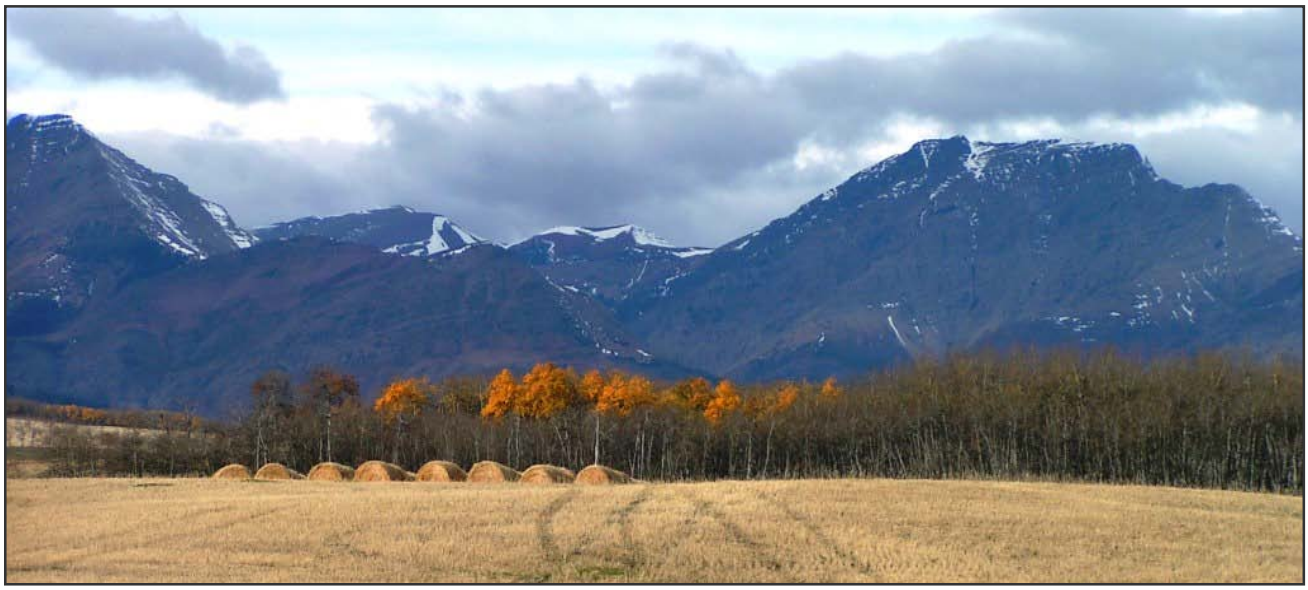
A proactive and motivational attitude among Board and staff has infused energy into collaborations and helped the BR to catalyze, receive funding for, and facilitate several different projects. The need for funding and community engagement has led to some innovations, such as the Charter Membership program – one that has been emulated by other BRs in Canada. In exchange for being affiliated with the biosphere reserve, businesses, schools, and municipalities are working to become more social and environmentally conscious organizations.

Long Point Biosphere Reserve (ON) is internationally recognized as a unique geomorphic and ecological system on one of the Great Lakes, is historically protected as a sports fishery and wild game reserve, and is surrounded by agricultural lands. The Point itself is a 40 km sand spit created by erosion deposit on the north shore of Lake Erie. As the southernmost region of Canada, it contains some of the only remaining Carolinian deciduous forests in the country. It provides a major migratory bird corridor, provincial park, and a RAMSAR wetland complex. Since designation in 1986, the volunteer-based Long Point World Biosphere Reserve Foundation (LPWBRF) was created to coordinate ecological monitoring and research, develop new conservation programs and provide education. Fisheries and forestry restoration projects are ongoing and many have been highly successful, however, the LPWBRF felt that they were perceived as a narrow "environmental conservation group" without broader concerns for the changing economic base in the region.

In 2001, the LPWBRF board decided to expand their activities to help respond to the social and economic impacts of changes in agriculture, including the collapse of tobacco farming, the lack of employment opportunities for youth in rural villages, and the decline in tourism. The biosphere reserve developed a series of small community sustainability workshops (2005) that provided a forum for various sectors to define their own challenges and priorities for action; this culminated in a larger conference called "Building a Sustainable Norfolk County" (2006). Since that time, new projects include facilitation of a multi-million dollar infrastructure project (the causeway) that will meet human and wildlife needs; a partnership with the County to pursue sustainable tourism development; and a revitalization of the membership base and volunteers.

From wider public engagement and response to a changing socio-economic context, the mission of the LPWBRF changed to: "Our vision is to become the facilitators of cooperative partnerships – based upon common goals and interests – that promote and foster a common approach for a more sustainable economic, social and environmentally sound community." The Long Point case illustrates that biosphere reserve organizations of the "first generation" (prior to the Seville Strategy in 1995) can evolve from having a fairly narrow focus on core area conservation biology to one that also attends to social and economic issues for surrounding buffer and transition zones at larger scales.

Although the **Redberry Lake Biosphere Reserve** (SK) has been struggling with maintaining consistent funding, a number of initiatives have been going on in the region due to the partner organizations' involvement. Collaboration among government and non-government organizations, as well as with farmers themselves have resulted in the following projects that involve education and logistic support (BR functions) but are driven by concerns for ecosystem health and social-ecological resilience: Land and Infrastructure Resiliency Assessment (LIRA) project; Redberry Watershed Agri-Environmental Group Plan (AEGP) and Canada-Saskatchewan Farm Stewardship Program (CSFSP); community mapping as part of a District Municipality planning project; Saskatchewan Watershed Awareness initiatives; and source water protection programs.



Frontenac Arch Biosphere Network (ON) This 2,700 km^2 area is focused on a major landform in south-eastern Ontario. It is organized as a network involving about 80 other organizations that collectively range over a region twice the size of the biosphere landform configuration itself. The "Biosphere Network" organization has a vision for sustainable development: "where our culture, heritage and healthy natural environment are the foundation of a vibrant community and a robust economy." Practical initiatives, governed by self-organizing networks, experiment with more sustainable alternatives such as: promotion of local food systems (Local Flavours network), valuation of culture and arts in the regional economy, and linking tourism experiences that will provide more direct benefits to business owners while sharing the biosphere reserve values with visitors (Explore the Arch). The Biosphere Network actively seeks to create models for sustainable community development that can be tested and shared, which provides opportunities for adaptation and social learning.

Clayoquot Sound Biosphere Reserve (BC) Prolonged public objections, demonstrations and eventually acts of civil disobedience built up over clear-cutting some of the last remaining old growth temperate rainforests in British Columbia during the 1980s and early 1990s. Clayoquot Sound was a major flashpoint for this. Environmental organizations also campaigned successfully to have consumers boycott purchases from industrial corporations doing the logging. This introduced an expanded international component to disputes that otherwise had been thought to be only local.

In 1993, a newly elected provincial government announced a "land use decision" meant to resolve the issue. The decision included creating 16 new "class 'A' (highest level of protection) terrestrial and marine provincial parks in Clayoquot Sound as well as a co-managed "Scientific Panel for Sustainable Forest Practices in Clayoquot Sound" with equal representation from First Nations and other knowledgeable people to advise on appropriate forest management practices for this region. The government also set up a Central Region Board (which was co-managed by Aboriginal and non-Aboriginal people) to approve forest management proposals that came up during the period that formal treaty negotiations were being conducted with negotiators for the Nuu-chah-nulth Tribal Council (that also included five First Nations who together claimed rights and title to all the lands within the 350,000 ha Clayoquot Sound region). These initiatives didn't stop protests right away. They peaked in the summer of 1993 with an estimated 10-12,000 people participating, many if not most of whom were women, some with children. There was a lot of media attention, some 900 people were arrested, and over 100 imprisoned for various alleged offenses.

From then on, events were paced (slowly) by progress (and lack of it over long periods) in the Treaty negotiations. The Science Panel reported in 1995, and the government soon accepted all of their recommendations for re-organizing forestry on a watershed basis that also adopted site-by-site variable retention of forest cover to protect different forest values (*vs* required assigned volume cuts) for Clayoquot Sound. The industrial forest corporations either went bankrupt, or were bought out and re-organized with corporate holdings elsewhere. Key forest licenses are now held by Iisaak, a First Nations owned company.

Cooperation with "Ecotrust" began in 1991, the same year that "Ecotrust USA" was formed in Portland Oregon. "Ecotrust" works at the intersection of conservation and community economic development to promote innovative ways for building the "conservation economy" starting at community levels. A small "Clayoquot Biosphere Project" was created to initiate cooperative activities and consider how these might lead to an international recognition of some kind, such as a UNESCO biosphere reserve. Cooperation between CBT and "Ecotrust" has occurred for specific projects from time-to-time over the past decade. In 2008-2009 they conducted a major survey of social and economic issues to identify possibilities for smaller community-based and more long-lasting development benefits in First Nations communities especially.

The Clayoquot Forest Communities project is conducted by "Ecotrust" in partnership with the Nuu-chah-nulth Tribal Council. A retrospective assessment on the Science Panel's work was carried out in March 2011. The main conclusion was that the Panel's approach had been successful as far as it could be, and the approach now has to be extended to the entire region. Currently, co-management is only done for forests and associated watersheds, and for fisheries in the coastal zones. Other sectors, especially aquaculture, tourism, and proposed mining initiatives are market-driven, although First Nations people are working in these sectors too.

(Continued next page)

Clayoquot (continued)

Treaty negotiations are well along. Two First Nations groups in the Clayoquot Sound region having reached a final agreement, another has negotiated an incremental treaty agreement, and the other two have secured a provincial Supreme Court decision that recognized aboriginal rights for fisheries (a sticking point). This decision was upheld in 2011 following an appeal by the federal government. All five consider their claims to their traditional territories to have been upheld and are proceeding on that basis. This indicates that after 25+ years that changes in governance are well underway. But there are still uncertainties and apprehensions among residents about what else might unfold in the years ahead.

4. The Model Forest Mandate: Integration for Forest & Community Sustainability

Natural Resources Canada created the Model Forest Program in 1992 as part of Canada's Green Plan for a Healthy Environment. A response to the Brundtland Commission, the program was intended to provide national and international leadership for sustainable development in forestry. A "made-in-Canada" concept, the approach has now been adopted in 30 countries on five continents, totaling 60 Model Forest sites worldwide (IMFN, 2012).

The Canadian Model Forest Program grew out of a broader idea to create one comprehensive international network of 70 to 80 representative landscape-level eco-regional sites or "Model Forests" (Pollett, 2012). The sites were intentionally "designed to be trans-boundary and trans-jurisdictional in application with flexibility to incorporate variation associated with ecosystems, social-economic conditions and cultural histories" (Pollett, 2012: 223). As such, Model Forests are partnership-based forums where a full range of public-private-civic actors can be engaged and common issues can be discussed in support of sustainable forest management (SFM) (NRCAN, 2006).

Initiated at the landscape level of scale to suit SFM objectives, Model Forest boundaries can vary according to local context. Indeed many have adjusted their boundaries over time to reflect their changing programming and partners. In most cases, Model Forests were set up in areas characterized by conflict or low cooperation and coordination among forest user groups, and where the forest sector was significant to communities and culture. Given their strong initial focus on learning to do SFM, Model Forests work to engage multiple stakeholders in "working forests", integrating conservation and economic development ideals.

The early phases of the Model Forest Program focused on building scientific research, technical expertise, and technology for improving forest ecosystems, professional forestry practice, and forest science. However, in 2007, the Forests Communities Program replaced the Model Forest Program, and with this change in federal direction so too did the overarching vision shift from forest to community sustainability. This refocusing on community and sectoral transition was accompanied by a new vision:

> The overall vision from the Forest Communities Program is the development of resource-based rural communities that are equipped and empowered to be innovative in meeting the opportunities and challenges of a healthy forest and a changing forest sector (NRCAN, 2011).

Each site is a member of the Canada Model Forest Network and International Model Forest Network. The networking aspect, involving both local scale collaboration as well as international partnerships, supports what are considered key strengths of the approach: promoting collaboration and research for forest and community sustainability. Model Forests are examples of multi-party governance based on their ability to promote collaboration and act as bridging or boundary organizations that can facilitate learning for the development and sharing of tools, information, expertise and resources through a multi-level network (Elbakidze et al., 2010).

4.1 Governance of Model Forests

The Canadian Forest Service stipulates that local governance of Canadian MF sites must reflect local contexts to include an appropriate mix of stakeholders and project partners. Depending on the local setting, governing boards often demonstrate cross-cultural collaboration with Aboriginal partners and seek to build multi-sectoral stakeholder engagement. This can include community groups, energy and mining, forest companies, research and educational facilities, and municipal, provincial and federal government agencies. Given the broad regional collaboration achieved, Model Forests can have as many as 38 groups represented on the governing board (e.g. Fundy Model Forest).

> Credit: Canadian Model Forest Network

Recognizing the need and potential benefits for affiliated Model Forests to improve coordination and consistency among the network, International Model Forest Network members adopted the Model Forest Principles and Attributes Framework at the 2008 Global Forum (IMFN, 2008). The framework sets out governance principles and attributes thought relevant to all sites, to be used to guide Model Forest operations:

(1) *Partnership* – each Model Forest provides a "neutral forum" for broad participation from groups representing diverse interests and values who are committed to a common vision for sustainability;
(2) *Landscape* – a large-scale geographical area that represents diverse social, cultural, economic, and ecological values;
(3) *Commitment to Sustainability* - economic growth and community development are pursued in balance with achieving socio-cultural equity and ecological integrity;
(4) *Governance* – consensus-based decision-making occurs in a manner that is transparent, accountable, participatory and broadly representative of partners and stakeholders.
(5) *Program of Activities* – initiatives and programs are based on the Model Forest's vision and reflect local needs and desires, values and issues;
(6) *Knowledge Sharing, Capacity Building, and Networking* – stakeholder capacity building and engagement for sustainable resource management is crucial. Knowledge and information is shared throughout the network to facilitate learning.

After 20 years of activity, Canadian Model Forests have made some notable contributions to forest and community sustainability:

- The development and implementation of new tools, such as the local level indicators for SFM which attempt to measure changes in ecological, economic and socio-cultural conditions linked to forests and forest communities;
- The establishment of a well-developed network to share knowledge and information, resources, and coordinate projects and initiatives to support SFM and local economic development – across Canada and internationally; and
- The improvement of cross-cultural collaboration and Aboriginal participation in forest management and development (e.g. Prince Albert Model Forest worked with more than 50 different Aboriginal project partners between 2002 and 2007).

Above all, Model Forests are credited for actually building capacity in transitioning natural resource communities during what is an unpararelled crisis in Canada's forest sector (Standing Senate Committee of Agriculture and Forestry, 2011; NRCAN, 2011).

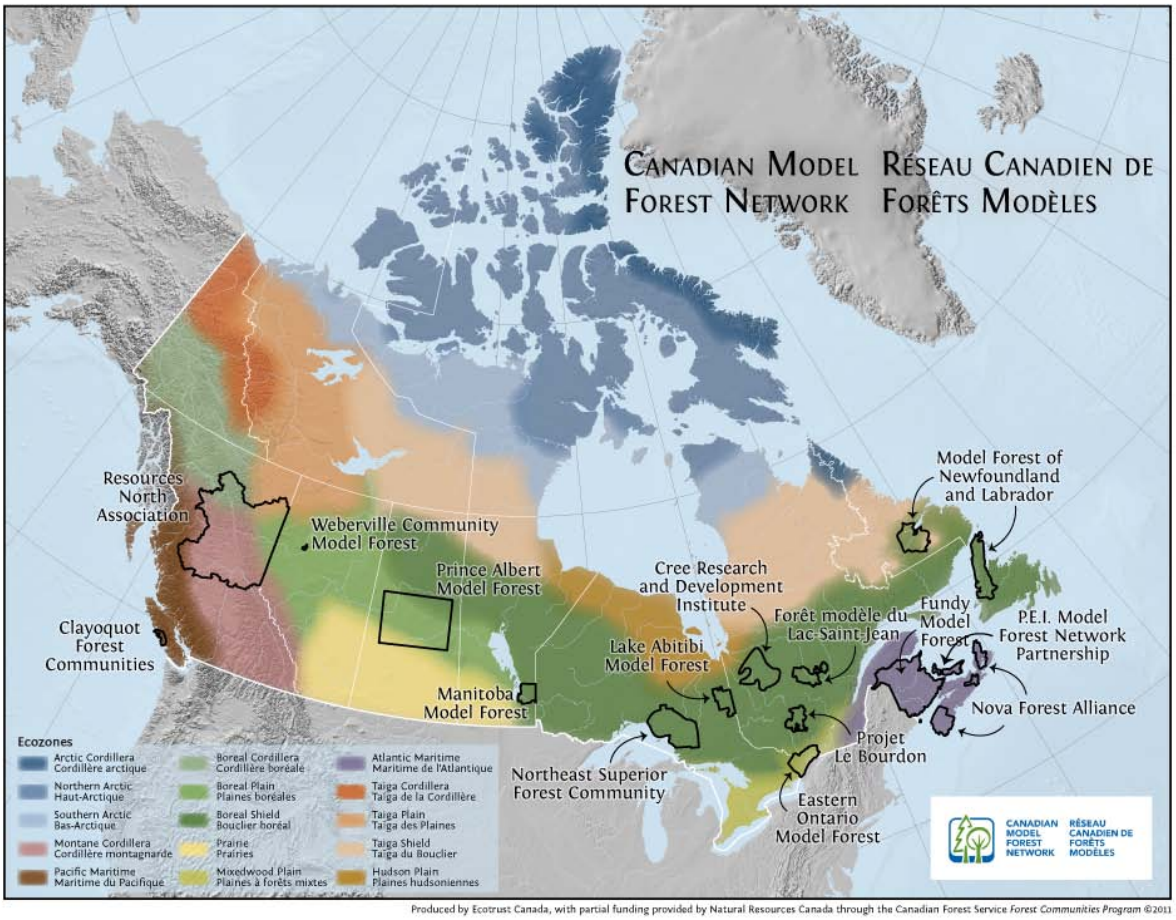
These strengths notwithstanding, Natural Resources Canada (2011) has recently identified opportunities for improvement at the site and program level:

- Despite a proven ability to leverage non-federal cash and in-kind contributions, sites remain heavily dependent upon federal program funding to carry out day-to-day operations and programming;

- The local to regional scale of projects and partnerships, while beneficial to local communities, undermines the intended broad scale outcomes needed to achieve broader sustainability objectives.

Recent research demonstrates that MFs contribute to learning and trust building among partners who often have few chances or incentives to collaborate on natural resource and community development initiatives (Bullock, 2011). Model Forests have also been found to contribute to improving community resilience through supporting collaboration and mutual learning.

For example, partners can come to realize their community is part of a larger interdependent network or system of linked communities which calls for development of new tools and/or alternative institutional arrangements to remake power relations, unlock innovation, and create economic opportunities related to the forest (Bullock et al., 2012). By acting as neutral forums, MF organizations enable diverse partners to engage and share ideas, build relationships, and identify mutual interests and goals in order to develop common plans that address uncertainty and change in pursuit of local and global sustainability objectives.



The **Northeast Superior Forest Community** (ON) of northern Ontario is located on the service peripheries of Sault Ste. Marie to the east and Thunder Bay to the west. This 60,000km^2 region is commonly referred to locally as being a "fibre basket", revealing the central and historic role of forest resources and industry to place identity and local economies. It has been deeply impacted by Canada's decade-on forestry crisis, losing 4 of its 5 major mills and over 1100 jobs, and it bears many of the classic traits that plague resource economies and social systems during periods of downturn.

Hard pressed to take on challenges such as sweeping mill closures, rising unemployment, foreclosures, service losses, and youth outmigration and population decline, regional leaders came together to form The Northeast Superior Forest Community in 2007 with funding from the Forest Communities Program. They set out to create economic opportunities in the forest sector and engage local residents and enterprises in innovative development initiatives. However, socio-economic and environmental objectives would not be obtainable without addressing the immediate need for building relationships and trust among neighbouring Aboriginal and non-Aboriginal communities. Through their commitment to cross-cultural learning and growing recognition for the legitimacy of Aboriginal rights, the NFSC has evolved into a collaborative organization involving 2 informal networks of political leadership: 1) the Northeast Superior Mayors' Group representing the 6 municipalities, and 2) the Northeast Superior Regional Chiefs' Forum.

> Northeast Superior Forest Community: Youth Rangers Program

Le Bourdon is a forest community located in the Upper Laurentians of Québec and covers approximately 67 percent of the territory of the Regional County Municipality of Antoine-Labelle, home to around 35,000 residents. Le Bourdon project corresponds to the forest management unit (UAF) 064-51. The Le Bourdon initiative is led by a collaborative multi-stakeholder organization in the region, called the *Association des intervenants forestiers des Hautes-Laurentides (AHL)*, which began its activities at the end of 2007 as part of the Canadian Forest Communities Programme.

With competition from global markets, the high energy costs of production, and the U.S housing market collapse in 2008 which reduced demand for Canadian lumber, hundreds of mills were closed and thousands of jobs were lost across the country. In Le Bourdon, over a thousand people lost work in the forest sector and significant economic restructuring of the region has also taken place. The region of Antoine-Labelle used to be characterized by an industrial model of small and medium local businesses. However, due to recent bankruptcies resulting from the forestry crisis, the American-based multinational FOREX acquired the three sawmills in the region. In addition, the region has to confront population decline – partly due to the outmigration of youth - and an aging population.

AHL projects to create more sustainable forest communities in Le Bourdon are varied. In 2010, they led a regional sustainability vision exercise. In 2011, a successful symposium on non-timber forest products was held. And in 2012, they hosted a Polish delegation interested in adopting the MF model. Originally though, the main priority for the AHL was to prepare an integrated forest management plan in collaboration with all the partners involved. This plan was essential since this forest management unit is characterized by a high number of overlapping uses – a situation that resulted in several public conflicts during the 1990s. For example, provincially-designated wildlife territories (ZECS or "controlled exploitation zones") and land used by outfitters (hunting, fishing, and ecotourism) represent approximately 75 percent of the area.

Later, the integrated management plan served as a proactive vehicle to communicate the needs of the region to the government of Québec since the announcement, in 2010, of a complete reform of provincial forest policies, with expected implementation between 2013 and 2018. Among the changes, the government of Québec will now be in charge of planning forest activities. Also, the new regime promotes decentralization in part through the concept of "proximity forest" which allows citizens or municipal/regional bodies to have tenure rights on public forests. Much uncertainty remains as to the extent to which this concept will be pursued and what will be the outcomes.

> The **Eastern Ontario MF** facilitates a certification program for woodlot owners and larger forest license holders.

Prince Albert Model Forest (SK) The original 1991 proposal that led to the establishment of the Prince Albert Model Forest demonstrated a high-level of commitment to, and participation of, Aboriginal groups in organizational activities and benefits. Such commitment remains today and was part of PAMF's success under the 2007 funding competition for the Forest Communities Program.

The PAMF originally set out to pursue regional sustainability goals through Sustainable Forest Management. Like all the new sites, PAMF staff and leadership planned to deliver on the technical and informational objectives enshrined in the Model Forest Program: "The Prince Albert Model Forest will be the land base on which the methods, processes, socio-economic and ecological forecasting tools, and forestry related technology will be developed and tested" (PAMF 1991: 5). However, half of its founding partners were Aboriginal groups and there was also a strong partnership focus and desire to engage participants in capacity building, economic benefits, and leadership opportunities towards improving sustainability.

With many collaborative projects now completed, PAMF has worked to increase engagement of local Aboriginal groups through two ongoing programs. The first is the Junior Forest Rangers Program, which is a 6-week work experience program that engages Aboriginal youth (16-18) in forestry training and culturally relevant field experiences. The Aboriginal-led program blends traditional teachings with science and technology training to offer Aboriginal youth a more holistic approach to education. The program appears to be having the desired effect as recent PAMF research shows that more and more Junior Ranger graduates are going on to natural resource-related postsecondary education (PAMF 2012). This achievement serves to address objectives for Aboriginal capacity development for managing resources and opportunities in natural resource related areas.

At the governance level, the PAMF Board also created the Aboriginal Caucus to provide a forum where all Aboriginal partner representatives could discuss and share relevant issues and opportunities. The general goal was to bring Aboriginal issues to the fore and promote ongoing and direct Aboriginal participation in PAMF leadership and programming, as well as the broader forest sector. Funding provided by the Prince Albert Grand Council through Indian and Northern Affairs Canada's Lands & Environment Assistance Program was used to initiate the Caucus which together with other Aboriginal community members produced a handbook on environmental assessment for Saskatchewan's First Nations. The Caucus is currently in a stage of renewal; however, Prince Albert Model Forest continues to receive strong support from their Aboriginal partners and continues to offer Aboriginal-focused programs to build capacity, leadership, informational supports for sustainability of their region.

> Manitoba Model Forest employs a Community Engagement Officer to liaise between several First Nations communities, government, industry, and other organizations.

5. Context for Building Resilience

Francis (2009) outlines the main challenges for a given BR posed by the conditions or trends in the social-ecological system that constitutes the larger context for the work of BR organizations in building resilience for sustainability. He identifies three major sets of conditions and the related strategies that BRs have adopted. They are:

i) Rapidly urbanizing regions that directly impact the biosphere reserve or are sufficiently close to influence population and socio-economic changes;

- Creation of conservation networks to strengthen protection of green spaces; work with land trusts and conservancies to acquire additional remnant natural areas, especially those that enhance habitat connectivity; and to support ecological restoration projects that help safeguard various kinds of ecological goods and services (EGS) in the area.

ii) Viable but vulnerable agricultural regions;

- Design of programs to enhance the viability of local food production, including food networks linking producers and consumers, food security programs (e.g., community gardens, food redistribution programs to those in need), and local product branding and marketing;

- Agro-ecosystem projects to enhance (EGS) with financial incentives for farmers, training and marketing of niche products such as organic produce, establishment of cooperatives, and promotion of agro-tourism.

iii) Regions undergoing transitions from dependence on agriculture and/or other primary resource extraction industries into something else.

- Promotion of sustainable tourism or ecotourism based on natural and cultural heritage; smaller scale patterns of resources use (local, value-added processing); and small-scale high technology enterprises.

The last challenge noted applies to the MF experience, where the familiar forestry industry has collapsed, and where MF participants are exploring both local, value-added (non-timber forest products) as well as the alternatives for biofuels and high-tech developments. Activity in other industries, such as ecotourism, is also a response to these larger system changes.

6. Lessons Learned

Throughout the project, the experiences and observations of BRs and MFs have been reflected upon and compared to the extent possible. There is still much more work to be done. Gibson and others (2011) developed a preliminary collection of emerging themes and considerations for thinking about and assessing efforts towards sustainability. Some are listed below:

1) Local Context

The locality/region found itself vulnerable to outside pressures of various kinds, over which it has limited control; often this was recognized to be a reason for taking some local/regional initiative in efforts to reduce vulnerability, including by exploring options for building livelihood diversity, encouraging more self-reliance, and generally building adaptive capacity.

2) Integrated Sustainability Mandates & Systems Thinking

The sustainability mandates of both models links thinking and practical responses to concerns about stewardship and sustainable livelihoods rather than seeing these as separate challenges; this awareness is evident in:

- moves by BR/MF participants to expand their range of concerns and initiatives (e.g. from largely stewardship foci to a broader sustainability of lands and livelihoods agenda)

- their critiques of the behaviour of governments and other players

This awareness is strong in the literature and evident in the work of citizens and civil society organizations in BR/MF activities, but is either not well recognized by other institutions (government agencies, etc.) or they are too deeply constrained by narrow mandates, established practice, and institutional rigidities to act on their broader understanding (institutional gridlock).

- there appears to be a gap between theory, institutional recognition, and practice (however real people on the ground often see these connections, as they observe the effects within their everyday lives)

- language or “discourse” used may be one limiting factor explaining why further integrated coordination and consideration has not occurred

The cases confirm the value of efforts to go beyond integrative thinking to seek multiple, mutually reinforcing benefits, but also reveal barriers to such initiatives.

The breadth of the mandate and the flexibility of regional governance arrangements initiated by BRs and MFs perhaps allow for greater adaptation and overall resilience than would be expected for other types of organizations.

3) Engagement

In many cases, BR/MFs are products of active citizen engagement, sometimes even in creating the relevant landscape identity and associated organization.

Civil society organizations have been powerful as means of: encouraging innovation (new ways of seeing the land as well as new practices); pushing formal government authorities (and sometimes private sector bodies as well) to take significant steps (e.g. introduce a stewardship-centred planning regime).
Both MFs and BRs view Aboriginal engagement as important to achieving their conservation, livelihood and learning objectives. Both UNESCO and the Forest Communities program have emphasized the importance of including indigenous peoples and knowledge into the programs guiding BRs and MFs.

There have been different types of arrangements to bring Aboriginal people more effectively into regional processes (e.g., co-management, mixed Board representation, a special caucus to provide further deliberations about the impacts of decisions on First Nations. One MF is primarily driven by Aboriginal people).

BRs and MFs often host events that explicitly include, invite, or are of interest to Aboriginal people in their region. All of these efforts suggest the will to move beyond any requirement to consult; however, meaningful on-going engagement remains a challenge.

4) Role of BR/MF Organizations in Governance

BR/MFs have significant influence extending beyond government agencies and multiple participants playing important individual and collective roles.

- the importance of building relationships amongst agents/individuals has been emphasized in order for broader organizational networks to be successful (trust is essential)

- it is significant that the participants have been generally non-partisan; BR/MFs describe themselves as “neutral forums”

Specifically, some are: encouraging longer term visioning (vs. short term planning that is typical of changing governments); strengthening governments by fostering responsiveness, demanding accountability and thereby enhancing trust; and building the scale, breadth and integration of citizen understanding, especially in the case of citizen participants in BR related activities.

The BR/MF organizations themselves have often been trusted brokers for complex or politically sensitive initiatives; they commonly play a facilitation role to support and then incubate new programs – some of which evolve to become independent programs themselves.

5) Social Learning & Social Innovation

BR/MF organizations are fostering social learning as a continuous process (context, scale, time/situation, is not fixed) e.g. by moving citizens from NIMBY to broader concerns and scaling up to citizen/neighbourhood organizations which can be very powerful, building trust and dialogue, which are essential to maintaining a dynamic, and facilitated learning environment.

Generally, they are promoting and participating in collaborative implementation of adaptive and re-organizational responses to major challenges (see “Local Context” above).

Case experience points to considerable adaptive capacity in the relevant civil society groups and engaged citizens.

Situations to consider are the influence of BR or MF organization activities in changing policy directions (regimes) or governance structures that then opened up new possibilities for action; reframing of issues that helped catalyze positive responses (e.g., campaigns, education, “discourse”); learning-by-doing over time that led to taking on related issues in a more systematic way; perceived threats and/or opportunities that encouraged some people to respond the ways they did; or some combination of the above.

BR/MF leaders (some could be considered “social entrepreneurs”) invest years in nurturing the social and institutional networks required to support the scope of their mandate; the leadership can face volunteer burn-out and succession planning for organizational resilience is not usually explicit.

The BR/MF model itself could be considered a social innovation, as it is replicated in other areas, and as individual sites undertakes activities that scale out beyond their boundaries.

Note: a summary by Francis (2009) on the conditions for social innovation in BRs is provided below. It would be interesting to explore these dynamics in MFs as well.

6) Challenges

At present, some individual BRs and MFs tend to lack certain capacities (e.g., human, social, financial, institutional) required for effective management, fundraising, outreach, and communications, resulting in uneven application of the model.

Despite the gains in building better (more collaborative and integrated) governance regimes, there remain gaps, barriers and inadequacies; generally there are needs in each BR and MF for more effective overview of what is and what is not being done; how best to facilitate this overview work is not clear.

Considerations include: the need for a central node in the larger network, or some type of body that has a “bird’s eye view” of the governance landscape, and carry out a gap analysis on which sustainability activities are being led by whom, where there is duplication, and where there is need for action

This overarching body should not necessarily be another government institution (is it possible to find an impartial, yet critical eye and voice?)

However, there is also a general disaffection for establishing new institutions; a favoured solution lies in better communications, trust, networking, etc. to build a culture of collaboration (using social capital broadly, rather than just institutional capability); this point reflects concern about current evidence of institutional gridlock as well as about the tendency of institutionalized bodies to lose flexibility and adaptive capacity.

There is a need for critical reflection and incorporation of diversity (accommodating difference, navigating conflict, instead of suppressing change under the guise of consensus)

Addressing these issues is challenging for civil society organizations, especially where there are pressures or inclinations to compete over obtaining limited resources and so forth.

8. Notes about Social Innovation in Biosphere Reserves

Francis (2009) drew from the experience of the 15 Vibrant Communities in Canada, as studied by the Social innovation Generation program (SiG, University of Waterloo) to explore social innovations in Canadian Biosphere Reserves. For this, qualitative guidelines can be identified for "managing emergence" for scaled-up social innovations. This means recognizing and/or creating conditions under which social innovations are more likely to emerge:

1) The social-ecological system of interest is undergoing changes and experiencing tensions associated with degradation of the ecological conditions that support its natural resource or service sectors that must depend upon a high quality environment. The structure of the economic base may also be changing through "globalization" pressures that give rise to transfers of large sections of the local economy elsewhere, often to other countries. Other slow variables in the system may be approaching not-well understood thresholds or "tipping points" that can result in quite sudden changes.

2) The governance system is too weak and ineffective to deal with issues at the regional landscape scale adopted by biosphere reserves. It may, or may not be interested in social innovations being developed in areas under its divided jurisdictions. Complicated inter-jurisdictional entanglements and divided administrative systems into multiple "silos" may reflect collective stasis or dysfunction in the larger governance system.

3) The convener organization has taken a systems view of its mandate that is reflected in their vision and goal statements, and develops its strategies and priorities from a comprehensive and multi-sector set of perspectives.

4) The convener organization has engaged people with well-developed social and/or institutional entrepreneurship capabilities. The organization is focused primarily on brokering and facilitation activities to create bridging networks and on building capacity for robust communities-of-practice to undertake innovative roles. This is supplemented by other roles as necessary. Projects and co-sponsored events are to be a means, not an end in itself.

5) The goal is to build the capacity for resilience and adaptive management at the community level but enlarge this to incorporate the landscape-defined sense of place characteristic of most BRs. This also entails working with organizations operating at different jurisdictional levels to address issues manifested at larger and longer space and time scales as they affect the social-ecological system of primary interest to the convener organization. Localism does not mean parochialism.
As already noted there are multiple pathways that might be pursued for achieving this capacity depending on the particular circumstances of place.

9. Conclusions & Implications

Engaged citizens and public interest organizations are playing influential roles in governance for sustainability. Governance initiatives, including especially initiatives undertaken by civil society organizations, are increasingly recognizing and acting on a practical need to link stewardship and sustainable livelihood goals and actions. These require new thinking (e.g., "resilience of social-ecological systems") and new alliances and collaborations, but they also promise more integrated sustainability agendas and opportunities for multiple mutually reinforcing gains.

- In BRs and MFs, increasing attention is being given to integration of ecological stewardship, enhanced livelihood foundations and opportunities, and broader sustainability objectives (as compared to the conservation focus of BRs in the first decades of the program).

- While the citizen participants and other governance players in these deliberations have demonstrated remarkable insight into complex and intersecting issues, their capacities for developing well-integrated and effective responses have been restricted by a variety of factors including institutional barriers and limited experience with integrated sustainability initiatives.

- The absence of conceptually rich, locally specified and practically applicable frameworks for defining problems and objectives, and for identifying, selecting and choosing among potential solutions, is also a serious constraint.

- Social innovation is used at many levels: individual entrepreneurs who uses systems thinking to champion a cause or concept; a BR/MF organization that plays the role of broker to create networks of support that enhance resilience of governance systems; and the initiatives undertaken by people in the BR/MF that take root and are scaled-up beyond their boundaries or replicated by others.

- Both MFs and BRs have recently received news from the federal government that their government funding has or will soon be eliminated. This situation suggests a need for heightened efforts to ensure their activities are relevant and their strategies are innovative. The timing seems right to ask what can be learned from one another's experiences. Additionally, one might consider whether there are opportunities for joint activities that might be of mutual benefit.

Many of these insights have implications for future BR/MF research as well as "on the ground" initiatives involving local communities. These findings contribute knowledge to important areas of interdisciplinary research. They contribute significantly also to the growing bank of experience required to pursue the long-term sustainability goals and objectives of both programs, which themselves provide important models of sustainable development for other regions and organizations.

10. Discussion Questions

Our research has confirmed that BRs and MFs share similar mandates, roles and challenges. They may also be able to benefit from sharing their experiences and collaborating with one another.

To this end, we have designed a workshop on February 13, 2013 to ask participants to exchange perspectives on the following themes and questions:

1) Approaches to engaging communities: What approaches to engaging communities have you tried that have worked particularly well and why?

Stakeholder engagement is a prerequisite of both BR and MF programs. Most of the BRs in Canada were driven by citizen involvement and development of strategic partnerships and many of the MFs strive for full representation of interests on their governing boards. However, high levels of engagement during the BR nomination phase can be hard to sustain, future conflicts among interests are inevitable, and volunteer burn-out is a common phenomenon where there is a lack of funding.

The impressive mandate of integrated sustainability may be difficult to communicate to the general public, and BR/MFs have designed communication strategies, projects and programs to overcome this barrier. "Actions speak louder than words" has often been a key to success. Using champions to build support in various sectors (economic, education, conservation, etc.) and among communities is one strategy. Have there been others?

2) Building resilience: "Surviving without funding": Have you identified strategies that might help you survive without core funding?

BRs and MFs have quite different histories in relation to funding: the UNESCO designation is an intergovernmental program and comes with no financial support. Environment Canada has directly funded activities in BRs a total of 4 years in 35 years (along with some key administrative support through Parks Canada over 16 years); the MF program had two major phases of sponsorship under Natural Resources Canada prior to their funding under the Forest Communities Program. Some were re-funded in 2007, while others evolved independently.

"Building capacity" is a common objective for BR/MFs in terms of expanding the human, social, technological and financial capital available. Given the roles of BR/MFs in governance for sustainability, and the value of a regional framework for sustainability provided by BR/MF models, the resilience of these organizations is an important factor.

What strategies have been most effective? Are they sustainable (viable for the long-term)?

3) Collaborative models and prospects for BR/MF activities: Can BRs and MFs work more closely together and for mutual benefit?

Some observers note that the mandates, roles, and participants in BR/MFs are similar and overlapping and advocate for better cooperation or strategic alignment, for the purposes of (re)gaining federal recognition and support, for example.

Others suggest that there could be mutual strategic benefits to a more formal knowledge exchange between BR/MFs as well as their national associations (CBRA/CMFN).

What are your thoughts on the value of these and other prospects?

References

Bullock, R. 2011. Reframing Forest-Based Development as First Nation-Municipal Collaboration: Lessons from Lake Superior's North Shore. Journal of Aboriginal Economic Development 7(2): 78-89.

Bullock, R., Armitage, D. and B. Mitchell. 2012. Shadow Networks, Social Learning, and Collaborating through Crisis: Building Resilient Forest-based Communities in Northern Ontario, Canada. In Bruce Goldstein (ed.), *Collaborative Resilience: Moving through Crisis to Opportunity,* 309-337. MIT Press.

Elbakidze, M., P. K. Angelstam, C. Sandström, and R. Axelsson. 2010. Multi-stakeholder collaboration in Russian and Swedish Model Forest initiatives: adaptive governance toward sustainable forest management? Ecology and Society, 15(2): 14. [online] URL: http://www.ecologyandsociety.org/vol15/iss2/art14/

Francis, G. 2009. Canadian Biosphere Reserves and Social Innovations: an exploration. Working Paper Number 6, Biosphere Sustainability Project, Department of Environment and Resource Studies, University of Waterloo, Ontario. [unpublished]

[IMFN] International Model Forest Network. 2012. Model Forests. Accessed 23/11/2012. Available: http://cfs.nrcan.gc.ca/pages/361.

_____. 2008. Principles and Attributes of Model Forests. International Model Forest Network. Available: http://www.imfn.net/system/files/PA%20Framework%20v24-01-2008.pdf.

Natural Resources Canada. 2011. Evaluation of Forest-based Community Partnerships Sub-Activity Final Report. Available: http://www.nrcan.gc.ca/evaluation/reports/2011/3623#es.

NRCAN. 2006. Canada's Model Forest Program – Follow-up and Mid-term Evaluation, May 2006. Available: http://www.nrcan.gc.ca/evaluation/reports/2006/2753.

Pollett, F. 2012. Teenager No More… Whither the IMFN? Forestry Chronicle 88(3): 223-226.

Standing Senate Committee of Agriculture and Forestry. 2011. The Canadian Forest Sector: A Future Based on Innovation: Final Report of the Standing Committee on Agriculture and Forestry. pp.118.

UNESCO. 1996. *Biosphere Reserves: The Seville Strategy and the Statutory Framework for the World Network*. Paris: UNESCO.

UNESCO. 2002. *Biosphere Reserves: Special Places for People & Nature*. Paris:UNESCO.

UNESCO. 2008. *Biosphere reserves: reconciling the conservation of biodiversity with economic development*. Online: http://www.unesco.org/mab/BRs.shtml

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