

THE ROLE OF UNESCO BIOSPHERE RESERVES IN GOVERNANCE FOR  
SUSTAINABILITY: CASES FROM CANADA

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in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy in the  
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by

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## **ABSTRACT**

The Role of UNESCO Biosphere Reserves in Governance for Sustainability:  
Selected Cases from Canada

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Designated by the United Nations Educational, Scientific and Cultural Organization (UNESCO), biosphere reserves are seen as models for community-based sustainable development. They are geographic areas that contain globally unique ecosystems and encourage communities to integrate biodiversity conservation with sustainable development. Sustainability requires a variety of innovative governance models and approaches. This research explores the roles of UNESCO biosphere reserves – both as models and as multi-stakeholder organizations – in governance for sustainability. As a grounded study, the research methods are iterative and include a literature review, qualitative interviews, extensive participant observation, and comparative analysis of three cases from Canada. The experiences of Long Point Biosphere Reserve (1986), the Frontenac Arch Biosphere Reserve (2002), and the Georgian Bay Littoral Biosphere Reserve (2004) are used to illustrate the application of the UNESCO model and to provide insights into the role of civil society organizations in governance. A conceptual framework is devised to guide case study analysis in terms of the ethical (integrative), procedural (collaborative), and structural (network) governance potential of biosphere reserve organizations to enhance sustainability initiatives. The results suggest that to play an effective role in governance, biosphere reserve groups must navigate complex jurisdictional layers and other organizational and institutional players in order to establish unifying frameworks that fulfil the functions of biosphere reserves. The case studies show that biosphere reserves have the potential to play a number of unique roles. These

include: building governance capacity by brokering collaborative cross-scale governance arrangements and facilitating informal governance networks by providing coordination and communication. However, the research also suggests that biosphere reserves could expand their governance influence by building their own organizational capacity, engaging governments at all levels, and exercising greater leadership in terms of articulating a shared vision for sustainable community development and enabling it, through multi-stakeholder collaboration. These findings are meant to contribute toward theories of environmental governance, to inform the management of UNESCO biosphere reserves, and to share insights with other communities and sustainability-oriented agencies and organizations.

Key words: UNESCO Biosphere Reserves – Governance – Sustainable Development – Multi-Stakeholder Collaboration – Governance Networks – Canadian Biosphere Reserves

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## 1. Introduction: Linking Sustainability and Governance

Sustainable development is one of the most critical challenges of our time. To be achieved it requires a myriad of personal and collective decisions for change to occur at all scales simultaneously. It is widely agreed that the sheer magnitude and complexity of the task requires governance approaches far beyond the capabilities of the conventional institutions of state and market. Governance for sustainable development demands equal, if not greater, democratic participation from the sphere of civil society. It also requires a variety of innovative governance institutions, structures, and processes in order to develop the most appropriate, adaptive and lasting solutions possible.

Since the early 1970s, the biosphere reserve model developed by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) has provided a set of high ideals for regional sustainable development. Biosphere reserves are geographic areas that contain globally unique ecosystems and are designated by UNESCO because of the expressed desire of local communities to work toward sustainability. Each biosphere reserve is intended to fulfill three integrated functions: conservation of biodiversity, sustainable economic and human development, and “logistic support” or capacity building for research, monitoring, education and training. In practical terms, biosphere reserves support stewardship, livelihoods, and learning in particular places.

Biosphere reserves were selected for this study because they provide powerful models of community-based sustainable development. As grassroots initiatives, biosphere reserves involve multiple communities within a shared landscape to seek UNESCO designation,

which places unprecedented international attention on those regions to pursue bioregional solutions for conservation and sustainable development. Biosphere reserves empower people to design sustainable development initiatives for their special place and to share what they learn with others around the world. They are considered to be “living laboratories” for experiments in sustainable development. As of 2008, there are 531 world biosphere reserves in 105 countries, with 15 in Canada.

The literature reviewed for this dissertation establishes three core insights: that governance is an imperative for sustainable development; that collaborative and integrative models of governance for sustainability are especially needed; and that UNESCO biosphere reserves provide one such model. Although the model has persisted for close to 40 years, there have been no attempts to date to survey, much less to develop understandings about the contributions of biosphere reserves to environmental governance – with governance defined as the structures and processes of collective decision-making.

The broad objective of this study is to develop a conceptual framework about environmental governance and the role of biosphere reserves in sustainable development. Specifically, this work explores how the UNESCO biosphere reserve model is applied in three Canadian case studies. It puts forward research propositions about the [normativeethical](#), procedural and structural dimensions of governance for sustainability, which are then examined in detail through case study analysis. It uses extensive

participant observation and qualitative interviews to assess the actual and potential roles of biosphere reserve organizations in governance for sustainability.

Findings from this research will contribute to theories of environmental governance and understandings about how to advance sustainability, using biosphere reserves as exemplars.. The fine-grained empirical analysis will provide lessons about collaborative governance that might be transferable elsewhere. At a pragmatic level, the experiences of two older biosphere reserves in Ontario (i.e., Long Point and Frontenac Arch) documented here can be shared with the more recently designated biosphere reserve in eastern Georgian Bay and vice versa. Shared with the world network of UNESCO biosphere reserves, scholars and practitioners, this study will have wide application for other communities and sustainability-oriented agencies and organizations.

### **1.1 Theoretical Perspectives on Governance for Sustainability**

In this dissertation, sustainability is presented as the main agenda for social change and collaborative approaches to governance are suggested as the most effective means by which social groups might fulfill that agenda. At the same time, however, the overarching background context for questions of governance is one of highly complex systems, full of inherent uncertainty and surprise. Although the literature on governance for sustainability clearly recognizes elements of systems thinking (e.g., policy networks, multi-level administration, science-policy interfaces), this dissertation applies a systems perspective to help explain the shifts in governance, particularly in the context of complexity, uncertainty, and the problems of scale.

Understanding the role of multi-stakeholder collaboration in governance for sustainability benefits from two highly interrelated bodies of thought. The first is an integrated perspective about the social, ecological, economic and institutional requirements for sustainable development (or “sustainability”). The implications of the sustainability principles for governance outlined by Gibson et al. (2005) and many others are profound. They support the shift to collaborative governance and provide a framework for more integrated decision-making processes that account for diverse perspectives at multiple scales.

Related to this is an applied complex systems perspective for understanding the social, ecological, economic and institutional dynamics of highly integrated social-ecological systems. Since UNESCO biosphere reserves themselves are examples of self-organizing phenomena that attend to complex system dynamics (i.e., multi-level, cross-jurisdictional, interdisciplinary, long-term, etc.), this dissertation adopts applied complex systems thinking (following Gunderson and Holling (2002) and others) to illustrate the scope of the governance challenge for sustainability.

The basic assumptions behind this work support the view that sustainability is a set of principles that represent broad and evolving social objectives, but that sustainable development requires collaborative approaches to governance in order to be fulfilled. Although governance is a neutral term, concerned only with structures and processes,

sustainable development in complex systems constitutes the overarching normative agenda to which new modes of governance must respond.

### 1.1.1 Sustainable Development

Seen as an alternative paradigm to current development trajectories, sustainable development (or “sustainability”) offers a fundamentally different agenda for human development that integrates the broad imperatives for social, ecological and economic change. For the past 20 years, sustainable development has been widely debated and attempted at different scales by communities, nations and institutions.

Sustainability thinking is being used in more diverse fields and sometimes with greater sophistication. For example, the principle of democratic participation – central to sustainability – has been widely explored and refined as informed by political science, sociology, political ecology, ethics and philosophy. Ideas about what environmental democracy could look like have been developed more profoundly in response to the influence of globalization and the complex nature and perceptions of environmental problems along with the expansion of civil society<sup>1</sup> (e.g., Lafferty and Meadowcroft, 1996; Dryzek, 1997; Dobson, 2003; Mason, 1999; Paehlke, 2003; Paehlke and Torgerson, 2005).

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<sup>1</sup> Civil society is known as the non-governmental, non-market sphere of society. It is described by Swift (1999: 4) as “the population of organizations trying to change some aspect of society, including government policy, cultural values, corporate practices, and the activities of intergovernmental organizations.”

Managing sustainability at local, societal and planetary scales demands equally complex decision-making capabilities. Sustainability fundamentally challenges the current assumptions of neoliberal economics and conventional practices of governance (i.e., the processes of decision-making that shape social practices, political agendas, and ideologies). As will be discussed, governance for sustainability requires appropriate normative frameworks, along with effective governance approaches and structures for collective decision-making.

The concept of sustainable development was originally conceived as a balance among social, economic and environmental objectives but it has been refined to a much greater degree in order to account for the necessary trade-offs and choices involved in sustainability decisions. Attempts at balancing conservation and development result in “a strategy of incremental sacrifice” (Gibson et al., 2005: 114) when compromise decisions reflect a predictable pattern of mitigation, compensation, and partial restoration – of ecosystems and of justice. Consequently, when substantive policies and programs for sustainable development fail to materialize, the popular and once powerful discourse of “balancing” environment and economy is reduced to a weak rhetorical position (Jordan and O’Riordan, 1995).

In response to the perceived failings of a sustainability agenda over the past 20 years, many scholars have sought to defend and deepen the original formulation which led to a broad consensus on the need for a more integrated and an explicitly values-based approach which include:

- i. An appreciation of natural capital and the role of ecological goods and services;
- ii. A challenge to current patterns of economic growth;
- iii. Preferences for governance mechanisms that enhance livelihood opportunities and protect social entitlements such as human and ecosystem health;
- iv. Equity considerations both within and between generations;
- v. Resource efficiency and full-cost accounting;
- vi. More integrated political institutions and greater interdisciplinary approaches;  
and,
- vii. An enlarged role for civil society through democratic participation in decision-making.

In Canada, one of the most comprehensive sets of criteria for sustainability, developed in the context of legislated environmental impact assessment was expanded into a generic approach that aims to be applicable to decision-making processes at any scale. It rejects the “balancing” approach described above in favour of the difficult but ultimately essential task of integration. Importantly, the criteria for basic ecological requirements, social imperatives and necessary economic restructuring are not individual targets to pursue, but are rather a set of obligatory considerations intended to constitute a single requirement: that of sustainability (Gibson et al., 2005: 95-114). Expressed as decision criteria, they are:

- i. Socio-ecological system integrity;
- ii. Livelihood sufficiency and opportunity;
- iii. Intragenerational equity;
- iv. Intergenerational equity;

- v. Resource maintenance and efficiency;
- vi. Socio-ecological civility and democratic governance;
- vii. Precaution and adaptation; and,
- viii. Immediate and long-term integration of all principles.

Together these criteria capture the major sustainability considerations noted above, and combine them with emerging concerns about the need for precaution (due to the uncertainty of complex systems and effects of rapidly developing technologies) and the fundamental need for adaptation to changes (such as the unpredictable effects of global economic restructuring or global climate change). This set of principles goes beyond traditional concerns about participatory decision-making on a case-by-case basis or the formal institutions of the state, to account for the much broader processes of governance at work in societies.

In this dissertation it is recognized that part of the challenge for sustainability is “effecting change in informal governance institutions...[that] requires identifying the levels at which the change is desired [and] the territorial scale at and through which the desired change is to be implemented...” (Kemp et al., 2005). In order for a normative ethic of sustainability to have influence, therefore, a similar set of criteria to those above must become integral to decision-making within each of the four traditional spheres of governance: government authorities, adjusted markets, customary practice and deliberate choice (Gibson et al., 2005). One of the outcomes from an integrated set of principles for

sustainability is that it creates higher standards for sustainable development and places higher expectations on decision-makers and institutions in terms of governance.

This type of perspective also places greater emphasis on the institutional dimensions of sustainability in order to account for the structures and practices that frame those activities within the other ecological, social, and economic domains (Meadowcroft et al., 2005). Embedded within an integrated approach to sustainability are also more rigorous expectations for integration within democratic institutions, more supportive policy frameworks, and generally improved approaches to governance. In this study, sustainable development recognizes the fundamental importance of governance. It:

...implies the existence of the appropriate knowledge and *governance capacity* to maintain economic vitality with social inclusiveness in opportunities and benefits, provide for ecological sustainability and the protection of biodiversity to guide the use of resources, and promote social equity within and across groups and generations. All three are necessary and no one of them alone is sufficient. These requirements must also hold across a range of spatial and temporal scales (Francis, 2004: 21, emphasis added).

Without the capacity to make collective social decisions about challenging and changing current patterns of growth, an alternative trajectory for human development simply may not be realized. Governance for sustainability is an imperative that requires further academic exploration, deeper social understanding, and opportunities for application.

### 1.1.2 **Governance**

Governance describes the way that society is directed and controlled; it describes the structures and processes used by a variety of social actors, including government, to influence and make decisions on matters of public concern (Graham et al., 2003). Instead

of a collection of discrete decisions, however, governance can be described as “the collective results from the exercise of authority and control through multiple governmental and other organizations, each following their own decision-making processes” (Francis, 1996: 303). Rather than the largely centralized, expert decision-making processes of the past, common understandings of governance have evolved to include the roles and capacities of the state, together with those of the private sector (ranging from small businesses to large corporations) and civil society, to steer various aspects of society that lie beyond the conventional concerns of state security and the redistribution of resources (Wyman, 2001).

The sheer magnitude and complexity of sustainability requires governance approaches far beyond the capabilities of the conventional players, i.e., the institutions of state and market. Much of the governance literature seeks to improve current approaches to governance through an expanded set of players who share responsibilities and interact across different levels or scales. Governance for sustainability requires democratic participation from civil society. Moreover, governance attempts must address complex problems at multiple spatial and temporal scales (e.g., local to global, short- and long-term, etc.) in order to develop the most appropriate, adaptive and lasting solutions. These “layers” and “players” involved in sustainability relate to the structures and processes of governance. They are reflected in questions such as: Who has a stake in this issue? How are different social and ecological populations affected and represented? Who has the power to influence decisions? Which jurisdictional levels should be involved? How will decisions ultimately be made and then implemented?

Consequently, theories about governance have had to respond to two related shifts in power and the relative roles of new governance players: the rise of a global political and economic system that has destabilized the dominance of the nation state in governing and the subsequent and spontaneous rise of civil society organizations and self-organized networks that claim greater roles in matters of social, political and economic governance, as described in Chapter 4.

Notably, the focus of this study is on biosphere reserves as both models (i.e., exemplars) for sustainable development and as non-governmental civil society organizations. From an academic perspective, this study is best situated in the emerging field of “governance for sustainable development” because it explores governance as an imperative of sustainability in light of the requirements listed above. Because governance for sustainability is essentially “...concerned with managing social change through democratic interactions” (Meadowcroft et al., 2005: 5) and requires a wide range of scholarship within and between disciplines, this dissertation draws from a deep reservoir of environmental scholarship linking governance and sustainability through an array of scholarly perspectives.

The research broadly relates to those areas concerned with the social and institutional dimensions of sustainability: it is informed by the relative roles of states, markets and civil society in global environmental governance (Paehlke, 2003); the limitations of government authorities and social choice mechanisms in environmental management

(Paehlke and Torgerson, 2005); the need for horizontal integration within political institutions (Dale, ~~and Hill~~, 2001), vertical integration between multi-level governance institutions (Young, 2000) and the role of international institutions in resource management (Young 2003; Young et al., 2006).

Since the case studies for this research are community-based, lessons can also be drawn from the development of social institutions for common property resource management (Berkes and Folke, 1998; Agrawal and Ostrom, 2001; Ostrom, 1990), adaptive and ecosystem-based management (Slocombe, 1998) and adaptive governance (Folke et al., 2005; Olsson et al., 2006). As described below, the themes of democratic participation, multi-stakeholder collaboration and adaptive, cross-scale governance help to inform the development of a conceptual framework for this study.

### 1.1.3 Collaborative Governance

In order to account for the widest range of interactions between the layers and players involved with governance for sustainability, one of the primary themes in this study is collaborative governance. Collaborative governance is an emerging set of concepts and practices that offer prescriptions for inclusive, deliberative, and often consensus-oriented approaches to planning, problem solving, and policymaking. Collaborative governance is an inherently multi-stakeholder (i.e., of interests, parties, agencies) set of practices, where participants are collectively empowered to make decisions (Sidaway, 2005).

Collaborative initiatives have been encouraged by the rise of increasingly complex trans-disciplinary, cross-sectoral and multi-level problems, including the general

unsustainability of key global trends and their local and regional analogues (Gibson, pers. comm., 2006).

Collaborative structures and approaches to governance are seen to create democratic opportunities for citizen engagement as they bring multiple perspectives and resources to bear on decision-making processes. Importantly for sustainable development, civil society organizations have been found to enhance governance capacity through self-organization of networks and multi-stakeholder coalitions that may more effectively integrate issues that cross mandates, jurisdictions and areas of professional expertise. Such collaborative governance approaches have been used to steer communities towards greater sustainability at the landscape scale (Pollock et al., 2008).

However, various collaborative initiatives, such as networks, coalitions, and other multi-stakeholder arrangements, need much better definition (Donahue, 2004). Not only does the field of collaborative governance need to be bound better, but also, as this study shows, models of collaborative governance need to be developed and tested for their role in sustainable development and “how these function on the ground in specific localities” (Lerner, 2006). The difficulty, as Kemp et al. (2005: 18) have noted, is that “finding ways to ensure that all these players act coherently, effectively and with some efficiency in the pursuit of sustainability demands much higher ambitions and underlines the crucial role of informal institutions,” including customary social norms and choices.

Young (1983: 102) observes another challenge: “increases in the complexity of social systems will frequently operate to accentuate the role of spontaneous [self-organized] orders.... [yet] it will ordinarily become harder and harder for groups of actors to arrive at meaningful or coherent bargains as the issues at stake become increasingly complex.” In Canada, biosphere reserves are typically self-organized and create multi-stakeholder organizations in response to the complex challenges of ecological stewardship and sustainable livelihoods. A study of their collaborative governance approaches increases the likelihood of accounting for both the range of stakeholder players and the jurisdictional layers involved in sustainability initiatives.

#### 1.1.4 Cross-Scale Governance

Environmental problems are widely recognized as crossing borders and boundaries (e.g., pollution) or of belonging to the commons (e.g., air, water, oceans). These types of issues typically cross a variety of scales (e.g., jurisdictional, spatial, temporal) and require multi-level political actions including local municipalities, regional authorities, national agencies, and international agreements. Multi-level governance refers to local-to-global interactions among and between government agencies, the private sector and civil society (Cash et al., 2006). The concerns of Donahue, Kemp and Young noted above about the proliferation of stakeholder groups involved in any given issue may combine in countless ways and across multiple scales resulting in “tangled jurisdictions” (Paehlke, 1996) and “tangled hierarchies” (Jessop, 2002<sup>9</sup>) that can compromise the accountability and transparency that are required for good governance and effective implementation.

In order to address these types of complex and cross-scale problems in a manageable way, the scope of this study is limited in two ways. First, the focus is on governance structures and processes that are initiated by citizens and community groups within civil society rather than those organized by government or the private sector because civil society is seen in the literature as the primary locus for self-organization of collaborative governance. However, civil society organizations are examined with consideration to how they are influenced by formal government activities. Second, this study is limited to three particular geographic regions (also referred to as cultural landscapes). The selection of individual biosphere reserves as case studies allows three distinct applications of the UNESCO model to be explored at roughly the same scale within a similar socio-political context [section 1.5].

For the purposes of this study, communities are defined as inclusive of local residents, those people and groups within and outside an immediate locality or landscape (e.g., residents of a city that become involved in the protection of an outlying area), and the widest group of stakeholders that partake in governance activities for that region. This approach helps to ground the study of governance for sustainability in community practice, to use a regional or landscape lens as defined by those communities, and to capture the interactions among a rich variety of institutional layers and social players. According to Ellsworth and Jones-Walters (2006: 5), “communities are at the heart of this governance transition. As places, they experience issues as a web of interrelated problems. As people, they live with direct effects, indirect effects, side effects and cumulative effects of policies....” The turn to “community” has been a powerful trend,

with academics and practitioners observing processes of self-organization, exercises in collaborative planning, and exponential growth in network formation.

Yet just as civic involvement in local and regional governance is being celebrated, social and environmental risks are increasing and upper-tier governments are devolving their responsibilities to deal with them (Lerner, 2006). Communities are supposed to be empowered to participate in localized governance processes at the very moment that they are made more vulnerable to the effects of global governance. Some social policy observers share the concern that the rhetoric of shared governance encourages governments to abrogate their responsibility for economic, social and environmental well-being (Rice and Prince, 2003). Swift (1999: 9) also observes that: "...government often promotes the idea that 'the community' should take upon itself the tasks of providing services once delivered by the welfare state." Thus, particular modes of governance may act to *disempower* communities if resources are reduced while expectations mount (see also Smith, 2005; Graham and Phillips, 1998).

In contrast with the welfare state, neoliberalism advocates a fundamentally different extent and form of public intervention and the use of markets and quasi-markets to deliver public services that reflects an ideological preference for less government (Rhodes, 1996; Francis, 2008). The effects of state downloading of responsibilities, often without a simultaneous transfer of power or adequate resources across scales, is relevant to sub-national agencies and local governments who are burdened by new expectations but are without the capacity to govern in those areas effectively.

Although the local scale and a sense of place is viewed as a powerful basis for individual agency, social organization and collective action, this research necessarily goes beyond the local scale of inquiry in an attempt to account for some of the cross-scale and multi-level dynamics within complex systems. “With respect to spatial scales, all ecosystems are ‘open’ systems, and thus receive impacts from neighbouring systems” (Rapport, 2004: 50). Work at the landscape scale attempts to account for highly complex systems yet not to overwhelm analysis to the point of paralysis (Selman, 2006). Landscapes, as culturally and geographically defined, help to frame some of the immensely complex and cross-scale interactions inherent in social and ecological systems – ones that seem to present a constant challenge to sustainability for almost any community.

Collaborative cross-scale governance is an essential and profoundly challenging approach to governance; it is a response to increased global complexity and resulting local vulnerability. As Lawrence (2004: 1) explains:

...what we are witnessing throughout the so-called advanced world are experiments in sub-national regional governance that are themselves a response to wider problems in managing global capitalism. Rather than solving the problems that are emerging, and rather than unequivocally producing a dynamic that leads to sustainable development, they appear to be generating their own tensions and contradictions –some of which will not be readily resolved within, and indeed may be exacerbated by, the structure of global neoliberalism.

Despite the challenges involved in collaborative governance, Lawrence (2004) and numerous others (e.g., Dorsey 2004, Loorbach 2004, Whittaker et al 2004, Bulkely and Mol 2003, Rowe and Fudge 2003, Parson 2001, Roseland 2000) urge recognition of the continued pursuit of locally-driven, sub-national governance experiments as the best path – perhaps the only viable path – to sustainability. The aims, in their view, must be to understand the tensions and contradictions in various approaches to collaborative

governance and learn how to do collaborative governance better.

From a community sustainability perspective, governance mechanisms are needed that can address issues that cross scales, such as the pervasive and cumulative impacts of global markets on small family farms. Communities are vulnerable to combinations of local and global environmental changes and economic trends and must develop greater resilience to adapt to such changes. This study uses a complex systems perspective to understand the possibilities for adaptive governance, as described below.

### **1.1.5 Adaptive Governance**

The complex nature of ecosystems and social systems, along with the complex structures of governance that emerge to address sustainability concerns, suggests that the theme of adaptive governance should be central to any study of this kind. This dissertation uses selected insights from complexity thinking as it has emerged from the field of applied ecosystem management in order to apply lessons to governance for sustainability. As Kemp et al. (2005) have noted, sustainable development has come to describe a constant process of socially instituted adaptation to change.

Conventional governance approaches to resource and environmental management that attempt to control key ecosystem variables in their efforts to produce efficiency, reliability, and optimality of ecosystem goods and services ultimately increase the vulnerability of the system to unexpected change (Folke et al., 2002; Gunderson and Holling, 2002). The growing number of failures among current approaches has led to calls for more adaptive governance regimes that can deal with uncertainty and change

(Gunderson et al., 1995; Folke et al., 2005). In contrast with top-down government-led approaches, adaptive governance is supported by polycentric institutional arrangements that are nested, quasi-autonomous decision-making units operating at multiple scales (Ostrom, 1996; McGinnis, 1999). Spanning from local-level authorities and organizations to higher levels of organization and jurisdiction, adaptive modes of governance can be seen as voluntary social coordination by individuals and organizations with self-organizing and self-enforcing capabilities. In other words, adaptive governance relies on networks that connect individuals, organizations, agencies, and institutions at multiple organizational levels (Folke et al. 2005). This form of governance also provides for collaborative, flexible, learning-based approaches to managing ecosystems, also referred to as “adaptive co-management” (Folke et al., 2003; Olsson et al., 2004a; Olsson et al., 2004b).

Derived from decades of theoretical and empirical research on system dynamics and resource management practice, the basis of this kind of systems thinking is threefold: (1) centralized command-and-control management approaches have largely failed to create sustainable resource use and threatened ecological integrity and related social and economic viability; (2) resource management itself is not separate from, but part of, an inherently complex, unpredictable, non-linear, and adaptive set of systems; (3) which leads to the premise that society and nature represent interdependent social and ecological systems (Berkes and Folke, 1998; Berkes et al., 2003) with complex interactions from local to global scales (Cash et al., 2006). The perspective of cross-scale linked or nested

social-ecological systems is one that represents new challenges for management and governance.

Following ecological models of complexity that began to account for the perverse and surprising effects of resource management evident in resource collapse (Holling, 1986), this thinking sought to understand the interactions between ecosystems and institutions more generally through a wide range of case studies (Gunderson [and Holling et al.](#), 1995; Berkes and Folke, 1998; Berkes et al., 2003) and reflections on the “fit” between ecosystems and institutions (Folke et al., 2007) which led to a preliminary set of theoretical propositions about the hierarchical, yet nested, structure of complex ecological and social systems and their adaptive capacity for change, along with their co-evolutionary capacity to build resilience in the face of vulnerability, uncertainty, and surprise (Gunderson and Holling, 2002).

The resulting “panarchy theory” (in reference to mischievous nested hierarchies) suggests that natural and social systems share common patterns of organization, disturbance and reorganization (most easily illustrated by forest maturation, fire or insect outbreak, and re-growth, but also visible in economic cycles, political regimes, etc.). Reorganization is usually achieved through a process of self-organization that is based on available genetic information, ecosystem components, institutional memory, social capital, resources and so on. In essence, the adaptive cycle captures the common phenomena of four stages and variable speeds of growth, conservation, collapse, and renewal [Figure 1.1].

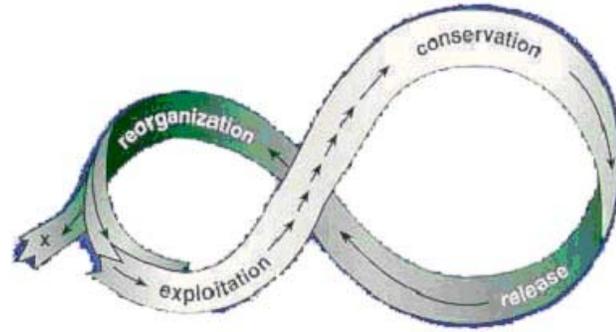


Figure 1.1 The adaptive cycle of panarchy (Gunderson and Holling, 2002)

The cycle emphasizes that there are a limited number of critical drivers that structure any system, and that the two key variables are *potential* or accumulated capital and *connectedness* of system components. The first phase (or “front loop”) of the cycle is marked by relatively predictable expansion and prosperity with growth and accumulation of capital and wealth. The second phase (or “back-loop”) is characterized by unpredictable moments of creative destruction and reorganization, potentially suddenly.

During the back-loop of the cycle, a sudden event, like a forest fire, can unexpectedly “flip” an ecosystem into a qualitatively different state by triggering the release of biomass. A classic example is a clear lake that supports healthy fish populations flipping into a eutrophic system with turbid water dominated by plankton. The transformation from one state into another may not only be biologically impoverishing, but may also effectively irreversible. In the case of a political or economic collapse, human capital and wealth are lost or released and may re-organize into similar or fundamentally different structures.

Following a disturbance, a system may not necessarily cross a threshold and collapse if it is resilient. Resilience is the capacity of a system to absorb disturbance, to undergo change and to still retain essentially the same function, structure and feedbacks (Walker and Salt, 2006). Resilience can be positive if the system is desirable; it may also be highly resilient and resist change (like some persistent political regimes, processes of desertification, or exhausted resources).

Resilience can be negative when it is a characteristic of institutions that maintain or support unsustainable development, consumption and growth, or positive when it maintains systems that help protect intact ecosystems and democratic societies, for example, since those systems have a greater capacity to “continue providing us with the goods and services that support our quality of life while being subjected to a variety of shocks” (Walker and Salt, 2006: 32). Part of the system’s resilience capacity resides in its adaptive capacity or capital (e.g., genetic diversity, social capital, or institutional memory) that helps to reorganize the system after disturbance (Gunderson [and Hollinget al.](#), 1995).

In response to the critique that ecosystems and social systems are fundamentally different units for analysis, panarchy theorists are quick to distinguish between ecosystems and social systems, noting the unique human capacity for foresight, communication and the development of technology (Gunderson and Holling, 2002). Together these capacities have both the potential to speed ecological system collapse (witness the north Atlantic cod fishery) or to provoke smaller collapses within a system (such as prescribed burning

in ecological restoration or adjustments to inflation). Individuals and organizations that anticipate system changes, identify potential thresholds (or points of collapse), and find “windows of opportunity” to reorganize a system for positive social change are known as “social innovators” (Westley et al., 2006).

Systems theory is relevant to governance because it suggests that “ecosystems are inherently complex, that there may be no simple answers, and that our traditional managerial approaches, which presume a world of simple rules, are wrong-headed and likely to be dangerous” (Kay and Schneider, 1994: 33). A systems approach also holds the promise for social learning and adaptive management in response to growing understanding of natural cycles (such as pest outbreaks) and social expectations (for governance institutions). The authors also note that there are exceptions to the four-phase cycle, where some phases may vary in speed and duration or may be missed altogether.

Theoretically, governance processes can help to account for and explain social and ecological systems (i.e., their interactions, interdependencies, thresholds, relative capacities, and resilience) and offer a variety of adaptive approaches to management and decision-making, including deliberative public forums, the creation of new social institutions or the influence of existing political arrangements. Many have found the adaptive cycle to be an excellent heuristic for understanding complex system behaviours – whether economic boom and bust cycles in the economy (Schumpeter, 1942), ecological collapse in resource management (Holling, 1976), institutional collapse in

political systems (Gunderson [and Holling et al.](#), 1995), or social innovation in organizational systems (Westley, 2006).

Systems thinking underscores the interdependence between and among systems operating over a range of spatial and temporal scales and provides a powerful conceptual framework for understanding thresholds and unpredictable non-linear system changes. The relative capacity of systems to build enough resilience in order to mitigate collapse under the pressure of change is accompanied by the understanding that the interdependence of linked systems across scales allows for changes at one level to cascade up or down to either support or disturb the linked systems. Attention to multiple scales is therefore crucial in initiatives to maintain desirable system features or to foster positive change. Whether existing or resulting regimes are desirable or not – and resilience is perceived as contributing to sustainability or not – is a question of social and other value judgments.

Examples of non-linear system changes include: social protest at a grassroots level displacing a dominant political party and triggering the demise of other regimes in neighbouring countries; speculative global investors triggering market crashes with ripple effects in national and local economies; and the cumulative effects of drought on hydrology, soil salinity, agricultural viability and rural life (Gunderson [and Holling et al.](#), 1995; Lawson and Walker, 2006). A systems perspective on governance avoids isolating or simplifying one system in favour of using a holistic view to understand the challenge of managing complex social, economic and ecological systems.

From a sustainability perspective, the adaptive cycle is increasingly used as a metaphor for systems in transition, especially for understanding the resilience of social-ecological systems (Folke et al., 2002; Redman et al., 2003; Olssen et al., 2004; Walker et al., 2004; Dale, 2006;). The hyphenated term social-ecological system emphasizes the connectivity present in systems and acts as a reminder of the underlying complexities to be addressed in governance for sustainability. Just as sustainability is the main agenda in this study, and governance is the means to address it, applied systems thinking informs the overall background context of the study.

The primary focus in this study is on collaborative governance structures and processes rather than an analysis of the adaptive cycle in governance or the adaptive capacity of biosphere reserves per se (Mendis-Millard, forthcoming). Yet systems thinking provides essential insights for some of the key determinants of sustainability, such as adaptive capacity and resilience, as well as for some of the key features of governance, especially self-organization and cross-scale dynamics.

### **1.1.6 Governance for Sustainability**

The convergence of governance and sustainability is an emerging field of thought and one that integrates political science, sociology, organizational theory, environmental management, and so on. Indeed, there have been few theoretical frameworks available that incorporate the breadth of discussion on governance and civil society with the principles of sustainability and insights from systems thinking. However, attention to cross-scale, multi-level governance is now pervasive and a select number of scholars have responded by developing more integrative frameworks.

For example, Meadowcroft et al. (2005) offer an interdisciplinary perspective on governance for sustainable development, developed in the context of governance in the European Union. Their work resonates strongly with that of Gibson et al. (2005) on the principles for sustainability. The key elements listed below capture "...an understanding of the complexity of social/ecological interactions and of the scale of the necessary transformations, as well as an appreciation of analogous processes of economic and social change..." (Meadowcroft et al., 2005: 6). The authors reiterate that governance for sustainable development will imply difficult choices and trade-offs, significant struggles and conflict, and even the serious failures that are characteristic of complex social change. They recommend:

- i. Developing appropriate political frameworks;
- ii. Adopting a long term focus;
- iii. Developing a better understanding of ecological processes and of social/ecological interactions;
- iv. Integrating different kinds of knowledge into decisions;
- v. Structuring engagement as a learning process;
- vi. Strengthening the resilience of social institutions;
- vii. Integrating the economic, social and environmental dimensions of decision-making;
- viii. Evolving complex systems of multilevel governance where decision-makers remain responsible to citizens, communities and stakeholders;
- ix. Transforming unsustainable practices embedded in core economic sectors;

- x. Maintaining political support for long term adjustment; and,
- xi. Incorporating sustainable development into educational and cultural practice, individual codes of conduct and popular morality.

Although this comprehensive and international agenda goes far beyond the mandate or capacity of any single biosphere reserve or regional authority, three elements emerge that support the present research agenda. They are: (1) the role of public authorities and other social actors in “steering” societal change; (2) the need for developing complex systems of multilevel governance in order to foster integration; and (3) the need for collective participation in policy development and coherence between policy objectives and implementation. Importantly, this framework as a whole underscores how governance for sustainability is both a “practical activity aimed at changing society and a research paradigm for understanding and facilitating such activity” (Meadowcroft et al., 2005: 9).

## 1.2 Research Context

In order to develop particular understandings about the structures and processes of collaborative governance for sustainability that might be transferable elsewhere, this research takes UNESCO biosphere reserves – exemplars of integrated sustainability – and attempts to identify their role in governance, in terms of the structures they assume and the processes they facilitate in support of sustainability. The following section reviews the biosphere reserve model based on UNESCO literature and preliminary observations. A detailed examination of the model, along with international illustrations, is provided in Chapter 2.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) under its Man and the Biosphere (MAB) programme developed the model for World Biosphere Reserves in 1969. Biosphere reserves are geographic areas that contain globally unique ecosystems but are also designated because of the expressed desire of local communities to work toward sustainability. Their explicit purpose is to demonstrate the integration of conservation and sustainable development as outlined in the Seville Strategy (UNESCO, 1996).

Each biosphere reserve is intended 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.

All three functions are to occur to varying degrees, as it is deemed appropriate, across three interrelated zones: a legally protected core area (such as national parks), surrounding buffer zones, and outer transition (or human settlement) areas. While the 531 biosphere reserves in 105 countries (in 2008) are intended to be community-based and locally-driven, individual biosphere reserves typically extend beyond the boundaries of local jurisdiction to incorporate surrounding interests and authorities, many with a specific function (e.g., species conservation) or jurisdiction (e.g., national parks).

Although UNESCO biosphere reserves carry an international designation, they are often initially organized by local multi-stakeholder groups, then formally endorsed by relevant authorities (in Canada: municipal, provincial and Aboriginal governments) and ultimately nominated by national governments (under the auspices of National MAB Committees or national Commissions to UNESCO). Once designated by the International Coordinating Council of the MAB Programme (with headquarters in Paris), biosphere reserves remain under sovereign jurisdiction of the state in which they are located. As such, biosphere reserves have no formal authority and must respect established jurisdictions and remain neutral with regard to contested land claims.

Some countries have state-sponsored biosphere reserve agencies or private-sector partnerships, in many others, biosphere reserves are established non-governmental organizations or simply volunteer-based community groups. In the case of informal organizational arrangements, biosphere reserves can be considered “community governance” mechanisms, operating primarily at a local and regional level “where the organizing body may not assume a legal form and where there may not be a formally constituted governing board” (Graham et al. 2003: 6). Since most biosphere reserves in Canada are multi-stakeholder organizations that create or participate in much wider informal governance arrangements, they constitute excellent sites for this study.

Rather than prioritizing conservation to the exclusion of development, as a traditional protected areas management paradigm would suggest, biosphere reserves are seen to be

working landscapes where people are encouraged to pursue stewardship and livelihood opportunities in a more integrated way, where conservation and human development can produce mutual benefits, and where the broad concerns of sustainability can be addressed across multiple scales so as to promote adaptation and learning. A newer paradigm of protected areas does not separate people and nature with fences, but sees social and ecological systems as highly integrated, capable of producing mutual benefits from sustainable resource stewardship (Berkes and Folke, 1998). “While the general principles for biodiversity conservation and sustainable development are generally known, their application requires location-specific knowledge of ecosystems, local economies, social organizations and governance” (Francis, 2004: 21) which places fairly high expectations on biosphere reserves to develop their own governance capacities by engaging residents and using local and traditional knowledge.

Considered “models for sustainable development” ([Seville Strategy UNESCO](#), 1995) and “living laboratories” by UNESCO (2000), world biosphere reserves are provided with a common framework (i.e., the integration of three essential functions within three related zones) but with the flexibility to develop context-specific and community-based solutions to local and regional sustainability challenges (Brunckhorst, 2001). According to the MAB programme: “They outpace traditional confined conservation zones, combining core protected areas with zones where sustainable development is fostered by local dwellers and enterprises. Their governance systems are often highly innovative” (UNESCO, 2008). In Canada, biosphere reserves have been recognized as innovative

mechanisms for involving local communities in whole-landscape approaches (NRTEE, 2003).

These resulting experiments in sustainable development belong to regional networks and make up the world network of biosphere reserves, that together support a system of scientific research and shared learning and knowledge about sustainable development practices. As a UNESCO (2005: 2) publication explained:

Biosphere reserves constitute innovative approaches to governance at multiple levels. Locally, biosphere reserves are a potent tool for social empowerment and planning; nationally, they serve as hubs of learning for replication elsewhere in the country; internationally they provide a means of cooperation with other countries. They also provide a concrete means of addressing international obligations such as Agenda 21, the Convention on Biological Diversity, the Millennium Development Goals...etc.

Although the UNESCO model of biosphere reserves and the MAB programme are almost 40 years old, they have retained their scientific core structure (for conservation of biodiversity) and a solid conceptual integration for sustainable development. Despite this strong core design, the model has been able to incorporate new understandings about community-based management and governance over time:

Sustainable development now occupies centre-stage in global efforts to understand and guide multi-dimensional processes of change driving societies at local, national and international levels. Biosphere reserves can be platforms for building place-specific, mutually reinforcing policies and practices that facilitate (i) conservation and sustainable use of biodiversity (ii) economic growth and other needs and aspirations of local communities and (iii) the emergence of knowledge-based governance and management arrangements at local, provincial and national levels. In this regard, biosphere reserves could serve as learning laboratories for local, national and international sustainable development agendas (ICC-MAB, 19<sup>th</sup> Session, SC-06-CONF.202-INF.4, para.2. (UNESCO, 2006).

Biosphere reserves struggle to define sustainability for specific landscapes and resources, integrate the conservation of biodiversity with human development and sustainable

livelihoods, while continually monitoring environmental, social and economic change in order to develop creative and adaptive strategies that build resilience for the future. It is widely recognized that limitations on what can be achieved locally in response to changes originating from larger scale political and economic forces, are not unique to biosphere reserves. Francis (2004) has pointed out that scholarship for biosphere reserves could helpfully address issues of governance, the role of civil society, and the dynamics of complex socio-ecological systems that set the contexts within which biosphere reserves have to operate.

Indeed, this research takes biosphere reserves to be not only static “models” for sustainable development, but also dynamic multi-stakeholder organizations capable of influencing and initiating governance processes at different scales. One of the working hypotheses of this study, based on the literature review in Chapter 2 and personal observations, is that UNESCO world biosphere reserves are at once models for integrated sustainability, collaborative multi-stakeholder processes, and innovative governance structures. Governance networks, as explored in Chapter 4 for example, may be an apt description of how biosphere reserves build capacity by bridging multiple organizations under an umbrella of shared goals, resources, understanding and knowledge.

Emerging from these interdisciplinary themes is a conceptual framework for biosphere reserves. It is developed in Chapter 5 to synthesize the most relevant concepts from the literature for this particular study and to provide an analytical tool that can be applied to each of the case studies. The conceptual framework is developed and refined through

application, building toward theories of environmental governance by understanding the role of biosphere reserves in governance for sustainability in the Canadian context.

### 1.3 Case Studies

Three Canadian case studies are used in this dissertation to explore the role of biosphere reserves in governance for sustainability. They are all situated in the province of Ontario and they are: the Long Point World Biosphere Reserve on Lake Erie, the Frontenac Arch Biosphere Reserve in the Thousand Islands area of the St. Lawrence River, and the Georgian Bay Littoral Biosphere Reserve on the eastern shore of Georgian Bay adjacent to Lake Huron [Figure 1.2].

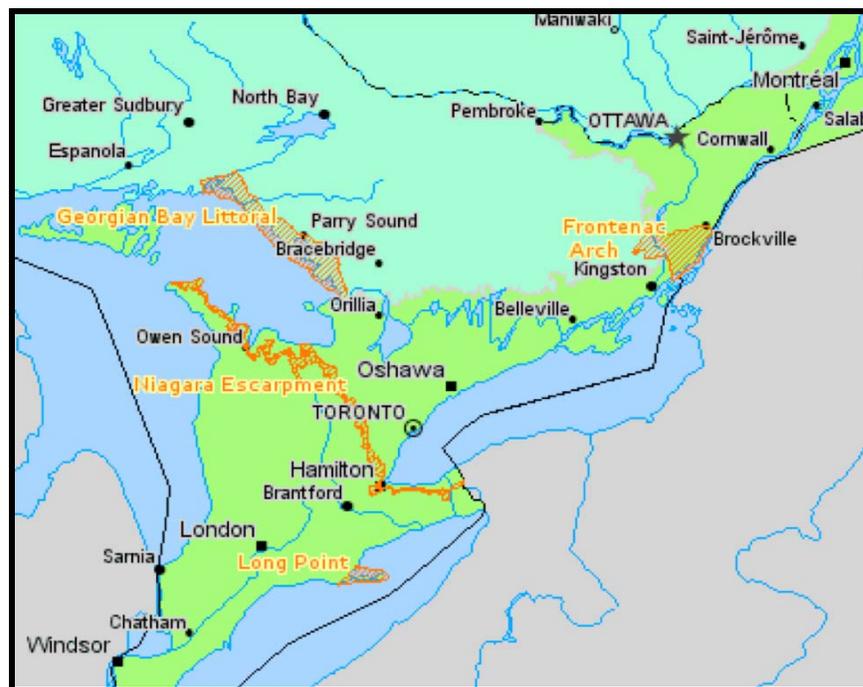


Figure 1.2 Locations of four UNESCO biosphere reserves in Ontario

Each site contains various local to federal governance layers, players and “tangled hierarchies” that overlay ecological and cultural landscapes. Although each site contends with a diverse range of social-ecological systems and some unique challenges to sustainability, there are numerous similarities among them. The sites are all nested within the Great Lakes basin and contain slightly different municipal government arrangements (i.e., size of towns, townships, or regional districts). Although their southern Ontario location makes them somewhat distinct (e.g., with regard to their population of seasonal residents), they would be roughly comparable in governance terms to other mainly rural Canadian biosphere reserves and to a number of European biosphere reserves in the EuroMAB network and with “ordinary” non-designated landscapes. As noted in the methods section [Chapter 3], the findings from this study are meant to be transferable to other sites rather than be generalizable, due to the distinct place-based differences in environmental governance arrangements.

The three selected sites have some strong socio-economic similarities among them that contribute to their comparative potential. For example, Long Point and Frontenac Arch contain agricultural areas; Frontenac Arch and Georgian Bay share a similar geological landscape; all three biosphere reserves have extensive water-based tourism development and contain national and/or provincial parks. And all three rural areas are within close proximity of major urban centres (Toronto, Ottawa, Montreal) and therefore experience similar growth and development pressures from outside their regions.

<b>Name</b>	<b>Year</b>	<b>Size (ha)</b>	<b>Core (ha)</b>	<b>Buffer(ha)</b>	<b>Population</b>
Long Point	1986	40,600	6,250	34,000	500
Frontenac Arch (expanded & renamed)	2002 2007	150,000 220,000	3,000 10,000	15,000	65,300

Georgian Bay Littoral	2004	347,270	52,509	39,595	18,000
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Table 1.1. Characteristics of three Canadian biosphere reserve case studies

The year of UNESCO designation, total area, and size of core and buffer areas, along with population estimates for the three case studies are summarized in Table 1.1. The Niagara Escarpment biosphere reserve (designated in 1990) was not chosen as a case study for this research for two main reasons. Unlike the other three biosphere reserves in Ontario, the Niagara Escarpment biosphere reserve falls under the jurisdiction of the provincial Niagara Escarpment Commission, which has legal responsibility for upholding the Niagara Escarpment Act and implementing the Niagara Escarpment Plan. Although a community-based organization called the Bruce Peninsula Biosphere Association is quite active, it is not recognized as the formal governance authority for the region. The second reason it is not part of this study is to avoid redundancy, due to the extensive work by Whitelaw (2006) on the role of civil society organizations in the creation of the Niagara Escarpment and his analysis of collaborative planning exercises.

#### 1.4 Research Objectives

The general objective of this study is to develop and apply a conceptual framework about environmental governance and the role of biosphere reserves in sustainable development by assessing the governance structures and processes initiated and influenced by biosphere reserves at selected Canadian sites. The essential feature of this inquiry is to merge the streams of thinking about sustainability and about governance to consider their combined implications for local communities and for the literature.

Four research objectives structure the study:

- i. To develop and apply a conceptual framework about environmental governance and the role of biosphere reserves in sustainable development;
- ii. To explore governance structures and processes through case study analysis of select biosphere reserves;
- iii. To apply research findings to the conceptual framework in order to draw general conclusions about the contributions of biosphere reserves to governance for sustainability, that it might be strengthened and applied elsewhere; and
- iv. To establish an agenda for future research that elaborates on the conclusions and addresses questions raised about the broader context in which biosphere reserves operate and their specific capacity to advance sustainable development.

As noted above, governance is an imperative for sustainable development and models of integrated sustainability and innovative governance structures and processes are especially needed. This dissertation explores to what extent, and in what ways, the UNESCO model of world biosphere reserves fulfills those requirements. The conceptual framework developed in Chapter 5 explores the following propositions:

- i. Biosphere reserves provide models for integrated approaches to sustainability;
- ii. Biosphere reserves develop collaborative multi-stakeholder approaches to governance; and,
- iii. Biosphere reserves create innovative governance structures to fulfill their mandate.

Together, these propositions support a conceptual framework that is used to explore the role of biosphere reserves in governance for sustainability. Once these propositions are explored through case study analysis and the conceptual framework is refined, this study

begins to build towards a substantive theory of the UNESCO model of biosphere reserves that might be further developed and applied elsewhere.

## 1.5 Justification of Research

Two arguments justify this work. The first is based on an identified research gap on the role of biosphere reserves in governance. Despite the explicit need for and extensive research within biosphere reserves, most of the work to date is highly disciplinary and focuses mainly on the natural sciences. While these are critical studies to broaden the understanding of biological diversity and ecological integrity of core areas, or the gradient of human impacts across buffer zones, or the best management practices for particular resources in transition areas, very little social science has been undertaken on the biosphere reserve concept itself.

In brief, beyond the documentation from UNESCO (1996; 2000; 2002; 2005; 2004) and UNESCO-MAB (2002a,b; 2004; 2008) several reviews of the programme have critically promoted the model as it evolved (Batisse, 1993; 1996; 1997). Initial interest from natural sciences viewed biosphere reserves as a global network of research sites. As the paradigm of protected areas evolved to include people and questions of livelihoods, biosphere reserves were viewed as sites for community-based ecosystem management and bioregional planning (Brunckhorst, et al., 1997; Brunckhorst, 2001; 2005). National MAB committees (e.g., German MAB Committee, 2005) have more recently begun to showcase their experiences with special reports and publications along with more scholarly national reviews (e.g., Matysek, et al., 2006 for Australia).

With respect to governance and biosphere reserves, related themes have been pursued. These include biosphere reserves as models for land use planning (Brunkhorst and Rollings, 1999); participatory and community-based ecosystem management (Craig et al., 2003; Sundberg, 2003); common property resource management (Fitzsimons and Wescott, 2005); comparisons with Model Forests (Axelsson and Angelstam, 2006); and participatory management and governance (Stoll-Kleemann et al., 2006).

In Europe, two interdisciplinary research groups use biosphere reserves as the basis for their studies<sup>2</sup>: the Governance for Biodiversity (GoBi) research group led by Dr. Susanne Stoll-Kleemann at Griefswald University (formerly with the Humboldt-University of Berlin), and the Stockholm Resilience Centre under the science direction of Dr. Carl Folke and former chair of the ICC-MAB, Dr. Thomas Elmqvist. The work of each group is described in further detail in Chapter 2.

In Canada, there are relatively few reviews of the broad contributions of biosphere reserves to sustainable development (Roots, 1989; Bailly et al., 1991; Sian, 2000; Francis and Whitelaw, 2004; Jamieson et al., 2008) and only slightly more studies that engage specifically with governance issues in biosphere reserves to understand their organization, influence and governance capacity (Abrams, 2000; Dobell and Bunton, 2001; Dobell, 2002; Francis, 2004; Reed, 2007; [Whitelaw, 2006](#)[Whitelaw, 2005](#)).

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<sup>2</sup> These are in reference to social science and interdisciplinary research and do not include individual researchers, case studies, or programs such as Hessen University's Global Internship Studies program which uses biosphere reserves for field work.

There are at least two major Canadian conferences dedicated to biosphere reserve-related research: the *Science and Management of Protected Areas Association* (SAMPAA) conferences promote ecosystem-based management, and the Niagara Escarpment Commission's *Leading Edge* conferences explore issues related to land use planning, conservation, monitoring, and sustainable development, in and beyond the Niagara Escarpment Biosphere Reserve. The Canadian Biosphere Reserves Association (CBRA) annual meeting is often attended by researchers, and an online Canadian Biosphere Research Network (CBRN) has been developed to store and share related studies. However, no literature to date has attempted to understand the role of biosphere reserves as governance models in terms of their specific structures and processes, along with their wider influence and dynamics, as this study seeks to do. The key opportunity of trying to understand biosphere reserves in terms of governance has only recently been identified and is still largely undeveloped.

In a report on governance for protected areas for the International Union for Nature Conservation, the authors urged further study into governance at an ecosystem level to assess the strengths of "integrative governance mechanisms" such as biosphere reserves, model forests, transboundary parks, and other similar integrated conservation and development programs (Graham et al., 2003: 32). Perspectives like these suggest that biosphere reserves ought to be understood as both individual governance mechanisms operating at an ecosystem/landscape/regional scale with their own unique approaches and dynamics *and* as one of the governance layers nested within a wider social-ecological system.

In a special issue of the journal *Environments* (edited by Francis and Whitelaw, 2004), the contributing authors reflect on 30 years of experience from Canadian biosphere reserves. In it, Francis (2004: 24-25) summarizes some needs and possible directions for future research:

Generally, most of the on-going research and monitoring in Canadian biosphere reserves is done on topics defined within disciplinary fields, and there is little evidence of broad interdisciplinarity. Yet the challenge of interdisciplinarity has become more apparent with the development of 'systems thinking' over the past two or three decades. 'Complex open systems' are the most relevant for biosphere reserves. They evoke images of self-organizational phenomena, emergent process and structures, hierarchical scales spanning several orders of magnitude, and phase cycles which include collapses and starting over. Ecosystems, social systems and the two together are examples.

And:

Academics have contributed to the research and monitoring in biosphere reserves as already noted. But there is a special role for scholarship as well. Given the lofty ideals for biosphere reserves proclaimed by UNESCO in the 'Seville Strategy', shortcomings would not be hard to find. Volunteers in biosphere reserves would be the first to point out discrepancies. While scholarly critiques might be helpful, there is the much larger context within which this all exists. It can be identified as the dynamics of complex systems and governance arrangements through which communities might learn, adapt, and be able to respond while still maintaining democratic traditions. More insights into this are very much needed.

The second justification comes from the field of governance for sustainability. Scholars from the Governance for Sustainable Development (GoSD) research initiative prepared a special issue of the *International Journal of Sustainable Development* (edited by Spangenberg and Giljum, 2005). In it, Meadowcroft et al. define governance for sustainability both as a practical political challenge (involving institutional reform, policy

design, deliberation and collective decision-making) and as a social science research challenge.

These scholars promote "...understanding the initiatives which governments and other social actors are *already* undertaking to deal with the interconnections among environmental, economic and social problems" (Meadowcroft et al., 2005:5, original emphasis) along with "...research into innovative approaches and processes [of governance]." This dissertation focuses on the latter but responds to both challenges by engaging with multi-stakeholder collaborative initiatives (i.e., those of governments and other social actors) and by using case studies as the empirical foundation upon which to explore governance innovations that are rooted in community practice.

Of overarching importance to this study is the need for interdisciplinarity, as noted above, or what Meadowcroft et al. (2005: 6) identify as:

...the applied challenge of bringing knowledge and perceptions from different social scientific perspectives, traditions and disciplines to bear in order to help resolve the concrete problems experienced in the development of governance for sustainable development as an emergent social practice. Social science disciplines such as economics, geography, sociology, political science, and anthropology have already begun to engage with sustainable development, but much remains to be done to develop approaches that cross disciplinary frontiers, and that integrate perspectives drawn from other areas of knowledge, including the arts and humanities, and the natural sciences.

Rather than relying on a single discipline (e.g., sociology or political science), this study draws from a highly interdisciplinary pool of research, including some of the newest thinking about complex social-ecological systems and approaches to governance. The framework that is developed from such a breadth of literature helps to draw general

conclusions about the relative strengths, limitations and possible applications of the framework within and beyond biosphere reserves. As Francis (2004: 25) notes: “the kinds of immediate concerns faced by people in biosphere reserves are not unique to biosphere reserves... There are similar limitations everywhere about what can be done locally in response to forces that originate elsewhere. The governance issues to be dealt with in these kinds of situations are much the same throughout Canada.”

This dissertation concludes with a comparative analysis of the three case studies based on themes from the conceptual framework, and identifies emergent themes that help to refine the framework for future application. The final sections offer recommendations for each case and for the UNESCO/MAB programme, and sets out an agenda for future research.

## **1.6 Methodological Approach**

The research uses an exploratory, qualitative, and highly iterative approach. It differs from explanatory research (i.e., establishing causal linkages through standardized protocols) and descriptive research (in-depth, case studies for inductive or simply descriptive purposes) in favour of developing illustrative cases. Robson (1993) characterizes exploratory research as inquiry that assesses phenomena through a new perspective or conceptual lens. Biosphere reserves benefit from this type of exploration, illustration and initial testing. Case studies provide the most appropriate research method for exploratory research (Robson, 1993) and are composed here of multiple methods, including participant-observation, key informant interviews, and document analysis.

Considered instrumental case studies, they are designed to provide insight into a specific issue as well as to refine a conceptual explanation (Berg, 1998) as undertaken here.

Linking the fields of sustainability and governance is best supported by a grounded theoretical perspective and approach to analysis, in order for greater understandings about interrelated constructs of collaborative governance to emerge. This study makes methodological use of select governance-related theories (i.e., self-organization, social networks) in an effort to tease out patterns that are grounded in community practice and information from the interviews. Lincoln and Guba (1985) refer to “pattern theories” as an explanation that develops during qualitative research; pattern theories do not emphasize causal relationships or make use of deductive reasoning. Instead, pattern theories use metaphors and analogies so that relationships “make sense” (Neuman, 1997:38). In order to allow the pattern to emerge from the design and not to be constrained by theory, Lather (1986: 267) explains as follows:

Building empirically grounded theory requires a reciprocal relationship between data and theory. Data must be allowed to generate propositions in a dialectical manner that permits use of *a priori* theoretical frameworks, but which keeps a particular framework from becoming the container into which the data must be poured.

In the absence of a grand theory of governance for sustainability to test or expand, and in light of the highly interdisciplinary and diverse number of approaches used in the field to date, this study draws on middle-range theories, such as organizational/network theory, and social-ecological systems theory, to frame and shape the inquiry. One potential contribution of this grounded study is that it might inform theories of environmental governance and support the future development of a substantive theory of the UNESCO

model of biosphere reserves that can then be further developed and applied as part of some larger explanation.

The research topic emerged from the author's experiences from 2002 to the present, working with the Georgian Bay Littoral Biosphere Reserve, the Canadian Biosphere Reserves Association and the Canadian Commission for UNESCO, and participating in meetings of the EuroMAB network and International Coordinating Committee for the Man and the Biosphere programme. The author acknowledges the potential for bias arising from embedded research and the inherent academic attraction of an internationally recognized yet community-based model for sustainable development. The position behind this work is that the biosphere reserve model has persisted successfully for almost four decades and offers a potentially transformative framework for advancing sustainability across scales. No conceptual or theoretical framework exists to explain adequately the contributions of biosphere reserves to sustainable development. This study makes a modest contribution to that end.

Extensive participant observation and community practice suggest that biosphere reserves initiate and influence various governance processes, across different scales, and to varying degrees using different approaches. However, it also appears that biosphere reserves are largely consumed by the work they do "on the ground" and are not aware of their particular roles in governance, or their potential roles in governance for sustainability. Both the model and its application are fraught with tensions. Curiosity, and

a desire to bridge sustainability thinking and practice, locally and globally, led to this research focused on the role of biosphere reserves.

## 1.7 Thesis Structure

Following a background introduction to biosphere reserves [Chapter 2] and an outline of research methods [Chapter 3], the dissertation reviews literature on the overarching concept of governance in the context of sustainability, using selected themes from systems thinking, in order to identify and synthesize the major approaches to collaborative, cross-scale, and adaptive governance [Chapter 4]. This interdisciplinary approach supports development of a framework on governance for sustainability as it is practiced and adapted in biosphere reserves [Chapter 5]. Each of the subsequent case studies [Chapters 6-8] applies and analyzes the framework and leads to a comparative analysis, conclusions and recommendations for further research [Chapter 9]. Ultimately, biosphere reserves are used to ground theoretical discussions at a particular scale of inquiry, to expose innovative approaches to complex governance challenges, and to transfer these experiences from Canada to other situations and applications, such as resource or watershed management, other complex social-ecological systems, and “ordinary” landscapes and communities outside UNESCO’s biosphere reserve programme.

## 2. Biosphere Reserves

The broad purpose of this chapter is to provide an overview of the origins and evolution, structure and functions of the biosphere reserve model, its application through the world network, and some of the governance themes emerging from the Man and Biosphere (MAB) programme. A literature review of UNESCO documents, international reviews, and empirical studies helps to sketch the breadth of governance challenges associated with the biosphere reserve ideal and its application.

This chapter also highlights some of the model's strengths and limitations as applied in practice, how they have been addressed, and key research opportunities. Particular examples are drawn from European and Australian biosphere reserves to illustrate convergent research themes. A synopsis of the experience in Canada (1978-2008) outlines the social and political context for the case studies in this project, and a summary of research in Ontario biosphere reserves helps to locate this empirical work even further.

### 2.1 UNESCO's Man and the Biosphere Programme

The United Nations Educational, Scientific and Cultural Organization (UNESCO) was founded on 16 November 1945 as a specialized agency within the Economic and Social Council of the UN with the goal of "building peace in the minds of men [sic]." UNESCO currently works with 192 member states on the themes of education, social and natural science, culture and communication. The Organization also serves as a clearinghouse for the dissemination and sharing of information and knowledge, while helping member

states to build their human and institutional capacities in diverse fields. According to UNESCO (2007): “The world urgently requires global visions of sustainable development based upon observance of human rights, mutual respect and the alleviation of poverty, all of which lie at the heart of UNESCO’s mission and activities” and all of which are captured in the Millennium Development Goals.<sup>3</sup>

Within UNESCO’s natural sciences sector is the division of Ecological and Earth Sciences within which falls the Man and the Biosphere (MAB) Programme. MAB developed the biosphere reserve model and describes it as follows (UNESCO, 2008):

The Man and the Biosphere Programme (MAB) proposes an interdisciplinary research agenda and capacity building aiming to improve the relationship of people with their environment globally. Launched in the early 1970s, it notably targets the ecological, social and economic dimensions of biodiversity loss and the reduction of this loss. It uses its World Network of Biosphere Reserves as vehicles for knowledge-sharing, research and monitoring, education and training, and participatory decision-making.

The MAB programme was developed in the 1970s as part of an International Biological Program that sought to establish a world network of sites for ecological protection. Following the recommendations from the first international Biosphere Conference held in Paris in 1968 on the “Rational Use and Conservation of the Resources of the Biosphere,” the governing body of the MAB programme (the International Coordinating Committee) was established in 1971.<sup>4</sup> This meeting foreshadowed the linking of environment and

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<sup>3</sup> The eight Millennium Development Goals (MDGs) – which range from halving extreme poverty to halting the spread of HIV/AIDS and providing universal primary education, all by the target date of 2015 – form a blueprint agreed to by all the world’s countries and all the world’s leading development institutions in 2000.

<sup>4</sup> The International Co-ordinating Council of the Man and the Biosphere (MAB) Programme, usually referred to as the MAB Council or ICC, consists of 34 Member States elected by UNESCO’s biennial

development and the popularization of sustainable development (e.g., the Stockholm Conference in 1971; the Brundtland Commission in 1987; the Earth Summit in 1992). The conference was considered ahead of its time with respect to the “comprehensive and far-reaching... range of issues that were tackled” (Batisse, 1993:108). It also provided a framework on which the biosphere reserve model could be explored, developed, promoted, reviewed, refined and rearticulated at each successive international gathering [Table 2.1].

<b>UNESCO/MAB Event</b>	<b>Location</b>	<b>Year</b>
1 <sup>st</sup> Biosphere Conference	Paris (France)	1968
1 <sup>st</sup> ICC-MAB Meeting	Paris (France)	1971
Biosphere Reserve model	Paris (France)	1981
1 <sup>st</sup> Biosphere Congress: Action Plan	Minsk (Belarus)	1983
2 <sup>nd</sup> Biosphere Congress: Seville Strategy	Seville (Spain)	1995
Seville +5 Conference	Pamplona (Spain)	2000
19 <sup>th</sup> ICC-MAB Meeting	Paris (France)	2006
3 <sup>rd</sup> Biosphere Congress: Madrid Action Plan	Madrid (Spain)	2008

Table 2.1. Key events in the development of UNESCO’s MAB programme

The original intent of MAB was “to develop within the natural and social sciences a basis for the rational use and conservation of the resources of the Biosphere and for the improvement of the relationship between man [sic] and the environment; and to predict the consequences of today’s actions on tomorrow’s world and thereby increase man’s ability to manage efficiently the natural resources of the Biosphere” (UNESCO/MAB, 1971). Member states of UNESCO were encouraged to develop MAB committees and programs in their own countries and to identify sites where these principles could be put into practice.

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General Conference. In between meetings, the authority of the ICC is delegated to its Bureau, whose members are nominated from each of UNESCO's geopolitical regions.

One of the first MAB projects was to establish a world network of sites representing the planet's 193 biogeographical regions<sup>5</sup> to ensure the protection of the world's ecosystems and biodiversity. In 1973-74, the general guidelines for identifying such areas were developed and the first ones were designated in 1976. These sites were named "biosphere reserves" and adopted as a tool to meet the need for a flexible approach to conservation that could place conservation within its broader economic, social and cultural context; facilitate research activities and information exchange on regional and global scales; and, cooperatively reconcile conflicting interests in, and multiple uses of, a given territory (Batisse, 1995). In fact, "the biosphere reserve concept has evolved over the years to the point that it has become a central focus for the UNESCO/MAB program" (Francis, 2004: 5).

## 2.2 The Biosphere Reserve Model

In essence, biosphere reserves are areas of terrestrial and coastal ecosystems promoting solutions to reconcile the conservation of biodiversity with sustainable use of the lands and resources involved. They are internationally recognized, nominated by national governments and remain under sovereign jurisdiction of the states where they are located [Box 2.1.]. Biosphere reserves are considered "living laboratories" for testing and demonstrating integrated management of land, water and biodiversity. Collectively, biosphere reserves form a world network, within which exchanges of information, experience and people are facilitated. With 531 sites in over 105 countries (as of 2008),

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<sup>5</sup> Udvardy, M.D.F. 1975. A classification of the biogeographical provinces of the world. IUCN Occasional Paper No. 18, Gland, Switzerland. These provinces were classified specifically for the International Union for Conservation of Nature (IUCN) and the MAB programme to aid global conservation efforts.

the world network of biosphere reserves (WNBR) provides context-specific opportunities to combine scientific knowledge and governance modalities to: reduce biodiversity loss, improve livelihoods, and enhance social, economic and cultural conditions for environmental sustainability (UNESCO, 2008).

### **Box 2.1. UNESCO Biosphere Reserve Nomination Process**

In countries where biosphere reserves are nominated locally, volunteers or non-government organizations may propose the idea within several communities in a shared region or “working landscape.” One of the basic goals is to obtain the consent and active support of all stakeholders, particularly local people living in or around the biosphere reserve and to establish the benefits of biosphere reserve designation (Batisse, 1997:13).

1. The first step is to establish an informal local arrangement to initially promote the concept and to secure ‘buy-in’ and support in order to meet nomination criteria (Francis, 2004). Various stakeholders are brought together to voice their concerns or support in a series of consultations that may range over several years (with the average of 5 to 7 years in Canada). Some communities will move forward to the next step, others will not.

2. The nomination document is formally prepared by national MAB committees, but may have been informally drafted by local residents, experts, scholars and other interested parties from within and beyond the proposed core, buffer and transition zones. The document itself follows MAB’s template to describe the biophysical, social and economic characteristics of the proposed area, along with the existing social and institutional capacity and proposed partnerships to carry out the three functions. Signatories from the local to the national level are required (expected support in Canada include municipal, provincial, federal and First Nations signatories, as well as letters of support from NGOs).

3. Nomination documents are reviewed by national MAB committees and formally submitted to the ICC Bureau for assessment and deliberation, recommendation to the ICC-MAB, for a final decision to be declared by the Director-General of UNESCO who notifies the country concerned (Dogse, 2004:12). Local ceremonies are often held to celebrate the successful UNESCO nomination and the work ahead.

The World Network of Biosphere Reserves is governed by a Statutory Framework approved by a resolution of the General Conference of UNESCO in 1995. It contains the main provisions regarding the concept of biosphere reserve, its application (criteria), the

designation procedure, the participation of Member States to the regional and the world networks, and the periodic review process. The same resolution also endorsed the “Seville Strategy,” a text outlining objectives as guidance to the Member States, local authorities, and biosphere reserve administrative organizations. Within the World Network of Biosphere Reserves, several regional networks have been established to facilitate information exchange. They include: South and Central Asia MAB Network (SACAM), Southeast Asian Biosphere Reserve Network (SeaBRnet), East Atlantic Biosphere Reserve Network (REDBIOS), Pacific Islands countries (PacMAB), Latin America and Spain and Portugal (IberoMAB), Europe and North America (EuroMAB), East Asian Biosphere Reserve Network (EABRN), ArabMAB, and AfriMAB.

Biosphere reserves are typically established on the basis of hydrological basins (watersheds) or other landscape-level features that extend beyond the boundaries of local human communities. They usually reflect a strong sense of place, recognizing the cultural heritage and current “working landscapes” or “bioregions” that sustain traditional and contemporary livelihoods. Biosphere reserves are formally structured to reflect principles of conservation biology and landscape ecology in their zonation. Typically, they will contain one or more protected core areas, a buffer area and a surrounding transition zone [Figure 2.1.]. Core areas must be legally protected (e.g., as national parks or wildlife reserves); surrounding buffer areas may support activities that do not compromise conservation (e.g., research, restoration, responsible tourism, sustainable resource use); and the outer transition area contains human settlements and encourages cooperative development between various different stakeholders.

Biosphere reserves aim to integrate human activities 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” (MAB, 2006).

Biosphere reserves 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 (UNESCO, 1995).

Another of the model’s strengths is that it does not separate the protection of the landscape from its use. The value of the buffer zone(s) surrounding the core protected area in particular “...demonstrates the same ecosystem organized to meet human needs.... Beyond all of these zones is the more customary multiple-use [transition] area, where human communities are encouraged to cooperate and be open to some of the lessons learned in the inner zones. Boundaries are often indefinite and fluctuate over time, depending on the scope and character of human activity. There are no fees or hours of entry, for the [biosphere reserve] is meant to overlay land and landscape” (Wilson, 1991: 239).

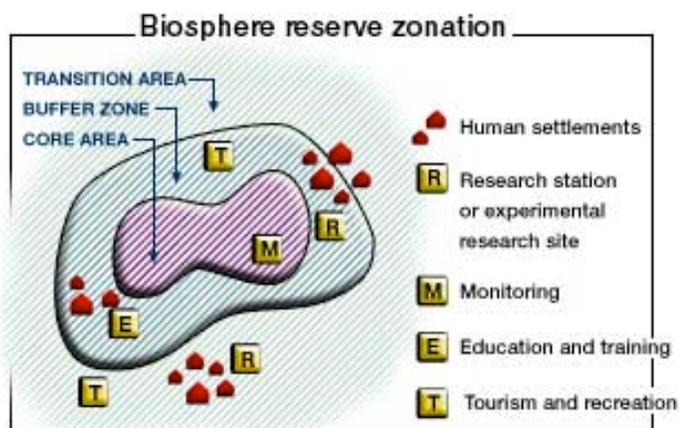


Figure 2.1. Biosphere reserve zonation (UNESCO, 2004)

Biosphere reserves are thus one form of international designation for areas of ecological significance and cultural use. They are comparable to UNESCO World Heritage Sites, for example, in terms of building local capacity for cultural and environmental heritage protection, but are distinct in their promotion of integrated sustainability. Biosphere reserves are essentially a “pact between the local community and society as a whole” (UNESCO, 1996) and can be seen as an informal “social contract” for sustainability (UNESCO, 2008). As an ideal type, biosphere reserves encourage further development of local collaborative capacities to promote sustainable resource use, protection of environmental quality, and the conservation of biological diversity.

The explicit purpose of each biosphere reserve is to demonstrate the integration of conservation and sustainable development [Figure 2.2.]. 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 (UNESCO, 1995).

Conservation was the original scientific intent of the model and therefore minimizing biodiversity loss through research and capacity-building for ecosystem management remains a priority. There is no minimal requirement for the size or proportion of core and buffer areas where conservation activities occur, rather “it is expected that the total area involved is sufficient for conserving most of whatever is protected by them (with recognized exceptions for migratory species and some large mammals)” (Francis, 2004: 16). Research is directed at understanding of the structure, functioning and dynamics of ecosystems and people’s roles therein.

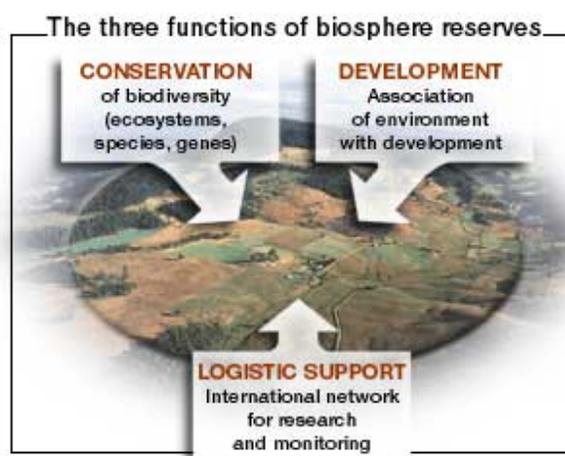


Figure 2.2. The three functions of biosphere reserves (UNESCO, 2004)

In addition to the vast body of natural science research conducted in biosphere reserves,

there is a significant interdisciplinary research movement concerning ecosystem management, local participation in sustainable resource use, and landscape planning (Brunckhorst, 2001~~9~~; Olsson et al., 2006). The latest cycle of UNESCO programming suggests support for applying global assessment tools, such as the Millennium Ecosystem Assessment (2005) to help measure ecological goods and services; the study of carbon economies and urban systems; the management of vulnerable drylands and mountain systems; and management of coastal areas and humid tropics through South-South cooperation (UNESCO, 2006-~~2007~~).

In terms of the sustainable development function, the “emphasis will be placed on linkages between biodiversity conservation and socio-economic development in specific biosphere reserve contexts” which develop ‘best practices’ for sharing within the world network. The practices related to livelihoods and local economies include: ‘value-added’ processing of local resources into products that increase local employment and community investments (e.g., infrastructure), the branding and marketing of local products (e.g., agricultural or crafts) and services (e.g., hotels and restaurants), provision of start-up funding for small businesses in new ‘niche’ markets, and attraction of eco-tourism business to the area based on the local landscapes and cultural heritage (Francis, 2004). Not only are individual sites encouraged to make use of networks for knowledge-sharing, they may also actively test and share approaches to “participatory decision-making, thereby contributing to the emergence of ‘quality economies’ and to conflict prevention” (UNESCO, 2006).

Research and monitoring are the key components of the logistics function, providing

information at the local and regional level to move the conservation and development functions forward (Whitelaw et al., 2004). These are supplemented by education, training and professional development, as well as communication and information sharing within and among networks of various kinds. International projects in support of ecological research *in* biosphere reserves include the Biosphere Reserve Integrated Monitoring (BRIM) program and Global Change in Mountain Regions (GLOCHAMORE) studies. Individual biosphere reserves may produce environmental reports or undertake socio-economic surveys to develop broader indicators of sustainability. However, as Francis (2004: 21) notes:

While the general principles for biodiversity conservation and sustainable development are generally known, their application requires location-specific knowledge of ecosystems, local economies, social organizations and governance. It is this local and regional specificity that provides the knowledge and experience for public information, education and training, and enables biosphere reserves to realize their potentials and some of the high expectations held for them.

A newer theme, but not a formal function of biosphere reserves, as reflected in UNESCO's latest planning documents, is that of enhancing linkages between cultural and biological diversity, including cultural landscapes, sacred sites, biosphere reserves and World Heritage sites. The recognition of local knowledge for governance is explicit in the goals of: "establishing a knowledge base on cultural practices fostering local-level sustainable use of biodiversity in biosphere reserves" and using same knowledge "as a basis for equitable biodiversity governance" (UNESCO 2006-2007). In this way, expert and lay knowledge contributions (including traditional ecological knowledge) and different cultures of learning are validated and shared.

### 2.3 The Model in Practice: 40 years of experience

From 1968 to 2008, the biosphere reserve concept has evolved to reflect lessons learned from local and international application. Once the programme was established, the original emphasis (1976 to 1984) was on a world conservation network of biosphere reserves that encouraged the ‘rational use’ of resources and scientific research. Indeed, the development and logistic functions were largely ignored in the early years of the programme and as a result, “...a good number of the sites listed in the 1970s and early 1980s [did] not fully correspond with all three of MAB’s objectives” (Batisse, 1997:10). Moreover, the implementing of a programme with such broad goals and little direction for national and local authorities continued to be a challenge.

In 1984, UNESCO established an External Scientific Advisory Panel to review the MAB programme, which “contributed to [a] shift in MAB’s focus from conservation of ecosystems to focus on ecologically sustainable development, environmental monitoring, and ‘harmony’ between human and natural systems” (Matysek et al. 2006). UNESCO nearly ended the MAB Programme in 1991 when the United States and United Kingdom decided to withdraw their support from UNESCO. However, the UN was just about to hold its Conference on Environment and Development (UNCED), which partly resulted in the continuation of the programme (Batisse, 1993). At that time, the goals of the biosphere reserve programme (in Matysek et al., 2006: 87) evolved to:

- (1) develop local knowledge, skills and attitudes needed to integrate conservation and economic uses of ecosystems;
- (2) serve as hubs for regional cooperation on scientific and educational activities;  
and,

- (3) address multiregional and global environmental problems by sharing information (Gregg, 1988).

The 1992 UNCED Rio Earth Summit was a turning point for MAB, given its call for interdisciplinary problem-oriented research to inform decision-making for sustainable development. As Michel Batisse, father of the MAB programme,<sup>6</sup> noted at the time: “if MAB did not exist, something like MAB would have to be set up” (Batisse, 1993, 111). In subsequent years, the emphasis was placed more firmly on integration of conservation and sustainable development, involvement of – and benefits to – local people, and research within and beyond core areas along with active international knowledge exchange. The biosphere reserve concept was thus re-articulated to prioritize sustainable development in light of a movement toward integrating people in protected areas (Phillips, 2003) and to reflect new understandings about human-environment relationships emerging from the ecological sciences.

This shift occurred as part of a significant evolution of the protected areas paradigm to include a number of standard requirements (e.g., recognition of coastal and marine areas; the call for applying an ecosystem approach in determining the boundaries of protected areas; the requirement to avoid ecological isolation and achieve protected areas connected in networks). The biosphere reserve concept broadened and refined this approach, providing for a transition area, which operates ecological corridors between core areas, and links protected area to the wider landscape. This striking evolution from strict preservation to integrated, multi-use landscapes for sustainable development helped

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<sup>6</sup> Michel Batisse was the Assistant Director-General of UNESCO for science from 1972 to 1984 and one of the founders of the 1972 World Heritage Convention. He was a major founder of the MAB Programme and of the biosphere reserve concept. An award is established in his name.

to fuel the transition to collaborative governance, where local stakeholders are empowered to play an active role in protected area management.<sup>7</sup> As such, biosphere reserves are considered an “incarnation” of the ecosystem approach in practice (Scanlon and Burhenne-Guilmin, 2004:15).

The biosphere reserve model was confirmed at the second World Conference on Biosphere Reserves held in Seville, Spain in 1995. It provided an opportunity to broaden the focus of the program, encourage multi-stakeholder governance and management approaches, and respond to the heightened international focus on sustainability after the 1992 Rio Earth Summit. The main products of the conference were the Seville Strategy and accompanying Statutory Framework, and a periodic review process. The goal was to establish “fully functional” biosphere reserves that were capable of integrating all three functions. Although the model was deemed sound, it was recognized that local capacities needed greater support and that member states and communities would benefit from clearer direction.

In addition, the Statutory Framework provided a set of 92 implementation indicators to help biosphere reserves plan, manage, integrate, and evaluate the three functions (Batisse, 1997). A periodic review process was introduced to assess fulfillment of the functions and overall progress toward sustainable development every 10 years. The reviews provide a level of accountability for sites within the MAB programme. Several older biosphere reserves were de-listed as a result of the review process that revealed their sole function was conservation. So-called “first generation biosphere reserves” (1976-1984)

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<sup>7</sup> Many of the principles of “good governance” were initially developed by international development agencies for project evaluation, including community-based ecosystem management. See for example, Graham et al., (2003) on Governance Principles for Protected Areas in the 21<sup>st</sup> Century.

and “second generation biosphere reserves” (1985-1995) are chronologically divided from “third generation” sites influenced by the Seville Strategy and designated from 1996 to the present (Ishwaran et al., 2008).

According to UNESCO, the main benefit of the biosphere reserve concept is that it can be used as a framework to guide and reinforce projects to enhance people’s livelihoods and to ensure environmental sustainability. International recognition can serve to highlight and reward such efforts and to raise awareness among local people and government authorities. At the national level, biosphere reserves can serve as pilot sites or as “learning places” (UNESCO, 2005) or “landscapes for learning” (Gregg, 1988) to explore and demonstrate approaches to conservation and sustainable development, providing lessons which can be applied elsewhere. In addition, they are a concrete means for national implementation of Agenda 21, the Convention on Biological Diversity, and the Millennium Development Goals. These sites are also being used for studies on the effects of climate change and adaptation. In this sense, biosphere reserves promote an integrated approach to sustainable development, provide working examples for the global community, and provide a world network that acts as an integrating tool that can help to create greater solidarity among peoples and nations of the world (UNESCO, 1996).

In a review of the MAB programme, Batisse (1993:108) declared that:

The single most original feature of the Biosphere Conference [in 1968] was to have firmly declared, for the first time, that the utilization and the conservation of our land and water resources should go hand-in-hand rather than in opposition, and that interdisciplinary scientific approaches should be promoted to achieve this aim. In other words, twenty-four years before UNCED in Rio, where this concept was to be recognized and advocated at the highest political level, the Biosphere

Conference was indeed the first intergovernmental forum to discuss and promote what is now called ‘sustainable development.’

As multiple use areas, biosphere reserves encourage integration between conservation, recreation, tourism, agriculture, resource use, science and monitoring. Locally, they provide professional training, employment opportunities, ‘quality economies’ for local product development, contributing to sustainable livelihoods. In theory, the biosphere reserve provides a mechanism to resolve conflicts through compromise and consensus on multiple scales. ~~(Corn, 1993)~~. In the case of large natural areas that straddle national boundaries, the countries concerned can establish transboundary biosphere reserves jointly, testifying to long-term cooperative efforts (UNESCO, 2008).

Biosphere reserves are widely viewed as “living laboratories” and have been identified in Canada as innovative mechanisms for involving local communities in whole-landscape approaches (NRTEE, 2003). Many scholars consider them ahead of their time, particularly because:

- (1) They offer a flexible approach to reconciling conservation and development at regional or bioregional scales, applicable in almost any country in the world.
- (2) They encourage multi-stakeholder decision-making as the new paradigm of protected areas.
- (3) They develop an international model for “experiments in sustainable development” and “living laboratories” and “learning places.”
- (4) They recognize the inextricable links between humans and the environment as captured in the banner “a balance between people and nature.”

- (5) They create a social and political network of protected areas that involve a nested hierarchy of institutional arrangements from local to global scales.
- (6) They create an ecological network of globally significant ecosystems.
- (7) They recognize the need for interdisciplinarity.
- (8) They draw international attention to the need to learn more about human impacts on the environment with a long-term perspective (adapted from Mendis-Millard, forthcoming).

Although the biosphere reserve model exhibits some highly innovative and integrative features, it has also been plagued by criticism and doubt, particularly in light of its ambitious, yet ambiguous, sustainability agenda. A UNESCO analysis of its MAB programme in 1988 found that “shortcomings include the dispersion of program activities over too large a number of subject areas, a need for greater scientific coherence, and inadequate mechanisms for selection and evaluation of projects under the MAB label” (Dyer and Holland, 1988: 638).

More recently, Francis (2004: 25) noted: “Given the lofty ideals proclaimed for biosphere reserves proclaimed by UNESCO... shortcomings would not be hard to find. Volunteers would be the first to point out discrepancies.” Since biosphere reserves fall under the jurisdiction of their own national MAB committees and receive no financial support from UNESCO (with the exception of project funds directed primarily to developing countries), disparity results in the level of local capacity, national participation in the

programme, and representation at international meetings (Robertson Vernhes, pers. comm., 2006).

Brunckhorst (2001: 30) identifies three main problems: (1) implementation was hampered by the under-funding of UNESCO in the early 1980s, and by greater attention being given to more charismatic programs such as World Heritage; it was also a concept ahead of its time (pre-Brundtland report) and hard for fragmented science and policy sectors of government to address in a coherent way. (2) In the first decade of the program (pre-Seville Strategy) most biosphere reserves were simply national parks nominated by national governments for their conservation value and research opportunities, acting essentially as core areas without the capacity for, or commitment to, sustainable development. (3) The initial emphasis on conservation led to the misperceptions that biosphere reserves were hostile to development or that they compromised protection by making such areas “multiple-use.” In addition, particular problems emerged in specific countries, for example in the US where “some extreme right-wing groups have pushed US Senate inquiries to view the program as if the UN was threatening state sovereignty – a quite ridiculous assertion, but unfortunately [it has been] to the demise of the US/MAB program.”

Since its introduction, the biosphere reserve concept has developed problems in design and implementation. Although each biosphere reserve is applied differently according to geographical, social, political, and cultural specifics, all are expected to pursue the three functions. But significant challenges may impede their efforts to do so in both developing

and developed countries (Batisse, 1997; Reed, 2006; 2007a; Kellert, 1986). ~~According to Corn (1993)~~ The challenges include the lack of acceptance by local people often based on a misconception that reserve status is designed to inhibit their use of the area.

Perceived threats to private property rights and local government authority are common. Communities may fear an international imposition and obligation that comes along with recognition.

The concept itself is difficult for people not already interested in conservation and sustainability ideals to grasp and appreciate (Kellert 1986; Mendis, 2004). Education about what a biosphere reserve is, and especially what it is *not* is often required (Francis, 2004). The goals within an individual biosphere reserve may be vague and since different stakeholders are involved, defining sustainability goals and what constitutes success may be difficult to establish. And of course, inadequate financial resources may also limit the success of biosphere reserve activities. The 10-year periodic review process is designed to assess progress with respect to the three functions and highlight new opportunities to be collectively pursued.

One of the most important challenges of biosphere reserves is how they are governed since they have no formal authority and no legislative or regulatory power. This is at once one of their greatest strengths (i.e., perceived as politically neutral, non-advocacy, open forums) and one of their greatest limitations (i.e., lacking legislative governance powers or regulatory authority to control development activities). Brunckhorst (2001: 30) sees the lack of legally binding status as an advantage of the program (it is not tied to an

International Convention) and “is no threat to land holders, rural communities or industry sectors; it encourages and supports those who wish to pursue common values and principles for sustainability.” Although many practitioners recognize this tension, the implications for governance are not well understood.

As described below, each biosphere reserve develops its own organizational arrangements according to what is locally appropriate and possible in terms of multi-stakeholder collaboration, government participation, and citizen engagement. The Seville Strategy (UNESCO, 1996) provides clear guidance for biosphere reserves at the local or individual reserve level to “develop and establish institutional mechanisms to manage, coordinate and integrate the biosphere reserve’s programmes and activities” (II.2.3) and to “establish a local consultative framework in which the reserve’s economic and social stakeholders are represented, including the full range of interests (e.g., agriculture, forestry, hunting and extracting, water and energy supply, fisheries, tourism, recreation, research)” (II.2.4). Local participation is therefore an essential element of any functional biosphere reserve (Stoll-Kleeman et al., 2006) -. Furthermore, it is recommended that the national MAB committee “ensure that each biosphere reserve has an effective management policy or plan and an appropriate authority or mechanism to implement it” (IV.1.6).

## 2.4 Governance of Biosphere Reserves

Biosphere reserves are geographic areas designated because of the expressed desire of local communities to work toward sustainability. Local communities proposing an area

for biosphere reserve status must prepare a nomination document at the local level, have it endorsed by relevant stakeholders, and be put forward by national governments for consideration by UNESCO [see Box 2.1]. There is no set organizational structure designed to administer individual biosphere reserves. For each biosphere reserve the participants develop an organizational structure based on their own unique situation. As Francis (2004: 10) points out about the Canadian experience: “No two designated biosphere reserves are alike in the organizational arrangements they have developed since each had to be designed for the particular circumstances. Flexibility to develop ‘place-based’ arrangements (rather than follow a prescribed format) has been viewed favourably at local levels since it allows for change and re-organization as local circumstances change.” Brunckhorst (2001:30) sees the flexibility of the concept as a crucial attribute of the model: “...adaptability to a variety of situations allows it to be interpreted locally and to gather broad influence through time.”

As noted in the introduction, biosphere reserves in Canada are typically grassroots initiatives that involve multiple communities within a shared landscape to seek international designation, which places unprecedented attention on those regions to experiment with bioregional solutions for conservation and sustainable development. The practical application of the biosphere reserve concept requires ongoing community engagement of varying types, depending on the activity or process in question (Mendis, 2004). According to the Seville Strategy (UNESCO, 1996), “an effective biosphere reserve involves natural and social scientists; conservation and development groups;

management authorities and local communities – all working together on this complex issue [of sustainable development].”

The collaborative, multi-stakeholder approach to the governance of biosphere reserves is one feature that appears to be commonly shared among world biosphere reserves.

Although many European countries in the MAB programme established “top down” national-to-local administration and management structures, many biosphere reserve managers themselves evolved cooperative relationships between and among local and regional governments, scientific and educational institutions, local business leaders and entrepreneurs [see section 2.5]. Stoll-Kleemann and Welp’s (2008) work on biosphere reserves in 76 countries found that the majority recognizes that local participation is central to the biosphere concept.

However, not all members of the biosphere reserve network have embraced a participatory – let alone a collaborative – management approach. At a EuroMAB network meeting, following a presentation called “Local Participation in Biosphere Reserve Management,” those strongly in favour of multi-stakeholder governance structures were issued a public challenge by those who leapt to their feet and cried: “But how can you trust local people to make such important decisions about sustainable development?” (Pollock, field notes, 2005).

While biosphere reserves are intended to be community-based and locally-driven, the structure of individual reserves varies widely between sites and countries. A mandate and vision are chosen along with the processes that determine who may be involved and how, when to have meetings and why, and what roles and responsibilities to assign to

members. Various actors may sit on the board, including those that represent public authorities, NGOs, academics, private interests, and local residents (Dogse, 2004). The Seville Strategy (UNESCO, 1996) was partly developed in response to innovations in the management of biosphere reserves themselves. New methodologies for involving stakeholders in decision-making processes and resolving conflicts have been developed, and increased attention has been given to the need to use regional approaches.

With respect to governance, the Seville Strategy recognizes that property institutions that make up the structure of each biosphere reserve will vary (e.g., core areas, either public or private lands; buffer areas in private or communal tenure; transition zones a mix).<sup>8</sup> 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). The implementation indicators in the Strategy are intended to guide the development of governance structures and participatory approaches to conservation and sustainable development in biosphere reserves. As noted in the Seville Strategy, biosphere reserves should recognize the complexity of jurisdictional overlays and the cross-scale nature of the social-ecological systems of which they are a part.

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<sup>8</sup> Interestingly, the term “governance” does not appear in [UNESCO's the \(1996\) Seville Strategy's 13-page document](#) or in the 1996 Statutory Framework on Biosphere Reserves.

Despite the innovations and benefits of stakeholder participation, individual biosphere reserves often 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 (Reed, 2006; Mendis, 2004). In particular, “the mismatch between [sustainable development] policy and practice may be attributable to information, data or knowledge gaps. But more often, it is due to the absence or lack of human or institutional resources that is a precondition for optimizing the use of available knowledge to influence policy and politics so as to generate simultaneous benefits for people, biodiversity, ecology and economies ...” (Ishwaran et al., 2008:127).

Moreover, without legislative authority, biosphere reserves lack the power to enforce limits on activities in buffer and transition areas. Dr. Natarajan Ishwaran, the Director of UNESCO’s Division of Earth Sciences and the International Secretary of the MAB Programme, noted with his colleagues, the limited authority assumed by most biosphere reserves. They concluded:

The challenge of the biosphere reserve is to identify the appropriate authorities that can influence governance and management regimes not only in the legally protected core but in the entire core, buffer and transition zones that define the biosphere reserve.... [especially] in post-Seville sites where more than 80% of the designated area is not under any protected areas legislation. The protected areas manager has no jurisdiction beyond the core, in buffer and transition zones. The identification of an authority or authorities with the mandate and resources to coordinate stakeholder interests throughout the entire biosphere reserve will be the key to innovation and success in the next phase of the interlinked evolution of the concept and its practice (Ishwaran et al., 2008: 126).

Nevertheless, some governments and NGOs see biosphere reserves as forums where issues can be discussed in a non-confrontational environment (Pokorny and Whitelaw,

2000) that is perceived as an open and neutral forum. For example, the biosphere reserve model has also been identified as capable of becoming a boundary organization (Olsson et al., 2006) for translating issues across science-policy domains. Their capacity to perform bridging and brokering functions as part of complex social networks (Lerner, 2006) is currently under study, as is their capacity to generate institutional and other forms of capacities to solve collective problems (Reed, 2007). These themes, and the shift toward multi-stakeholder governance in general, open a whole new area for inquiry: the role of biosphere reserves in governance.

The theme of biosphere reserves as governance mechanisms is only recently but rapidly spreading at the level of UNESCO/MAB and among select academic networks and research groups. In a brochure on the “Benefits and Opportunities of Biosphere Reserves” directed at policy makers (UNESCO/MAB, 2005: 2), for example, the governance capacities of biosphere reserves are highlighted:

Biosphere reserves remain under the sovereign jurisdiction of the States where they are situated. They constitute an innovative approach to governance at multiple levels: locally, they are a potent tool for social empowerment and planning; nationally, they serve as hubs of learning for replication elsewhere in the country; internationally, they provide a means of cooperation with other countries, and also as a concrete means of addressing international obligations....

Indeed, the examples provided in this brochure clearly exemplified governance approaches to sustainability, without such a title. The “Benefits of Biosphere Reserves” were illustrated using each of the following cases:

- Providing a platform for stakeholder cooperation (Clayoquot Sound BR, Canada)
- Making room for development & conservation (Sea Flower BR, Columbia)

- Rice or forests vs. rice AND forests (Mananara Nord BR, Madagascar)
- Providing a 'brand name' to improve local economies (Entlebuch BR, Switzerland)
- Good science, better decisions (Changbaishan BR, China)
- Friendly Neighbours (East Carpathians transboundary BR, Poland, Slovakia, Ukraine).
- Reviving local livelihoods, reducing the environmental footprint (Dana BR, Jordan)

At the 19th International Coordinating Committee (ICC-MAB) meeting in October 2006, the main document reiterated the role of biosphere reserves in modeling governance for sustainability:

Biosphere reserves can be platforms for building place-specific, mutually reinforcing policies and practices that facilitate (i) conservation and sustainable use of biodiversity (ii) economic growth and other needs and aspirations of local communities and (iii) the emergence of knowledge-based governance and management arrangements at local, provincial and national levels. (ICC-MAB, 19<sup>th</sup> Session, SC-06-CONF.202-INF.4, para.2).

Governance concerns are becoming ever more apparent within the international network of biosphere reserves and formed part of the agenda for the second international Biosphere Congress in Madrid (February 2008). What remains a question, however, is to what extent local people and other stakeholders involved in biosphere reserves are attuned to their role in sustainability decisions. Whether and how they seek to influence government institutions charged with sustainability, as well as other social institutions (such as markets, customs and norms) are not well documented. Whether individual biosphere reserves are critically reflective of their own governance structures and

approaches is not known, nor are the roles they might play to initiate or influence the overall governance system in their region. Greater reflection is needed from scholars and more experience is needed from the field in order to develop the conceptual and theoretical tools to enhance these understandings.

## **2.5 Scholarship on Biosphere Reserves**

As noted in the introductory chapter, no literature to date has been devoted to clarifying the role of biosphere reserves as governance models in terms of their specific structures and processes, along with their wider influence and dynamics, as this study seeks to do. The key opportunity of trying to understand biosphere reserves in terms of governance has only recently been identified and is still largely unexploited.

With that said, there are three research groups involved in pursuing themes with respect to governance and biosphere reserves. In Europe, two interdisciplinary research groups use biosphere reserves as arenas for their studies: the Governance for Biodiversity (GoBi) research group led by Dr. Susanne Stoll-Kleemann at the Greifswald University in Germany (formerly with the Humboldt-University of Berlin), and the Stockholm Resilience Centre in Sweden, under the science direction of Dr. Carl Folke and past chair of the ICC-MAB, Dr. Thomas Elmqvist.

The objective of the German research is to identify and assess the success and failure factors of protected areas with a focus on biosphere reserves [Table 2.2]. The work builds on participatory approaches to conservation (Stoll-Kleemann and O’Riordan, 2002) and recent case studies that support findings on “more robust institutions” for sustainable

coastal regions. Their interdisciplinary theoretical framework encompasses conservation biology, social psychology and rural and development sociology, with an emphasis on common property resource theory.

<b>Management Activities</b>	<b>Governance Factors</b>	<b>External Threats</b>
Rural regional development	Regional political support	Climate change
Environmental education	Appropriate funding	Invasive species
Research & monitoring	Absence of corruption	Poverty
Local involvement	Modern conservation biology protection and regulation	Change of lifestyle and consumption patterns
Practical nature conservation efforts (e.g., reforestation)	Absence of competing government programs	Commercial exploitation of natural resources
Adaptive management	Clear jurisdictional division between authorities	Conflicts between different population groups
Cooperation with authorities	Compensation for restrictions	Population growth
Law enforcement/sanctions	Clear demarcation of borders	Proximity to cities
Leadership	Local community support	
Sufficient biosphere staff		

Table 2.2. Selection of factors influencing the success or failure of biosphere reserves  
(Adapted from: Stoll-Kleemann and Welp, 2008: 37-39)

They use an interdisciplinary approach across 211 biosphere reserves to assess management and governance approaches that in theory require a multi-institutional governance structure (Stoll-Kleemann et al., 2006). They distinguish governance – which is about power, relationships among institutions, and accountability – from management, which aims to “achieve objectives.” They argue that the conservation success of biosphere reserves is dependent on the appropriateness of their management systems and on broader governance issues, such as their political and legal system, resource-use patterns, and the degree of involvement of communities living within or nearby them.

Although the GoBi research has similar themes to this study, it differs in two important respects: first, the focus is on protected areas management and the fulfillment of the conservation function in biosphere reserves, rather than on broader socio-economic sustainability. And second, because of the focus on resource management, common property resource theory is more relevant to the German study than it is to understanding the overall role of biosphere reserves in governance for sustainability.

However, the GoBi team is concerned with both collaborative and adaptive management and governance, and comes to identify the importance of local involvement, livelihood support, and leadership in fulfilling the biosphere reserve mandate. They attribute the paradigm shift towards collaborative governance in biosphere reserves to the Seville Strategy of the mid-1990s; however, “doubts remain as to the pervasiveness of this new approach... evidence of a comprehensive change [from top-down to flexible stakeholder-oriented approaches] is lacking (Stoll-Kleemann et al., 2006: 24).

The Swedish group aims to advance the understanding of complex social-ecological systems to generate new insights for the development of management and governance practices. Some of their findings have been drawn from extensive case study work in the Kristianstads Vattenrike Biosphere Reserve (Olsson et al., 2007; Walker and Salt, 2006; Gunderson et al., 2006; Olsson et al., 2004) and have been disseminated by a broader academic research network called the Resilience Alliance and their associated journal, *Ecology and Society*. Some of this work is referenced below in section 2.6.3 and again in the literature review chapter.

In addition to the European groups, there is a Canadian research group that has established a research agenda for biosphere reserves that adopts a complex systems approach to collaborative governance. Led by Drs. Robert Gibson and George Francis in the Department of Environment and Resource Studies at the University of Waterloo, the Biosphere Sustainability Project (BSP) is exploring “Citizen Engagement in Governance for Social-Ecological Sustainability.” The purpose of the first phase (2004-2008) was to draw together concepts and insights, along with case study applications, from three rapidly developing areas of academic enquiry – complex systems, sustainability of social-ecological systems, and civil society roles in governance, and then determine (through consultations with examples) the potential application and usefulness of some of these concepts and insights for people associated with biosphere reserves in the province of Ontario. The second phase (2008-2011) will combine sustainability assessment frameworks with resilience analysis tools for use in Ontario biosphere reserves.

Biosphere reserves were chosen for the BSP study mainly because of the stringent criteria they must meet to receive this designation of recognition from UNESCO and because of the particular emphasis on citizen and civil society roles in the establishment and operation of biosphere reserves in Canada. The criteria require local organizational arrangements to be in place for developing collaborative capacities to address local and regional issues about the ecological, economic and ethical components of enhancing the sustainability for local communities and individual livelihoods. The BSP research team has dubbed the three UNESCO functions of biosphere reserves, conservation, sustainable

development, and logistic support as: stewardship, livelihoods, and learning. People associated with these local organizations are informed and committed to the ideals of sustainability and thus are in a good position to identify which perspectives, from among a range of concepts and examples from the academic literature, could be especially appropriate to the situations they are in and are striving to improve.

The BSP team, including the author, works closely with four biosphere reserves in the regions of south, central and eastern Ontario and one large peri-urban greenbelt area above the city of Toronto, called the Oak Ridges Moraine, that is currently exploring the possibility of UNESCO biosphere reserve nomination (McCarthy, 2006). Research team members interact with community organizations that are active in the biosphere reserve in defining and advancing sustainability locally or regionally. Preliminary themes and findings are summarized in section 2.8 to help identify further research opportunities.

Drawing from a loose network of scholars and practitioners interested in biosphere reserves across the country, a special issue of the journal *Environments* (edited by Francis and Whitelaw, 2004) attempted to convey the current state of knowledge, and some of the emergent and empirical research themes from this field, including: citizen engagement and civil society organizations, governance principles, complex systems, panarchy theory and resilience assessment, networks and social learning. This publication shares the history of Canadian biosphere reserves and outlines a preliminary agenda for further work based on the biosphere reserve concept.

## 2.6 International Experience

To illustrate the biosphere reserve concept in practice, several cases from the World Network of Biosphere Reserves are presented below. They draw from European experiences and from Australian literature to highlight some of the approaches, themes and lessons that relate to the Canadian context. These biosphere reserves were chosen because, for the most part, they all occur in western liberal democracies, offer a mix of ecosystem types and governance regimes (private property and public commons), yet share some common experiences related to building governance capacity for biosphere reserve organizations to influence sustainability. The four cases from Europe are those from the EuroMAB network most familiar to the author, and the German, Swedish and Australian cases are also the subject of extensive studies. Basic information for each case is summarized in Table 2.3.

Name	Country	Year	Size (ha)	Core (ha)	Buffer (ha)	Pop.
Grosses Wasertal	Austria	2000	19,200	4,010	12,366	3,500
The Rhön	Germany	1991	184,939	4,199	67,483	162,000
Kristianstads Vattenrike	Sweden	2005	104,375	7,179	22,899	75,000
North Vidzeme	Latvia	1997	474,447	9,728	116,775	81,000
Riverland/Bookmark	Australia	1977				
Expanded & renamed	...	2004	900,000	335,400	-	17,000

Table 2.3. Characteristics of five UNESCO biosphere reserves (UNESCO/MAB Directory, 2007)

### 2.6.1 Local Participation in the Grosses Wasertal, Austria



The Grosses Wasertal is an alpine valley in western Austria with a population of 3,500 inhabitants living in six

communities. Colonized by the Walser people in the 13<sup>th</sup> century the region has developed highly adapted farming, grazing and forestry. The landscape is a mosaic of open land, forests and traditional settlements. As the first so-called “post-Seville” biosphere reserve in Austria, the Grosses Wasertal biosphere reserve is “a living model of sustainable regional development with the participation of the local people” and has won numerous awards for its approach and accomplishments.<sup>9</sup> With about 200 farmers in the region (and 50% organic farms), decreasing tourism and increasing numbers of people who commute outside the valley, the biosphere reserve organization aimed to engage residents in integrated sustainability planning. “Nevertheless, as is the case for almost all mountain landscapes in Europe and elsewhere, the costs and the human effort of maintaining the traditional land use systems have now become very high. The exceptional approach of the Grosses Walsertal Biosphere Reserve is that local communities have used the biosphere reserve as a means to empower themselves to work together in order to meet the challenges of the future” (UNESCO/MAB Directory, 2007).

The biosphere reserve is managed by a regional board with the six communities as members, supported by three regional government partners, providing a budget of 200,000 Euros and a management office with one manager and one secretary. The administrative authority, Biosphärenpark Großes Walsertal, reports to the Local Government Office of Bludenz and Provincial Government of Vorarlberg, Bregenz. To secure high levels of participation, the biosphere reserve concept was communicated through information materials, workshops, displays and presentations in the schools. A

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<sup>9</sup> For example, Ms. Birgit Reutz-Hornsteiner, manager of the Grosses Wasertal biosphere reserve, was presented with the Michel Batisse Award at the 19<sup>th</sup> ICC-MAB meeting in Paris, France on October 24, 2007.

logo competition, educational materials for schools, a local newspaper, volunteer project groups, and use of the biosphere reserve office as a coordination centre helped improve the visibility of the biosphere reserve.

Specific projects were undertaken with the purpose of integrating the three biosphere reserve functions: conservation, development, and logistic support. These included:

- The Walserstolz trademark for labeling the local cheese guarantees the origin and quality, gives better prices to farmers, and allows small dairies to stay in the valley;
- The Delectable Box containing a sample of regional products with biosphere information;
- Education and conservation plans for farmers on 28 pilot farms;
- Nine “excursion farms” open for interested groups and tours;
- Investment in a biogas heat supply station, a renewable energy consultancy, projects in schools, feasibility studies and financial support for all communities;
- The Bergholz trademark joining timber manufacturers in marketing products;
- A tourism partnership with 37 members subscribing to 20 criteria consistent with the biosphere reserve philosophy; regional products are offered in all restaurants/hotels;
- A summer excursion program providing environmental education within all three zones of the biosphere reserve and throughout the trails network;
- The EcoMonte project established an integrated environmental/sustainable management system, sustainability indicators, and a sustainability report;
- Support for research by thesis students, household surveys, tourist questionnaires, ecological inventories, monitoring for the Natura 2000 program and core areas; and,
- Signage in the core areas and buffer zones and “image campaign” posters.

After five years, the Grosses Wasertal UNESCO designation has a high acceptance among the local population and is widely viewed, at least within the EuroMAB network, as a model for sustainability. There have been an increased number of tourism groups visiting the biosphere reserve. The biosphere reserve label is a strong stimulus for regional development. And the “small-scale but basic budget from the regional government and area communities” has been a significant outcome. According to biosphere reserve manager, Ms. Birgit Reutz-Hornstein, the approach and methods

required for making the biosphere reserve visible and successful are as follows: work from the bottom-up; personalize the biosphere reserve so it is not perceived as only an institution; explain the concept in the right words; mobilize local knowledge; use multiple methods for activating the local population; exchange experiences with other regions and other biosphere reserves; use the biosphere label as a “joint brand” to cross boundaries and borders; and give the sustainable development projects time. Ultimately, she points out, the biosphere reserve concept makes sense when the people understand it and when they are involved (Pollock field notes, 2006).

### 2.6.2 Quality Economies in the Rhön, Germany



The Rhön biosphere reserve is widely considered the “Crown Jewel” of biosphere reserves in the EuroMAB network. It was one of the first to develop to undertake many of the types of initiatives listed above and has applied them successfully to a much larger and more complex area. Sustainable land-use and ecological regional development have been a strong focus and the three biosphere reserve administration offices have worked closely with their local governments and the environment and land use planning departments of both provincial and national government authorities.

Located in the centre of Germany, the Rhön was designated as a biosphere reserve after the reunification of Germany, and covers portions of three Länder: Bavaria, Hessen and Thuringia. During this transition period, a framework management plan for the protection, maintenance and development of the Rhön Biosphere Reserve was elaborated

with the participation of various stakeholders. In contrast to other German low mountain areas, the Rhön is known as the “land of open vistas” that reflects an open cultural landscape shaped by human use over many centuries. Naturally, the region would be covered by beech forest: however, extensive farming and grazing transformed forests into humid grasslands on limestone soils. Apart from agricultural activities, people make their living from small businesses and tourism. As Gibson et al. (2005: 74) note:

In the early 1990s, at the time of German reunification, it became clear that the traditional agriculture of the Rhön would never be able to compete with modern farming practices. Farm incomes were decreasing and fields were being abandoned. Further agricultural decline would mean depopulation and probably, under European Union agricultural policy, active re-forestation. While return of the primeval forest might be desirable from some perspectives, it threatened the established natural and agricultural biodiversity of the cultural landscape and the livelihoods of local residents. There was, consequently, broad interest in an initiative to preserve the existing socio-ecological system.

Partnerships among hotels, restaurants, farmers, and craftspeople were developed through three phases: (1) establishing pilot projects to promote the region’s assets (2) expanding partnerships more broadly, and (3) developing a comprehensive marketing campaign for the biosphere reserves products and services.

The Rhön is particularly well known for direct marketing of regional products and the development of “quality economies” based on these products. For instance, the endangered black-faced Rhön sheep is bred to maintain the open landscape values of the limestone meadows and for related products (e.g., milk, meat, wool). The extensive orchards contain over 170 varieties of apples (plus 38 kinds of pear and 12 plums), “most of them with little potential for modern mass marketing but valuable for regional cuisine and genetic diversity, as well as for maintenance of traditional village aesthetics (Gibson et

al., 2005: 75). Partnerships between the biosphere reserve, farmers, scientists, tourism agencies, restaurants and other small businesses promote more than biodiversity through this initiative. Conservation of genetic biodiversity has been an important priority in making traditional agriculture more competitive and diversifying the entire economy, while giving people a stronger sense of place and local pride.

More than 20 industries ranging from breweries and dairies to construction and tourism strive to meet and maintain the “quality label” of the Rhön Biosphaerenreservat. A regional product marketing board develops criteria for each industry and each type of label (e.g., local, local and organically certified by the European Union, or local products served). Several boutiques carry an enormous variety of regional products, showcase local artisans, and promote the biosphere reserve. In the community of Kaltensundheim, the mayor owns the organic dairy, employs local women who prefer part-time work, and delivers fresh milk to private homes and all school children in the region. As Knickel (2001) explains in his case study of the marketing of Rhöngold milk, more traditional, less intensive and more diversified forms of agriculture are now esteemed, because they tend to be better adapted to natural conditions and because they support the multi-functional use of landscapes and the integrated development of rural areas.

To support local entrepreneurs and to encourage small businesses and young people to stay in the region, a business and technology centre has been established for start-up loans, rent-free offices, training workshops, and studio space. Sustainable forestry provides beech wood for highly refined products such as furniture, instruments, crafts and

toys, while providing by-products for efficient, pre-fabricated housing components. Small high-tech companies use the office space and the whole centre provides a hub for the regional product marketing board and public education.

Several visitor centres have been established to provide environmental education about the biosphere reserve concept. In a visit to the Point Alpha military post on the former border dividing east and west Germany, which is now a museum, peace monument and park, visitors can glimpse the profound effects of recent history on the surrounding communities. Separate from the museum is a biosphere reserve education centre, full of informative displays, including a three dimensional model of the former Berlin Wall and how, the old border, untouched for so long, it is now a “Green Ribbon” of biological diversity woven through the heart of Germany. As Mr. Karl-Friedrich Abe, director of the Thuringian regional office for the biosphere reserve explains, “the biosphere reserve only works by working together.”

Landscape values are critical to the identity and management of the Rhön region. Applied research is conducted on a wide range of nature conservation and development in the context of a cultural rural landscape. As one of the least industrialized parts of Germany, for example, the biosphere reserve can produce high-quality air-dried meats. From this perspective it becomes more clear why proposals for wind turbines are rejected on principle by the biosphere reserve and disallowed by higher-level authorities: landscape maintenance of the open countryside trumps some forms of sustainable development in favour of others, such as biogas plants and solar power. In some cases, the large financial

benefits for a single (and often distantly located) company are rejected in favour of community economic development projects that generate shared local benefits.

As discussed in Chapter 4, one of the practical challenges for biosphere reserves is the navigation and implementation of cross-scale governance and decision-making. For example, local or bioregional governance decisions that ignore external drivers of environmental change, such as energy demands, fail to account for the complexity of cross-scale problems, and may ultimately contribute to them (e.g., if lower-impact wind turbines are rejected locally and then displaced by conventional energy sources elsewhere).

### 2.6.3 An EcoMuseum in Kristianstads Vattenrike, Sweden



Kristianstads Vattenrike is located in the densely populated area of Skåne, the southernmost of Sweden's provinces. The biosphere reserve includes the lower drainage basin of the River Helgeå and the

coastal waters of Hanöbukten Bay, which is part of the Baltic Sea. The biosphere reserve comprises the main part of the Municipality of Kristianstad and includes a marine portion along the coast. The town of Kristianstad, situated at the heart of the biosphere reserve, is a centre for commerce, service, trade and industry. Local industry is extremely varied, although the main focus is on foodstuffs and agriculture with ancillary industries.

Together with public administration, trade and services, this constitutes the main basis for employment in the area.

Many of the values in this cultural landscape are a result of the long-term cultivation of the land, but there are also areas that serve as a refuge for species in their natural habitats. At the heart of the area is an expanse of rich wetlands of international importance. In addition to the Ramsar wetland site, the area contains national nature reserves, European Natura 2000 sites and habitat protection areas, as well as areas of national interest for the purposes of nature conservation, shore protection areas, forests with nature conservation agreements, and municipally- or state-owned nature conservation areas. Wet grasslands that become clogged and overgrown are actively cleared to encourage storks and other birds to use the area. The Swedish Environmental Protection Agency, the County Administration Board of Skåne, the WWF Sweden and others are all key partners in these types of initiatives to sustain the flooded meadows.

A wide variety of ecological research, monitoring, restoration activities also occur within the biosphere reserve. These include inventories of forested areas with regard to vegetation, forest damage, stand composition and site productivity; inventories of bats; studies of the conditions for biodiversity; waterfowl and wetland management decisions about hunting seasons and quotas; integrating ecosystem function into river quality assessment and management; measuring changes in natural and cultivated landscapes; education about ecosystems; and, inventories of meadows and pastures. Socio-economic initiatives include research on the history and development of the region; biodiversity education for school groups, and co-adaptation strategies to landscape change in the Helga valley.

The relationship between humans and their natural environment is the focus of an extensive Ecomuseum development that contains a stretch of countryside dotted with 20 visitor sites aimed to communicate through experiential activities, demonstrations and outdoor displays the values of the local aquatic environment, the threats it faces and the opportunities that exist to preserve, develop and expand these natural and cultural values. The Ecomuseum serves as the biosphere reserve office and a platform for coordination and management. Schultz et al. (2007: 140) conclude:

[Conservation] projects have been linked to ecosystem management at the landscape level through a flexible municipality organization, the Ecomuseum Kristianstads Vattenrike (EKV). EKV has acted as a ‘bridging organization’, coordinating and connecting many of the local steward groups to organizations and institutions at other levels. The process has been guided by social capital and shared visions for the whole landscape. The study shows that ecosystem management likely relies on multi-level collaboration and social-ecological inventories may help identify actors that are fundamental in such management systems.

Multi-stakeholder cooperation among local governments, agencies, organizations, companies and “of course the landowners themselves” is the hallmark of Kristianstads Vattenrike, according to coordinator, Mr. Sven-Erik Magnusson. In a study of the Ecomuseum in this biosphere reserve, Hahn et al. (2006) concluded that the EKV “created arenas for trust-building, knowledge generation, collaborative learning...” etc. and stimulated innovative (multi-stakeholder) social networks for collaborative and adaptive co-management.

In 2007, Olsson et al. deepened their analysis to examine the role of this biosphere reserve in bridging organizational and institutional levels of environmental governance.

They conclude that: “it is not enough to create arenas for dialogue and collaboration, nor is it enough to develop networks to deal with issues at a landscape level. There is a need to understand and actively manage the underlying social structures and processes for ecosystem management...” (Olsson et al. 2007: 28). Insights from these Swedish studies are particularly useful to this study because they provide some of the first empirical data specific to the role of biosphere reserves in collaborative and adaptive governance.

#### 2.6.4 Rock Concerts for Nature in North Vidzeme, Latvia



North Vidzeme Biosphere Reserve comprises 53 km of the coastline of the Gulf of Riga and borders to the north the frontier with Estonia. It covers almost 500,000 hectares corresponding to the water catchment basins of the Salace,

Svetupe and Vitrupe Rivers and adjacent marine areas. Glacially formed hills, rolling plains and lakes characterize the landscape.

The coastal sections consist of sandy beaches, coastal meadows and areas of bare rocks. The area is important for conservation due to the raised bogs, unaltered rivers with wild Baltic salmon, coastal meadows (which are traditionally maintained by grazing) and remnants of the ancient broadleaf forest. In the buffer and transition areas agriculture predominates, although traditional grazing practices are in decline. This large biosphere reserve represents almost 6% of Latvia’s total area.

The administrative structure is well developed, with a central office and two regional offices and a director who reports directly to the Ministry of the Environment.

Partnership projects of various kinds (biodiversity studies, institutional capacity building, research and monitoring, coastal sustainability) are financed by the European Union, the United Nations Development Programme, the Global Environment Facility and so on.

North Vidzeme hosted the first NordMAB network meeting in 2004 to address coastal issues common to Nordic countries. There are permanent ecological monitoring plots for lakes, streams, vegetation and insects and separate programs for air and water quality.

Beyond the high number of staff involved in biosphere reserve activities in North Vidzeme, there are also many types of creative training and environmental education activities underway. For example, the Nature Concerthall *Phylloscopus collybita* concerts (named for the Chiffchaff warbler) are a combination of natural history, music and art.

These public events bring people into close contact with nature at night through a “synthesis of art and science as the music, poetry and ornithology together provide an improvisation to bring the audience the song and silence of nature which tantalizes all the senses” (North Vidzeme, 2007). Films of nature are projected on stage behind the orchestra and performances by some of Latvia’s most popular musicians and poets.

#### **2.6.5 Bioregional Planning in the Riverland / Bookmark, Australia**

Originally designated as the Riverland biosphere reserve in 1977, expanded in 1995 and renamed the Bookmark biosphere reserve, this site returned to using the Riverland name in 2004. It consists of a large floodplain in South Australia with large associated wetlands, lakes and adjoining creeks. While these wetlands would have naturally been alternately flooded and dry, the lakes are now mostly filled due to increased river levels



caused by the influence of the locks and weirs built in the last century to make the river navigable and to maintain water for irrigation.

Bookmark boasts one of the largest remaining continuous stands of ancient mallee (multi-stemmed tree-like Eucalyptus plants that originally grew in many semi-arid parts of Australia) left in the world. Because of this, it is home to a number of rare and endangered species, some of which are no longer found anywhere else on earth. Over 275 bird species, 843 plant species and 79 reptiles and amphibians are recorded (UNESCO/MAB Directory, 2007).

This portion of the Murray Darling river basin is known as the Riverland and it includes the towns of Renmark, Paringa, Berri and Barmera as well as Bookmark Station and Banrock Station. Horticulture is the backbone of the regional economy and the current boom in wine grape production has boosted income considerably. Previously significant grazing (mainly sheep) and extensive woodcutting for fuel and construction denuded areas near the floodplain. Problems with irrigation, vegetation clearance, management of the river and land use patterns throughout the region have affected the floodplain and other low lying areas that are showing the effects of salination.

The Local Action Planning Committees coordinate a number of projects in the biosphere reserve to protect remnant vegetation and establish more efficient irrigation practices. This includes fencing to keep stock out and controls on grazing pressure from introduced

species. Ecotourism is becoming increasingly popular and is showing significant potential for future development. Public lands in the biosphere reserve consist of Calperum and Taylorville Stations. These areas have been contracted to a private philanthropic environmental organization, the Australian Landscape Trust (ALT). ALT matches funding made available by the Commonwealth government. The community “matches” the funding again through volunteered time and services. These resources are invested each year in activities at Calperum and Taylorville Stations and within other conservation programs in the community.

In 2002, community members donated over 14,000 hours to land management, environmental and species restoration, re-vegetation, feral animal control, maintenance of infrastructure, research, monitoring, educational programs, biological surveys and experiments in sustainable development. Community volunteers, assisted by professional staff of ALT, manage each of the former paddocks of Calperum and Taylorville. Many of the committed volunteers formed an incorporated body, Community Land Management, Inc., through which they provide assistance to other communities in Australia that wish to contribute to stewardship for the conservation estate. Through their partnership, the Renmark Paringa District Council and ALT raised \$2m to build the McCormick Centre for the Environment that opened in 2002. This is a facility that serves as a gateway to the biosphere reserve with laboratories, a lecture theatre and an interactive model to provide public education on environmental issues in the Murray Darling Basin.

Like the Kristianstads Vattenrike, the Bookmark biosphere reserve has been a focus for numerous empirical studies, notably those of David Brunckhorst based at the UNESCO Centre for Bioregional Resource Management, Institute for Rural Futures, University of New England in New South Wales. For over a decade, the Bookmark site has provided lessons in sustainable rural development, land use planning and management in both rangelands and coastal marine areas, but particularly in the publicly held “Commons” lands.

The attention to protected areas of the early 1990s gave way to the theme of integrating social and ecological sustainability under the rubric of “bioregionalism” and integrated resource management (Brunckhorst 1995, 2000, 2001; Brunckhorst and Rollings, 1999; Coop and Brunckhorst, 2000). This body of work sought to provide a framework for cross-scale and cross-jurisdictional management of whole regions using a landscape ecology approach well illustrated by the UNESCO biosphere reserve model. As in the RhönRhön, landscapes in the Australian studies were viewed for their multi-functional integration of human communities and local economic activities with respect for fundamental ecological processes (or “ecological goods and services”). Brunckhorst (2001) adopted the social-ecological systems framework from Berkes and Folke (1998) to study the social institutions that support social and ecological resilience in the Bookmark biosphere reserve. He writes:

Biosphere Reserves are fundamentally concerned with whole-of-landscape processes, whether inside or outside of protected areas, across a variety of land tenures and uses. They aim to sustain the biodiversity and productive capacity on a regional scale that is appropriate to the ecological processes and human use and cultural identity with that landscape. Hence, they are vehicles for managing the social, cultural and institutional change and capacity-building at the multiple

scales that is [sic] required to deal with the future sustenance of the biosphere and humanity.

The MAB program provides an enabling mechanism and multiple [tools] to explore new methods for planning and practicing sustainable resource management which is integrated with conservation activities. A Biosphere Reserve gives local communities new responsibilities for their own sustainable future while providing a thread to re-sew people's identity to the landscape. This contrasts with managing their own 'patch' in isolation and/or being excluded from ownership and responsibility for managing nearby public land in a wider context (Brunckhorst, 2001: 24).

Unfortunately for this study, much of Brunckhorst's work is devoted to co-management of common property resources. While this approach is appropriate to the Bookmark reserve where extensive grazing lands are held in common, few Canadian biosphere reserves have such heavy involvement in co-management arrangements for the governance of natural resources. Although co-management agreements exist in many parts of Canada (e.g., for fisheries or forestry), most lands within biosphere reserves are privately owned or under specific government jurisdiction. In biosphere reserves within the Great Lakes Basin, for example, it could be argued that only Crown Lands and federal waters surrounding biosphere reserves constitute a type of commons.

The governance of biosphere reserves differs significantly from governance that would meet the criteria developed for common property resources (Ostrom, 1990). Rather than having clearly defined boundaries, biosphere reserves have fluid boundaries; rather than formalized operational rules for resource-sharing, biosphere reserves rely on informal collaboration and networking; and, although conflict resolution mechanisms are present in both scenarios, resource management typically involves regulatory authorities that are less of a focus in the multi-use landscapes of Canadian biosphere reserves. Berkes and

Folke (1998) focus on traditional and comparatively informal social institutions for resource management. Here, there are more similarities between the social-ecological systems in their studies (in terms of using local knowledge and promoting self-organization and adaptive management) and the general functioning of biosphere reserves across local, regional and landscape scales.

## 2.7 Canadian Experience

The first Canadian biosphere reserve was designated in 1978 in support of McGill University's research station in Mont Saint-Hilaire, Quebec. A second was established the following year in southern Alberta around Waterton Lakes National Park. Since that time, thirteen other biosphere reserves have been designated across Canada [Table 2.4 and Figure 2.3]. At any given time, several biosphere reserve nominations may be in development. On average, the consultation process, required research, and preparation of the 100 to 200-page nomination documents (and accompanying cooperation plans) takes approximately 5 to 7 years, as described above in Box 2.1.

<b>Name</b>	<b>Date of Designation</b>	<b>Periodic Reviews</b>
Mont Saint-Hilaire (QC)	1978	1997; 2007
Waterton (AB)	1979	1997; 2007
Riding Mountain (MB)	1986	2001
Long Point (ON)	1986	2001
Charlevoix (QC)	1988	2003
Niagara Escarpment (ON)	1990	2002
Clayoquot Sound (BC)	2000	
Redberry Lake (SK)	2000	
Mount Arrowsmith (BC)	2000	
Lac Saint-Pierre (QC)	2000	
Southwest Nova (NS)	2001	
Frontenac Arch (ON)	2002; expanded in 2007	
Georgian Bay Littoral (ON)	2004	

Manicouagan-Uapishka (QC)	2006
Fundy	2006

Table 2.4. Designations and Periodic Reviews of Canadian biosphere reserves.



Figure 2.3. Biosphere reserves of Canada (Parks Canada, 2007)

With the exception of the Clayoquot biosphere reserve (supported by an endowment fund), only half of the biosphere reserves are associated with national parks and receive some limited annual support (Waterton, Riding Mountain, Niagara Escarpment, Southwest Nova, Frontenac Arch, Georgian Bay Littoral, and Fundy); the others have no secure, long-term federal funding (Jamieson et al., 2008).

Despite the strong interest in the biosphere reserve concept by communities and multi-stakeholder organizations, and the international recognition of Canadian innovations by the UNESCO MAB programme, the involvement of provincial and federal governments has been relatively low. The historical reasons for so little formal participation in the programme by governments are explored below. As Francis (2004: 6) explains:

After endorsing the formation UNESCO/MAB in 1971 it took almost three years of internal discussions and negotiations in Ottawa to decide on administrative arrangements to promote and support MAB in Canada. The problem was jurisdictional, administrative, and disciplinary boundaries. MAB was, and still is, more than just scientific research in traditional modes, and the resource and environmental issues that are appropriate for MAB to address fall much more directly under provincial or local jurisdictions. A Canada/MAB committee was created in 1974 and was revised from time-to-time over the years. Support for it was gradually scaled back and this support ceased altogether in 1992.

While the Canada/MAB committee was composed of a diverse membership of agency representatives, scientists and academics who funded their own meetings, widespread neoliberal government cutbacks and recession in the early 1990s could account for its formal dissolution. Since biosphere reserves are only one of several of MAB's programme areas, perhaps the biosphere reserve concept lacked leadership throughout the 1990s, as illustrated in the ten-year gap between new nominations in Table 2.4. As Francis (2004: 6) reflects, the biosphere reserve program became almost invisible at the national level during those years.

Given its inherent scope, MAB in Canada looked as if it belonged to everybody or nobody, and in large measure the latter conclusion has prevailed now for over 30 years. Federal support is modest, it shifts about, and it is completely dependent on the dedicated interest of civil servants to continue at all. A working group on biosphere reserves established by Canada/MAB in 1980 carried on with annual meetings and related volunteer activities to the mid-1990s, almost entirely through assistance from Parks Canada. The working group decided to re-organize as a non-profit [organization] – the Canadian Biosphere Reserves Association/l'Association Canadienne des Reserves de la Biosphere (CBRA/ACRB) – which formally came into being in 1998. It is now the only

visible expression of MAB in Canada, and still relies upon Parks Canada for its half-time Executive-Secretary and some funding support... Otherwise, federal involvement comes from local staff in national parks or national wildlife areas that serve as core areas in some biosphere reserves.

The incorporation of CBRA was both a result of government withdrawal from the programme through the 1990s and due to some members' fear of co-optation or future cuts by governments. Since CBRA was formed, numerous attempts were made to lobby the federal government for core funding for local biosphere reserve coordination and a small national office. Proposals have ranged from under \$1 million per year to sustain the network, to multi-million dollar endowment funds, to a broad-based federal fund to which individual biosphere reserves might apply. Only Clayoquot Sound biosphere reserve has received significant federal core funding. That was in the form of a \$12 million endowment fund (the Clayoquot Biosphere Trust) at a time when logging practices on the west coast of Canada drew international condemnation. The UNESCO biosphere reserve nomination process was a tool for conflict resolution as much as the successful designation became a source of redemption for the Canadian government.

After three years of intensive lobbying of Members of Parliament by the Canadian Biosphere Reserves Association (CBRA), the federal environment department announced in February 2008 that it would provide \$2 million over two years to support local coordination of biosphere reserves, or approximately \$57,000 per biosphere reserve (excluding Clayoquot) plus a two-person national office. However, by February 2009, these promised funds had still not been released from the federal Treasury Board to

Environment Canada for distribution to each biosphere reserve organization, leading to further frustrations on the part of CBRA members and local volunteers.

CBRA meets on an annual basis to exchange experiences and local projects, maintain personal communications, and devise strategies for organizational and financial support.

Despite their lack of success at the national level, several biosphere reserves have secured support from provincial grants (e.g., Saskatchewan, Quebec, and Nova Scotia) and a few others have successfully negotiated partnerships with industry and the corporate sector that place limits on resource extraction (e.g., in the newly designated core areas of the Manicouagan-Uapishka biosphere reserve in northern Quebec) *and* provide operating funds for biosphere reserve staff.

Typified by a collaborative “bottom up” process, the biosphere reserve model in Canada has been remarkably successful. Biosphere reserves continue to be nominated and managed largely by volunteer organizations that have undertaken an extensive record of local, regional and sometimes national projects (Francis, 2004; Jamieson et al., 2008). In 2004, for example, only two of the 15 sites have a full-time manager and seven others have had part-time or occasional project staff. In contrast to the centralized administrative model of some European biosphere reserves, highly collaborative approaches have been used in the local organization of biosphere reserves in Canada, out of necessity due to lack of funding perhaps as much as by design.

Indeed, inadequate financial support has meant that "...most are not functioning at any where near the level that they could and should be operating, as is occurring world-wide in the many biosphere reserves where a national core level of support is annually provided" (Jamieson et al., 2008: 134). However, these observers of the Canadian network rightly note that there are limits to community-based sustainability posed by larger scale factors, such as the influence of global markets on local economies, and "governments that serve and subsidize a global economy as their chosen priority" which often, and perhaps inevitably, conflicts with the achievement of sustainable development, "at the community level, where it really counts" (Jamieson et al., 2008: 143).

## 2.8 Research Opportunities

Despite biosphere reserves' innovative ideal, their intended purpose as demonstration sites, and almost 30 years of practice, biosphere reserves have received relatively little critical scholarly attention in Canada. Recent periodic reviews for UNESCO were some of the first studies on the progress of biosphere reserves towards sustainability. As noted in the introduction, most biosphere reserve research has privileged ecological issues over social, economic, or political ones. In other words, most research is conducted *in* the core and buffer areas of biosphere reserves as scientific control sites, not *about* biosphere reserves as social organizations or as governance mechanisms.

As noted by the MAB Programme Director, Dr. Ishwaran, and his colleagues, for biosphere reserves to fulfill their potential as "learning laboratories" they must demonstrate and document successful integration of their three intended functions, and the processes by which they achieved success. They suggest:

What is often difficult to come by are examples or cases where different stakeholders come together to combine their knowledge and experience to stabilize and/or improve an existing conservation-development relationship. Each one of the biosphere reserves in the World Network must have many examples where the necessary relationship between conservation, socio-economic well-being and research and monitoring is clearly demonstrated. ...Hypotheses about the integrated relationship between certain practices could be assumed but data to verify, refute or modify that relationship may not be available. [i.e., building local trust to support biosphere functions] (Ishwaran et al., 2008: 128).

Only in the past 10 years or so, have themes related to adaptive ecosystem management, landscape planning, institutional organization, and collaborative governance been applied to biosphere reserves internationally, and only recently so in Canada. The formation of a student research network has been formalized as the Canadian Biosphere Research Network (CBRN) to link the work of students, researchers, scholars and practitioners both *in* biosphere reserves and *on* the biosphere reserve concept across Canada and internationally. Notably, there is a growing body of work in Canada about the experience of biosphere reserves that has produced a set of ideas broadly related to governance for sustainability. These include:

- i. Social capital (Mendis, 2004; Mendis-Millard and Reed, 2007)
- ii. Social learning (Dobell, 2002; McCarthy, 2006)
- iii. Community-based ecosystem management (Tremblett, 2004; Reed, 2006)
- iv. Institutional capacity for ecosystem management (Reed, 2007)
- v. Financial capacity of biosphere reserves (Jamieson, 2004; Clermont, 1990)
- vi. Public participation (Pollock, 2004; Rehman, 2006)
- vii. The role of civil society actors and organizations ([Whitelaw, 2006](#); [Whitelaw, 2005](#); Allie, 1999)
- viii. Adaptive capacity and resilience (Mendis-Millard, forthcoming; Taylor, 2004)
- ix. Landscape values and governance (Francis et al., 2004; Pollock et al., 2008)
- x. Linking ecosystem and human health (stewardship & livelihoods) (Edge, 2007).

As indicated above, a special issue on “Biosphere Reserves in Canada: exploring ideals and experience” in the journal *Environments* provided the first comprehensive overview

of the themes, accomplishments, challenges, and opportunities for fulfilling the three functions of biosphere reserves (Francis and Whitelaw, 2004). The issue also examined principles for participation and governance (Pollock), local organization (Ravindra), research and monitoring (Whitelaw et al.) and the concepts of resilience (Taylor), networks (Lerner) and systems thinking (Dempster). It also included some reflections by practitioners to round out the applied perspective on the biosphere reserve concept. A concise summary of Canadian initiatives appears in a special issue of the *International Journal of Environment and Sustainable Development* on biosphere reserves by Jamieson et al. (2008). Together these papers provide a useful guide for further study but leave a significant amount of thinking and testing of the biosphere reserve model and applications to be done.

This study on governance for sustainability has also drawn from, and contributes to the “Biosphere Sustainability Project” at the University of Waterloo, as noted above. Again, the BSP draws together the concepts of complex open systems, sustainability of social-ecological systems, and citizen participation to determine the potential application and usefulness of some of these concepts and insights for people working with biosphere reserves in Ontario. A research team of five faculty, five graduate students and several supporting undergraduates collaborate on this work in consultation with the five communities of interest: the Long Point, Niagara Escarpment, Frontenac Arch and Georgian Bay biosphere reserves, along with the Oak Ridges Moraine-Greenbelt area.

Working papers have been produced on each of the three main themes and case study research has been presented in a variety of public outreach sessions, such as conferences

and workshops. A book is in preparation to highlight some of the most illustrative and illuminating stories from the biosphere reserve cases and link them with the broader scholarly themes. As the project summary notes:

The necessary learning is impressive because the scope of sustainable development is very wide. As extensive writings on the subject show, it has to 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 biosphere reserve. 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.

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. Biosphere reserves, 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, greater overall resilience, and adaptive management strategies become important objectives in these situations (Biosphere Sustainability Project, 2007).

Contributions from two doctoral dissertations relate to the governance themes presented above. The first examines the role of environmental movement organizations [NGOs] in the development of the Niagara Escarpment Act and Plan (and biosphere reserve) and in the development of the Oak Ridges Moraine Conservation Act and Plan ([Whitelaw,](#)

[2006Whitelaw, 2005](#)). The second analyzes the social learning that occurred among people active in similar environmental movement organizations in the Oak Ridges Moraine and in the Long Point Biosphere Reserve (McCarthy, 20067). The current study builds on both works to the extent that it is interested in the roles of biosphere reserves both as organizations and as mechanisms for collaborative governance.

## 2.9 Conclusions

For the past 40 years, UNESCO's Man and the Biosphere programme has helped to expand a world network of regional sites dedicated to the pursuit of sustainable development. The local management and regional governance of biosphere reserves, as well as the potential role of biosphere reserves in broader structures and processes of governance for sustainability, are themes that have come to the fore.

While biosphere reserves are intended to be community-based and locally-driven, the structure of governance arrangements in individual reserves varies widely between sites and within countries. In Canada, Reed (2006) notes, individual biosphere reserves typically include several municipalities and interests that extend beyond the boundaries of local jurisdiction (i.e., they are regional in scope yet nested within provincial, federal, and some cases Aboriginal jurisdiction). This study selects sites from Canada since they have developed highly collaborative, multi-stakeholder approaches to governance, yet these phenomena have not been well documented.

Despite the strengths of the biosphere reserve model (e.g., flexibility, context-specificity, international credibility, and an integrative approach to sustainable development, etc.), applying the model in practice is fraught with challenges, such as building adequate capacity for such a broad mandate and securing political support. As the few international examples provided here suggest, local biosphere reserves have significant latitude in defining and pursuing sustainability in creative ways and in developing suitable governance models to overcome those challenges.

Limited scholarship on the biosphere reserve model provides new opportunities to examine the role of biosphere reserves in governance for sustainability. This chapter's review of the model, combined with the literature review in Chapter 4, gives rise to several research propositions that structure a conceptual framework for application in the case studies. Since many communities, not just those situated in biosphere reserves, are subject to the pressures of both local and global forces, research on one model for sustainable development should help generally to reveal the role of collaborative, multi-stakeholder organizations in pursuing such an agenda.

### **3. Methodology**

This chapter outlines the qualitative research approach and methods undertaken in the study. It covers the activities of a three-year period from January 2005 to January 2008 and emphasizes the dynamic, participatory and iterative nature of the research process. Broadly speaking, this research can be described as interpretive social science. It uses a qualitative research paradigm and reflects both case study and grounded theory approaches. The research design combines four specific methods: participant observation, literature review, document analysis, and semi-structured interviews. Special attention is also given to the role of the researcher and research ethics.

#### **3.1 Interpretive Social Science**

Interpretive social science involves systematic analysis of social action through methods that engage people in a natural setting to gather information to help understand and interpret social experience, interaction, and organization. This study uses a qualitative research paradigm to understand some of the social and institutional dynamics related to governance for sustainability. The goal of qualitative research is to understand the nature of a chosen phenomenon rather than quantifying the magnitude or distribution of that phenomenon. Qualitative research is thus defined as “(t)he non-numerical examination and interpretation of observations, for the purpose of discovering underlying meanings and patterns of relationships...” (Babbie, 1986: 385).

Qualitative research is suited to “understanding a social or human problem, based on

building a complex, holistic picture, formed with words, reporting detailed views of informants, and conducted in a natural setting” (Creswell, 1994: 1-2). By contrast, quantitative research “is an inquiry into a social or human problem, based on testing a theory composed of variables, measured with numbers, and analyzed with statistical procedures, in order to determine whether the predictive generalizations of the theory hold true” (Creswell, 1994: 2). Qualitative research was selected because it is best able to explore issues that have had minimal previous study (Creswell, 1994) and can illustrate the complex dynamics of applied models, such as that of biosphere reserves.

Interpretive social science allows for complex social systems to be studied. Qualitative research techniques are used to “make sense out of an ongoing process that cannot be predicted...” (Babbie, 1986: 358). The focus of qualitative research is on “meanings, concepts, definitions, characteristics, metaphors, symbols and description of things”

(Berg, ~~1998~~<sup>2001</sup>: 3). The social context and the surroundings of a social situation are important to qualitative research (Neuman, 1997). Various perspectives must be tapped to gain broad understanding of the social context and specific subject matter. Neuman (1997: 329) identifies the following characteristics of qualitative research:

1. Capture and discover meaning once the researcher becomes immersed in the data;
2. Concepts are in the form of themes, motifs, categories, taxonomies;
3. Measures are created in an ad hoc manner and are often specific to the individual setting or researcher;
4. Data are in the form of words from documents, observations, transcripts;
5. Theory can be causal or non-causal and is often inductive;
6. Research procedures are particular, and replication is very rare; and
7. Analysis proceeds by extracting themes or patterns from the evidence and organizing data to present a coherent, consistent picture.

Exploratory research is an inquiry that assesses phenomena through a new perspective or conceptual lens (Robson, 1993). In this study, the biosphere reserve model is explored and interpreted from a governance perspective as outlined in Chapters 4 and 5.

### **3.2 Case Studies**

A case study approach was employed for this research. Case studies provide the most appropriate research method for exploratory research (Robson, 1993) and can be composed of multiple methods. Case studies are used to explore a single entity such as a program, process, event, institution or social group. The case study approach allows the researcher to carry out an investigation that retains “the holistic and meaningful characteristics of real life events-such as individual life cycles, organizational and managerial processes, neighborhood change ...” (Yin, 1994: 3). Case studies may be explanatory, descriptive, exploratory or all of these; they investigate “a contemporary phenomenon within its real-life context...” (Yin, 1994: 12).

Case study research offers in-depth analysis of a small number of cases whether those are individuals, organizations, movements, events or places. Extensive data is generated in case studies, which usually provides more data over a wider scope than do quantitative methods (Neuman, 1997). Case studies are considered instrumental; they are designed to provide insight into a specific issue as well as to refine a conceptual explanation (Berg, 1998).

Collaborative governance processes are complex social phenomena suitable for case study. The choice of the case study approach for this work concentrates the research to the role of three of Canada's biosphere reserves, each bounded by time and space. This makes the research more manageable. These are all case studies of evolving governance systems. The Long Point case is bounded by its designation in 1986 to the present. The Frontenac Arch case is bounded by the period from 2000 to the present. The Georgian Bay case is bounded by 2002 to the present. All three cases are spatially bounded landscapes as designated by the core-buffer-transition areas of UNESCO. The use of three biosphere reserves as case studies provides a window into the potential governance roles of other biosphere reserves in Canada and perhaps world-wide. The two more established cases of Long Point and Frontenac provide lessons to apply to the more recent case of Georgian Bay.

As noted in the introductory chapter, the case studies outlined in Box 3.1 were selected for several reasons. First, all the cases are geographically located within the Great Lakes Basin, which provides a common governance context for them and provides a strong hydrological/ecological basis for understanding the cross-scale and basin-wide linkages between them. There has been recognition by several members of the Canadian Biosphere Reserves Association (CBRA) that the biosphere reserves in the Great Lakes-St. Lawrence region could be usefully brought together into a network (Ross pers. comm., 2007).

### **Box 3.1. Biosphere Reserve Case Studies in Ontario (Canada)**

Long Point, a sand spit on the north shore of Lake Erie, surrounded by agriculture and Carolinian forest was established in 1986. A periodic review document was prepared for UNESCO in 2001. The Long Point World Biosphere Reserve Foundation has open membership with a 15-member Board of Directors elected for 3-year terms (with one-third up for election each year). Occasional part-time staff supported through project funding assists the volunteer board.

The Thousand Islands-Frontenac Arch biosphere reserve, where Lake Ontario meets the St. Lawrence seaway, was designated in 2002 and has developed extensive actor networks. It has a community-based board of 15 directors, 6 representing organizations and 9 representing general membership. The Biosphere Network is a voluntary organization of about 70 groups conducting projects through partnerships, and supported by part-time staff. Recently, the Nature Conservancy of Canada worked with the St. Lawrence Islands National Park to expand the core area of the biosphere reserve.

Georgian Bay Littoral biosphere reserve, designated in 2004 is Canada's most recent biosphere reserve. The eastern shoreline of Georgian Bay is the world's largest freshwater archipelago. It is evolving a regional organization called the Georgian Bay Biosphere Reserve Inc., a non-profit group representing four primary "keyholder" groups: Aboriginal communities (2 members), permanent residents (3 members), cottagers (2 members) and boaters (2 members). They also have permanent observers from Parks Canada, the Eastern Georgian Bay Stewardship Council, and the Ontario Ministry of Natural Resources.

The second reason that these three cases were selected is that each biosphere reserve was designated by UNESCO in different years, has a different historical development and presents a unique trajectory of sustainability activities from the time of (or prior to) designation. Third, from a political perspective all three cases are in the province of Ontario and share the same governmental and legislative context. This feature of the study significantly increases the understanding of the common layers and players, opportunities and constraints of government at this scale. It provides an established social and economic framework, contributing to the comparative potential of the case studies. By contrast, local jurisdiction can be highly fragmented within a biosphere reserve, including locally-elected governing councils in cities, towns, and rural townships. The

idiosyncrasies of each of these and other governing units such as regional districts, counties, and municipalities of various sizes produce three case studies with their own unique governance arrangements. Further sources of diversity in this study come from regional differences in the types of landscapes, ecosystems and social-ecological systems present in each case. Among only these three cases, a wide range of sustainability issues can be identified. Specifically, the combinations of social organizations, political activities, and environmental conditions provide fertile ground for this study.

Although each biosphere reserve contends with its own diverse range of complex systems and has identified its own peculiar set of priorities for sustainability, there are some possible areas for comparison. For example, Long Point and Frontenac Arch both have extensive agricultural areas; Frontenac Arch and Georgian Bay are in the Great Lakes-St. Lawrence Lowlands (mixed boreal forest); all three sites have extensive water-based tourism development and contain national and/or provincial parks. And all three rural areas are within close proximity of urban centres (Toronto, Ottawa, Montreal) and therefore experience similar growth and development pressures from outside their regions.

### **3.3 Research Methods**

In order to explore the UNESCO biosphere reserve model in governance terms, multiple research methods were combined in order to produce the richest data sets possible and to provide opportunities for cross-validation of findings. The primary research activity in this study was participant observation, a process of becoming involved in the research

setting as a participant and recording detailed notes about various different aspects of the event as an observer.

Participant observation was used at approximately 220 local, regional, national and international meetings, workshops, conferences, and events (totaling 267 days). These activities were complemented by secondary literature reviews, document analysis and semi-structured interviews, as outlined in Table 3.1. Rarely do researchers use participant observation as their only technique. Rather, it provides context for constructing interview questions, selecting samples, and completing the design of a study.

<b>1. Participant Observation</b>	<b>2. Literature Review</b>	<b>3. Document Analysis</b>	<b>4. Semi-structured Interviews</b>
GBBR	Journal articles	Field notes	Residents
LPWBR, FABR	Monographs	Workshops	NGOs
CBRA, CCU	Conferences	Profiles	Government
EuroMAB	Research groups	Archives	Local Business
ICC-MAB	Internet sites	Nominations	Current BR members
UNESCO	Reports	Periodic Reviews	Past BR members

Table 3.1. Sources of data for four different research methods

Each of these approaches was necessary to ensure a full range of perspectives on the program, gather the experience of local players at the community level, and other actors and organizations at higher levels that together make up national, regional and world networks. The major strength of this type of multi-method approach is that it supports cross-validation of findings from multiple data sources. It also provides a dynamic and participatory research experience, where academic colleagues and practitioners are linked across scales in a common purpose of information exchange for sustainable development.

The major drawbacks of this type of in-depth, highly participatory approach to research are that it is enormously time consuming and costly, and that, like other qualitative methods, tends to generate more data than can be easily managed and fully used. A fairly sophisticated selection process is also required to choose which events to attend, reports to read, minutes to review, and interviews to pursue. Since participant observation is largely an opportunistic activity, the researcher needs to prepare to attend events, sometimes on short notice. This study aimed to strike a balance between the depth of participant observation while allowing sufficient time for the other methods. Each of the four research methods (listed in Table 3.1 above) is described in the following sections.

### **3.3.1 Participant Observation**

Participant observation is the dominant research method used in this study. It is associated primarily with cultural anthropologists but has become widely used in the social sciences. The method of participant observation includes the systematic recording, analysis and use of information. It is traditionally defined as "...a method in which a researcher takes part in the daily activities, rituals, interactions, and events of a group of people as one of the means of learning the explicit and tacit aspects of their life routines and their culture" (Dewalt and Dewalt, 2002:1). Explicit understandings can be communicated while tacit ones must be discovered through observation (Spradley, 1980).

Participant observation provides several benefits to research. It enhances the quality of the data obtained during fieldwork; it enhances the quality of interpretation of the data; and it encourages the formulation of new research questions and hypotheses in the field.

It is not designed for assessing change; it is a synchronic method that measures present conditions. It is a good tool for understanding local level response to broader outside forces (e.g., the effect of global processes on community livelihoods). It is also an appropriate method for understanding social organizations and observing social institutions, such as the processes of governance. Enough time in the field can reveal the interconnectedness of social actors and institutions.

Without participating in the culture of a biosphere reserve, it would be difficult for a researcher to obtain the same insights and exposure to debate and to the evolution of identities and ideas. As Dewalt and Dewalt (2002: 66) explain:

Becoming a participant places the researcher in a unique research role, one where gaining rapport and partaking in a local setting... put unusual demands on the social skills and life of the investigator. The payoff is large, a much more nuanced and in-depth understanding of a complex setting than other methods of fieldwork alone can provide.

Indeed, while document analysis in the form of meeting minutes, annual reports and project grant applications is useful in assessing the activities of the biosphere reserve in sustainable development, it does not compare to the quality of data recorded through participant observation in terms of understanding social and organizational dynamics and ultimately, as this research asks, the role of the biosphere reserve in governance.

At first glance, participant observation appears to be a relatively simple technique but it is fraught with challenges and questions. First, the process is inherently iterative: the method encourages the continual reassessment of initial questions and hypotheses, and facilitates the development of new questions as insights occur. This leads to the risk of

losing sight of original research questions and makes the boundaries and scope of the study difficult to ascertain if new insights are continually emerging. Participant observation is simultaneously a data collection technique and an analytical tool.

Second, the specific skills of participant observation are subtle. They include: fitting in to a social or cultural setting, using “active seeing,” having good short-term memory, using informal interviewing to gather information, and recording detailed field notes. It is true that:

The participant observer in a new scene may often feel overwhelmed by the complexity of events, the amount of new detail to be observed and recorded, and the difficulty of understanding exactly what is going on (Dewalt and Dewalt, 2002: 74).

Third, there is a continuum of participation (from passive to complete immersion) that must be balanced with the role of observer. Indeed the question of roles adopted by the researcher is an important one, since to be successful a participant observer must be accepted as a member of the community. In terms of doing participant observation in the field, the main concerns are about access to the community of study and to the quality of participation. Typical stages of this process are: entering the field, making first contact, building rapport, breaking through, and establishing authentic engagement.

In this study, I entered the field as a volunteer with the local biosphere reserve and became increasingly involved through networking and by joining related organizations. After making first contact, I could quickly build rapport and become part of their professional community. It was more difficult to build rapport outside of that

organization and affiliate myself with other groups and perspectives in the wider community.

Unlike anthropologists immersed in a new culture, however, I was participating in my own culture and expanding my sphere of access to the communities of interest for my study. I achieved this by playing two roles simultaneously – local resident of Georgian Bay and student researcher in the field. In this context, where I am an insider exploring my own ‘culture’ of biosphere reserves, two issues come to the fore: they are bias and blind spots (or the challenge of seeing familiar ground with new eyes). Both of these are addressed in section 3.7 on the role of the researcher.

### **3.3.2 Data Collection and Data Recording Methods**

In this study, participant observation was used at approximately 220 meetings, workshops and events relating to biosphere reserves. Detailed field notes were taken with regard to the date, nature, location, agenda and participants at each event. Two techniques were used to record the proceedings at these meetings: (1) field notes were taken to capture the salient points of each speaker or discussion and (2) shorthand transcriptions were made of the comments of each speaker. My own public comments, internal observations, and silent identification of emergent themes (called meta notes) were made in square brackets in-text. After the event, I would review my notes and make any additions or corrections. Over the research period I filled ten 192-page Blueline notebooks (with 23.5 cm x 18.4 cm pages) with notes from reading, participant observation, interviews and meetings.

These are referred to throughout this study as Pollock ~~fieldnotes~~[field notes](#) and the year.

Through my volunteer work with the Georgian Bay Biosphere Reserve, I recorded the proceedings of several workshops and produced reports for participants. My reports combined traditional minutes with more detail on the objectives and outcomes of the workshop. In some cases, I produced a generic report for the participants and kept a detailed transcription for myself. Although I tried to take audio recordings to support the reporting process, in large gatherings, the recording quality was too poor to be useful.

#	Type of Participant Observation
35	Academic research meetings
40	Days of local meetings and workshops in the Georgian Bay Biosphere Reserve
28	Presentations made about biosphere reserves and/or the GBBR
42	Days of meetings of the Canadian Biosphere Reserves Association
76	Days of meetings of ICC-MAB, EuroMAB, Canadian Commission for UNESCO
22	Days of Conferences related to biosphere reserves
13	Days of meetings in the Long Point World Biosphere Reserve
11	Days of meetings in the Frontenac Arch Biosphere Reserve
<b>267</b>	<b>Total</b>

Table 3.2 Types and frequency of participant observation

The types of participant observation listed in Table 3.2 range from research meetings and local events to public presentations and international events. The dates and location of each event are listed in Appendix I. Specifically, there were 35 academic meetings related to my research. Most of these were monthly meetings at the University of Waterloo as part of the SSHRC-funded project on citizen engagement in governance for sustainability. Others were personal meetings with colleagues, supervisors, committee members and mentors who provided guidance in particular areas. The SSHRC research team meetings provided a regular opportunity for reflection on research themes and “thought exercises” on various topics. Dr. George Francis at the University of Waterloo became a key advisor for my study and I recorded pages of ideas that were explored at each of our meetings.

In addition, I attended approximately 40 meetings and workshops in my local biosphere reserve, as part of the GBBR Inc. board of directors, the conservation or economic development committees, and larger stakeholder planning events. As a researcher-practitioner, I delivered about 30 slide presentations, papers or guest talks about the biosphere reserve model and/or the significance of the Georgian Bay Biosphere Reserve. Most of these were local presentations made to schools, parks, service groups, public workshops or academic seminars. Once I had created a master presentation of 100 slides (for the official April 2005 launch of the UNESCO Georgian Bay Littoral Biosphere Reserve), I adapted it for a range of audiences – from students in Grade 5 to the Nature Conservancy of Canada’s national board of directors (March 2006). Instead of recording these events as an observer, I became the central participant and found it useful to record the types of questions that were raised by my talk.

As the GBBR representative to the non-profit Canadian Biosphere Reserves Association, I was nominated co-chair (Vice-President) at the annual general meeting in the Thousand Islands-Frontenac Arch biosphere reserve in 2005 and have participated in about 40 executive meetings (in person and by teleconference) since that time. I also spent a tremendous amount of volunteer time organizing the June 2007 CBRA annual general meeting in Georgian Bay on behalf of the GBBR Inc. The themes from these activities are formally documented in CBRA’s minutes. The details that I failed to record systematically during this time relate to the politics of the national organization and, perhaps more importantly, to the individual experiences of governance, fundraising, partnerships, collaboration and influence of CBRA’s thirteen (at that time) biosphere

reserve members. This type of information was gathered through the literature, from the interviews, as well as through inference, gossip, and hindsight.

During my research I was also able to attend meetings of the Canadian Commission for UNESCO in Ottawa. Natural and Social Sciences Sectoral Commission programme officer, Ms. Dominique Potvin, initially contacted me about my work and invited me to become a member of the CCU. The Natural and Social Sciences Sectoral Commission meets twice a year to discuss UNESCO programmes and to make budget recommendations. The CCU actively promotes biosphere reserves as “learning platforms” for UNESCO’s Decade of Education for Sustainable Development, facilitates Canada/MAB meetings and communications about nominations and periodic reviews.

With generous scholarship support from the Pierre Elliott Trudeau Foundation, I have had the opportunity to learn about the world network of biosphere reserves by participating in UNESCO meetings. Canada is a member of the European regional network of biosphere reserves (EuroMAB) that meets every two years. I was fortunate to attend the 2005 EuroMAB meeting in Vienna (Austria) with two Canadian colleagues (from Niagara Escarpment and Clayoquot Sound) and the 2007 EuroMAB meeting in Antalya (Turkey). At the first meeting, I presented a case study on citizen participation and helped to facilitate a workshop on “quality economies.” At the 2007 meeting, I presented a case study on collaborative governance from my research about Ontario biosphere reserves. Between these two events, I attended the 19<sup>th</sup> International Coordinating Council for the Man and the Biosphere Reserve programme (ICC-MAB)

meeting in Paris (France) as an official observer, under the guidance of Dr. Fred Roots, chair of Canada/MAB.

Each of these opportunities allowed me to deepen my understanding of the structure of the UNESCO biosphere reserve programme. By using the methods of participant observation, I witnessed both the diversity and the commonalities among biosphere reserves, I evaluated how experiences in Canada compared to that of other countries, and I established international working relationships with managers in European biosphere reserves. As an example of the world network of biosphere reserves in action, I have hosted representatives from biosphere reserves in Australia, Great Britain, Latvia, Germany, the Czech Republic and France who were visiting Georgian Bay. I also participated in a learning tour in the Rhön biosphere reserve (Germany) in October 2006. None of the discussions from these visits was formally recorded as part of my participant observation record, although I have mental notes from each of these encounters.

Most of the ten conferences I attended, either academic or community-based, were opportunities to present my research as a work-in-progress. While these were valuable for developing communication skills, there was limited time for questions and discussion. Like the series of local presentations I delivered, I took note only of reactions from the audience. On other occasions, I acted as a conference facilitator on themes related to biosphere reserves and was too busy “doing my job” to make my own recordings. Fortunately, in most of these instances there are conference proceedings available.

Finally, I made several field visits to Long Point and Frontenac Arch. These visits usually corresponded with board meetings, annual general meetings or special events. In the case of Long Point, I attended the focus group meetings organized by colleagues Graham Whitelaw and Dan McCarthy and acted as a small group facilitator for the sustainability workshops with the agricultural sector. I also participated in the Sustainable Norfolk County Conference in November 2006 and enjoyed an informative regional tour in May 2007 with an organic farmer also involved with the Land Trust. Follow-up field visits provided the opportunity for interviews and further time to observe the area.

Likewise, in the Frontenac Arch, I attended several board meetings and “shadowed” the executive director around the region for a few days. I also conducted a self-guided tour through the biosphere reserve as a tourist in August 2007. This was quite informative as it allowed me to speak informally with participants in some of the biosphere reserve’s programs, such as farmers in the Local Flavours network, prior to my series of interviews. Since 2007, I have encouraged the Georgian Bay Biosphere Reserve Inc. to participate in sustainable tourism workshops hosted in each of the other two sites, helped to develop a joint funding application to the Trillium Foundation from Ontario’s four biosphere reserves, and worked closely with contacts in Frontenac to establish the GBBR Educators Network.

### **3.3.3 Literature Review**

The purpose of the literature review is to define problems, assess previous work, present relevant background information and identify tensions and areas of consensus. It can be

conducted at the beginning of a study but it usually continues through the life of the project in order to continually incorporate new insights from the field. The literature review [Chapter 4] identifies major dimensions for a conceptual framework. It also supports construction of the interview questions and categories for analysis.

### 3.3.4 Document Analysis

Key documents on the biosphere reserve concept and cases were obtained and analyzed as secondary literature. These included the Seville Strategy (UNESCO, 1996), the draft handbook for managers of biosphere reserves (Robertson Vernhes, 2007) and the official nomination documents for each case study and relevant expansion applications and periodic review reports. Most recently these documents for UNESCO include the 2004 nomination document from the Georgian Bay Littoral Biosphere Reserve (186 pages), the 2007 application for expansion from the Frontenac Arch Biosphere Reserve (143 pages) and the 10-year periodic review of Long Point Biosphere Reserve (77 pages). Individual biosphere reserve's business plans, internet sites, and project reports were reviewed. Policy documents related to sustainability were also consulted, including municipal Official Plans, community plans and proposals, national park management plans, and economic development strategies.

To illustrate the complexity of governance in each case study, "governance profiles" were constructed from document research. Since the full scope of governance agencies and organizations involved with sustainability would be impossible to determine,

illustrative governance profiles of conservation in each case are presented in appendices that were vetted by members of each biosphere reserve organization.

Although a governance profile of conservation “layers” and “players” begins to indicate the jurisdictional depth (from local to global) and the geographic breadth or “scope” of conservation activity in a given region, this technique has several limitations.

The “governance profiles” of conservation for each case vastly oversimplify the operation of complex governance systems – for conservation activities and for broader notions of sustainability – in a number of ways. First, the conservation component in biosphere reserves (e.g., protection, restoration, monitoring, etc.) is often less about protecting intact biodiversity but rather is a reactionary response to unsustainable development that consumes natural resources, compromises ecological integrity, or contaminates “the environment.” Second, as FABR-1 points out: “The conservation community, especially in terms of government itself, is silo-ridden. [Tracking] governance of conservation activities may be as unlikely as putting toothpaste back in the tube.”

Third, many government programs are either too narrow or too short-lived to have a significant impact on the very problems they seek to address (Vaughan et al., 2001). And civil society organizations working on similar issues will compete for scarce resources; those that work unknowingly at cross-purposes create new problems for themselves. Even coordinated conservation initiatives, such as the Remedial Action Plans for Areas of Concern in the Great Lakes, succeed in the consultation phases only to fail at effective

implementation (Beirle and Konisky, 2001). Finally, in a federal system, governments at different levels are known to “pass the buck” between their jurisdictions (Harrison, 1996), especially on common property issues such as air and water quality.

Most importantly, such a cross-section of organizations does little to explain the role of biosphere reserves within these organizational and institutional governance arrangements. It is important not to overestimate or underestimate the role of a biosphere reserve in these cases. Often a biosphere reserve organization has only marginal influence or involvement in on-the-ground conservation activities; however, it may provide a facilitating role to broker much larger or more coordinated efforts, as explored in this study.

### **3.3.5 Semi-structured Interviews**

Semi-structured interviews were used in each case study as a way to expand and confirm findings from participant observation, the literature and other documents. McCracken’s (1988) Long Interview Technique (LIT) was selected for this research because it builds on the literature and previous experience of the researcher. Specifically, it enhances other methods by remaining open to new ideas, themes and patterns. The accuracy of the recordings and transcripts produces high quality data for interpretation. It also makes use of the researcher’s ability to uncover and expose difficult issues and ideas. The LIT allows the researcher to achieve “crucial qualitative objectives within a manageable methodological context” (McCracken, 1988: 11).

Like the case study approach, the Long Interview Technique cannot be used to generalize to a larger population. However, due to the intensive nature of the research, it offers “an opportunity to glimpse the complicated character, organization and logic of culture” (McCracken, 1988: 17). This perspective is thus ideal for trying to understand the role of biosphere reserve organizations in fostering a culture of sustainability. The other major benefit of using interview data is that patterns and interrelationships between many issues can be examined and complex processes can be analyzed.

For this study, 16 interviews were conducted with people from three main categories:

1. Members of the biosphere reserve organization (e.g., founders, board members, staff, or volunteers) – indicated as “current” or “past” members;
2. Residents in the biosphere reserve who represent important activities or sectors (e.g., conservation, agriculture, forestry, etc.) – indicated as “community resident/seasonal resident, NGO, or local business; and,
3. Government agents with mandates related to biosphere reserve themes and/or initiatives – indicated as “federal” or “provincial” or “municipal” government.

This sampling technique sought a mix of perspectives of founding and current members of the biosphere reserve. It sought the views of biosphere reserve observers and affiliates from various sectors related to conservation, livelihoods, and education. And it purposefully engaged government agents across multiple scales and programs, including (national) agriculture, (provincial) natural resources, (regional) conservation, and (local) stewardship, for example.

Many of the key informants selected for interviews were connected to more than one program in the region and this was considered of benefit. For example, a farmer might be a former biosphere reserve volunteer and a current member of the field naturalists, and one of the coordinators of the agricultural livelihoods program. The multiple perspectives on governance for sustainability gained through one interview made the relatively small number of interviews much richer. Due to the small size of the biosphere reserve network in Ontario, those specific affiliations are not listed in Table 3.3 in order to preserve anonymity.

<b>Interviewee</b>	<b>Broad Affiliation</b>	<b>Biosphere Reserve</b>
LPBR-1	Conservation NGO	Non-member
LPBR-2	Provincial government	Past member
LPBR-3	Municipal government	Current member
LPBR-4	Municipal government	Past member
LPBR-5	Federal government	Current member
LPBR-6	Resident	Current member
LPBR-7	Conservation NGO	Past member
LPBR-8	Community/NGO/local business	Current member
FABR-1	Former federal government; resident	Current member
FABR-2	Conservation NGO	Current member
FABR-3	Former federal government; business	Current member
FABR-4	Community resident	Current member
GBBR-1	Municipal government; resident	Current member
GBBR-2	Seasonal resident; Conservation NGO	Current member
GBBR-3	Seasonal resident	Current member
GBBR-4	Provincial government; resident	Current member

Table 3.3. List of interviewees, their broad affiliation and role with the biosphere reserve.

Interview participants were identified mainly through my network of connections as a practitioner and by using the snowball technique (Babbie, 1986). Slightly more interviews were conducted in Long Point, due to the availability of participants, with slightly less conducted in Georgian Bay, due to the author's high level of involvement with the case and access to detailed [field notes](#). The identification system (e.g.,

LPBR-1) has two purposes. The first is to ensure that all respondents remain anonymous. As described in section 3.8 on research ethics, every effort was made to ensure anonymity of interview participants and confidentiality of responses. The second purpose was to provide a means of referencing interview data presented in the form of quotations.

### **3.3.6 Interview Procedure**

Interview questions were slowly developed throughout participant observation and the literature review and were solidified in light of the conceptual framework developed to guide this research. Ideally structured more as a conversation than as an interview, the interview guide consists of open-ended questions designed to stimulate a wide range of responses. It is important to maintain standardized questions for each interview in order to generate some comparable answers for analysis. However, the interview format should also be flexible and open enough to capture new directions that are not anticipated, but are important for “understanding the issues in the interviewee’s own terms” (Valentine, 1997: 118). The open format gives participants the opportunity to critique my approach and introduce questions that they would have liked to be asked. Twelve main questions were developed with specific kinds of sub-questions or prompts [Appendix II].

Since one of the main aims of interviewing is to allow people to reveal their own versions of events in their own words, it is also important to ask follow-up questions in a way that encourages and critically questions the stories told. During the interview, the investigator is “prepared to identify and cultivate data on categories and relationships that have not been anticipated” (McCracken, 1988: 38). The conceptual framework developed to guide

the research has the potential to blind the interviewer to new themes. Greater effort is made to identify these during the interview and explore them in more depth.

Telephone or e-mail contact was made with each respondent to determine whether the individual was appropriate for the research and willing to set up an appropriate time for an interview. Selected respondents were interviewed at a place of their choosing (in most cases their work place or home). Respondents were provided with and signed a letter of informed consent, as shown in Appendix IV, based on standard Trent University ethics procedures [described further in section 3.8].

The interview opened with a casual conversation about the backgrounds of the investigator and respondent, in an effort to set a congenial atmosphere and minimize any defences that might be set by the respondent (McCracken, 1988). My background working as a volunteer with biosphere reserves was a positive influence in this context and helped to stimulate the conversation. Respondents were encouraged to speak freely if the content forthcoming was pertinent to the research. As a result, many questions were answered out of sequence. This meant that questionnaire administration had to be efficient in order to complete all questions in a timely manner. The interviewer prompted the respondent to discuss the subject while allowing the respondent the latitude to divulge new and unforeseen data.

A number of challenges emerged throughout the interview procedure. One respondent preferred to be interviewed by telephone due to time limitations; the others were held

face to face. One preferred to tell the story in a personally chosen way, making the interview instrument difficult to use. Two preferred to meet in locations that precluded digital recording. These challenges were all dealt with as they arose and all respondents provided data that has been used in the dissertation.

It is important to remember that the sample of respondents is not representative of all those individuals involved in the work of the biosphere reserve or indeed, those involved in governance for sustainability. The respondents, however, offered an opportunity to better understand the biosphere reserve concept and to explore the potential roles of biosphere reserve organizations in collaborative governance through their experience and knowledge. Qualitative researchers argue that this form of data collection is valid and that further quantitative research methods could then be used to determine the “distribution and frequency of the cultural phenomenon that has come to light” (McCracken, 1988:17).

All of the interviews were digitally recorded, where permission was granted. In cases where the environment was not conducive to a recording being made, extensive notes were taken instead. All of the interviews were transcribed and electronic texts were then reviewed repeatedly to generate codes following the method of Strauss and Corbin (1998). It is important to note that although grounded theory can be extended to create new theories, my objective was somewhat different. Here, the goal was to identify any emergent themes for inclusion in, and enhancement of, the conceptual framework.

### 3.4 Methodological Considerations

The main strengths of the case study approach are flexibility and the attention to context. Because case study designs emphasize exploration rather than prescription or prediction, researchers are freer to discover and address issues as they arise in their observations. In addition, the format of case studies allows researchers to begin with broad questions and to narrow their focus as the study progresses. By seeking to understand as much as possible about a small group of subjects, case studies specialize in “deep data” or “thick description” – information based on particular contexts that make research results come alive.

Some of the concerns about case study methodology relate to objectivity, validity, accuracy, reliability and generalizability. Subjectivity is inherent to any human research investigation but case studies rely extensively on personal interpretation of data, inferences, evaluations and presentations of results. However, in this context, objectivity “represents a continuum of closeness to an accurate description and understanding of an observable phenomenon...from a particular perspective” (Dewalt and Dewalt, 2002: 96). Validity refers to the quality of how research observations and descriptions accurately represent the phenomenon of study. Validity also refers to the rigour of the research design and methods, the logic linking the data to the propositions, and the criteria for interpreting the findings.

Another methodological issue is accuracy. The researcher must set out a series of steps to verify information (Creswell, 1994). This is achieved by triangulation within an

informant's testimony, between informants' testimonies and through comparison of informant testimony with other sources of information. In social research, triangulation requires the use of different types of measures or data collection techniques to examine the same variable. Qualitative researchers use triangulation because there is no single view of reality there are rather multiple perspectives. Data collected by different methods, researchers, and at different times on the same social issue may not be consistent, but are important in the analysis of social issues (Neuman, 1997).

Reliability refers to the extent to which results can be reproduced using the same approach under similar circumstances. Reliability is somewhat difficult to assess in research using participant observation because it is rarely replicated. However, careful documentation and reporting of the methodological choices, as outlined below, supports those assessing the validity of the work and guides those interested in attempting to reproduce results. Five main strategies were used throughout the research design to enhance validity and reliability of this study. They were to:

1. Prolong the process of data collection over time to provide more detailed information.
2. Employ multiple methods to distill patterns from various sources of data.
3. Interview people with a range of variation in their roles and perspectives.
4. Use reference materials and documents to confirm observations and interpretations.
5. Engage in consultation with colleagues ("member checks") in order to make collective judgments.

The last step proved essential for maintaining the focus and direction of the research. The flexible and iterative approach to case study work increases the likelihood of the researcher changing directions based on emerging observations. To avoid the problem of

new research questions taking over and guiding the study in a different direction than intended, a summary of the evolving conceptual framework was shared with colleagues and advisors who confirmed the validity of my interpretations. I considered this the “permission” needed to develop fully the framework and finalize the interview questions.

One of the major critiques of the case study approach centres on the inability to generalize to larger populations due to issues of sample size. Krueger (2003) expands on the issue of validity through the concept of transferability of qualitative data. Since qualitative data rarely lead to findings that can be generalized to the larger population under study, due to issues of sample size and techniques used, the term “transferability” has been coined. Transferability is determined by the ability of others to apply the findings to their situation, the worth of the findings in refining or extending theory, and the applicability of lessons learned to other situations. To maximize transferability, qualitative research methods should clearly articulate methods, and results should include thick and dense narratives.

It is important to underscore that the purpose of this study is not generalizability of findings, due to the highly diverse contexts present in each biosphere reserve, but rather the transferability of lessons and themes to similar situations. Indeed, the main goal in this study is to relate the case experience to the conceptual framework and to comment on significant findings that speak to the underlying theories. One exciting potential outcome of this study is contribution towards a substantive theory of the UNESCO model of

biosphere reserves as governance models that can then be further developed and applied as part of some larger explanation or grounded theory about environmental governance.

### 3.5 Grounded Theory

Understanding the UNESCO model of biosphere reserves is best supported by a grounded theoretical perspective and approach to analysis, in order for greater understandings about collaborative and adaptive governance to emerge. Grounded theory is defined as using multiple stages of data collection and refining categories of information to generate patterns and theories (Strauss and Corbin, 1998). This study uses a grounded theory approach in three respects. First, as empirical research it supports a dialectic relationship between theory and practice. In other words, this study makes explicit methodological use of select governance and systems-related theories (self-organization, collaboration, and networks, for example) in the conceptual framework [Chapter 5] in an effort to tease out patterns that are grounded in community practice.

In the absence of a grand theory of governance for sustainability to test or expand, and in light of the highly interdisciplinary and diverse number of approaches used in the field to date, this study draws on middle-range theories, such as organizational/network theory, and social-ecological systems theory, to frame and shape the inquiry and to identify patterns and themes. The goal is to allow the pattern to emerge from the research design and not to be constrained by theory. Lather (1986: 267) explains:

Building empirically grounded theory requires a reciprocal relationship between data and theory. Data must be allowed to generate propositions in a dialectical manner that permits use of *a priori* theoretical frameworks, but which keeps a particular framework from becoming the container into which the data must be poured.

Lincoln and Guba (1985) refer to “pattern theories” as an explanation that develops during qualitative research; pattern theories do not emphasize causal relationships or make use of deductive reasoning. Instead, pattern theory uses metaphor or analogy so that relationships “make sense” (Neuman, 1997:38).

Second, the empirical exploration undertaken in this study is necessarily grounded and iterative: it draws from a variety of data sources, constantly comparing information against new findings, and identifying emergent patterns and themes. Observations in the field lead to a literature search. The literature guides the formation of interview questions. Interview responses confirm or challenge assumptions and hypotheses. Each type of data – observed and recorded from the researcher’s experience, distilled from the literature, or generated by interviewees – is layered on the previous set of understandings. This compilation of raw data, notes and “hunches” along with the multiple perspectives from interviews, and constant informal analysis creates the conditions in which formal analytical methods may be applied.

Finally, the study uses a grounded theory approach (following Strauss and Corbin, 1998) in the analysis of interview data to establish its findings and draw conclusions. In this context, information that emerges from informants is categorized and coded, which provides “rich ‘context-bound’ information leading to patterns or theories that help explain a phenomenon” (Creswell, 1994: 7). Data analysis is also a grounded process:

proposed patterns are confirmed or break down, concepts are tested and rejected, and conclusions are drawn and verified.

### 3.6 Data Analysis

Grounded theory helps researchers derive a theory by using multiple stages of data collection and refining the interrelationship of categories of information (Strauss and Corbin, 1998). The two primary characteristics of this design are the constant comparison of data with emerging categories, and theoretical sampling of different groups (i.e., three distinct case studies) to maximize the similarities and differences of information. The main method that was used for data analysis in this study is a process of coding interview transcripts to generate categories.

To discover meanings embedded in raw interview data, for example, inductive logic is used and categories emerge from informants, rather than being identified *a priori* by the researcher. “This emergence provides rich ‘context bound’ information leading to patterns or theories that help explain a phenomenon.” (Cresswell, 1994:7). Again, context-bound information is not generalizable to other sites but is transferable to other experiences. Grounded theory is also used in the analysis of Long Interviews [Box 3.2].

Throughout the stages of interview analysis, open coding was used in a line-by-line analysis of the text. Axial coding - or links between codes – is part of a parallel creative

**Box 3.2. The five stages of Long Interview Technique analysis**

Stage one “treats each utterance in the interview transcript in its own terms, ignoring its relationship to other aspects of the text.” Each utterance is treated as an observation.

Stage two develops these observations “first, by themselves, second, according to the evidence in the transcript, and third according to the previous literature review....”

Stage three examines the interconnections of the observations. This stage involves analysis of each interview transcript, on its own, comparing the different observations with each other.

Stage four involves collective analysis of all transcripts to determine “patterns of inter-theme consistency and contradiction.” Transcript themes were generated during this stage.

Stage five takes these themes and brings them together into conclusions “about the general properties of thought and action within the community or group under study” where the relationship between theory and practice are explored (McCracken, 1988:42).

and iterative process for sketching ideas out further. Coding in this manner is also referred to as “the constant comparative method of analysis” (Glassner and Strauss, 1967: 101-106), expressing the need for repeated coding and testing of patterns.

Initially more than a hundred codes were established and then they were organized according to themes in the conceptual framework and identified for new emergent themes [Appendix III]. Grounded theory was used in this study because it provided a systematic method for isolating emergent themes according to literature, participant observation notes, and as *identified by interviewees*. Theoretically, open coding provides the opportunity to open inquiry more widely (Berg, 1998: 236). Crang (1997: 186) describes

the coding process as getting as close to the material as possible and keeping notes that make up “theoretical memos” to trace the development of new ideas and insights.

Qualitative interviews share some of the methodological issues of participant observation in terms of reliability and replicability. Because the knowledge base of the interviewer and respondents is constantly changing, their responses to questions asked during the interview may change in the future, as new experiences influence their understanding and perceptions of the topic. Most people forget detail over time. Thus, replicability of the data collected for the dissertation decreases as time progresses. Furthermore, the analysis of the data would differ from researcher to researcher, due to the fact that the investigator is part of the instrument of inquiry (McCracken, 1988).

### **3.7 Role of the Researcher**

In a qualitative study the role of the researcher is of central importance. Since all research is seen as constructed and interpreted by the researcher, their values and their role are seen to influence every aspect of their work. From a qualitative stance, “researchers interact with those they study, whether this interaction assumes the form of living with or observing informants over a prolonged period of time, or actual collaboration. In short the researcher tries to minimize the distance between him- or herself and those being researched” (Cresswell, 1994: 6). As a subjective and interactive study, the research is also informed by the values of the researcher and makes those explicit as part of the information gathered from the field (e.g., a bias toward sustainability or a bias toward non-governmental organizations).

McCracken (1988) calls the second step of the technique, the cultural review. This involves preparing the researcher as an instrument of inquiry. The investigator attempts to gain “a more detailed and systematic appreciation of his or her personal experience with the topic” (McCracken, 1988: 32). This is achieved through the examination of the topic as it is perceived by the investigator. How does the researcher understand the topic going into the data collection? By drawing out his or her understanding and biases of the topic, the process establishes the necessary distance required to properly collect the interview data. This distance is necessary because “[t]he investigator must use his or her experience and imagination to find (or fashion) a match for the patterns evidenced by the data. “The diverse aspects of the self become a bundle of templates to be held up against the data until parallels emerge” (McCracken, 1988: 19). Should the investigator enter into the research without identifying personal biases, the analysis would be the weaker.

For this study, I am in a unique position to gain perspectives on UNESCO biosphere reserves due to my personal and professional involvement with them. I am a resident of Parry Sound and enjoy recreational activities such as kayaking, camping, and cross-country skiing on “the Bay.” From 2002-2004 I helped to garner local support for the nomination of the Georgian Bay Littoral Biosphere Reserve, as described in Chapter 8. As a fifth-generation cottager, I have a deep sense of place and connection to the Bay and have had the privilege of meeting “old timers” and learning about the history, ecology and politics of this place from them.

As a volunteer director for the GBBR Inc., I work on projects related to research and education, as well as grant-writing and communications. I currently supervise staff and interns and sit on the Conservation and Education committees. As a permanent year-round resident, life-long cottager and avid boater, I can share the perspectives of three of the “keyholder” groups represented on the Board of Directors. I truly appreciate my board’s support of my work and hope that my research enhances their approach to sustainable development.

I also represent the Georgian Bay Biosphere Reserve on the non-profit Canadian Biosphere Reserves Association (CBRA) and currently serve as their Vice-President. CBRA members have given its Executive Committee a mandate to market its business plan and seek federal funding to support local coordinators and a small national office. This work has led me to Ottawa, and to work with Members of Parliament and bureaucrats in the department of Parks, Environment, and Agriculture.

My involvement with both the Georgian Bay Biosphere Reserve and CBRA provided insight into their history and allowed unparalleled access to certain key players. This involvement had the potential to bias the comparative analysis of case studies presented in Chapter 9; for example, my close study of the UNESCO biosphere reserve model and my exposure to other world biosphere reserves creates higher expectations for the GBBR Inc. even though it is a relatively new organization. My time spent in Long Point and Frontenac Arch pales in comparison with my involvement in Georgian Bay, creating a familiarity with one case which is another source of bias and affects case comparison. To

reduce this subjectivity, the interpretation of data was structured on categories derived from the literature and those that emerged from the interviews themselves.

### **3.8 Research Ethics**

An essential component of the methodology for this study was to gain ethical approval from Trent University's Ethics Research Board (ERB) prior to conducting semi-structured interviews. The process ensures that the researcher has considered the principle of no harm in terms of securing informed consent, attempting to guarantee anonymity, taking the necessary steps to preserve confidentiality, and designing methods for data handling, storage and destruction. In the case of graduate research, only the student and their supervisor have access to original data, for purposes of clarification and for replication. Participant observation at public events does not require ERB approval. At these events, I simply identified myself as a researcher from Trent University and visibly took field notes. The letter of informed consent for participants is included as Appendix IV.

### **3.9 Conclusions**

This research is qualitative, interpretive social science that uses both case study and grounded theory approaches. Case studies are comprised of multiple methods to enhance validity. The primary research carried out for this work was participant observation, carried out at 220 individual events within and beyond the three cases, supported by a literature review to develop the conceptual framework and semi-structured interview

questions. The role of the researcher and ethics considerations were critical to obtaining rich, qualitative data using these methods. An iterative research design improved the quality and quantity of data collected; the literature review in Chapter 4 produced additional themes for analysis; and a detailed analysis using a grounded theory approach identified themes and patterns related to the conceptual framework in Chapter 5. Findings and results from this analysis are presented for the case studies of Long Point, Frontenac Arch and Georgian Bay in Chapters 6, 7, and 8, respectively.

## 4. Governance

### 4.1 Introduction

The following chapter explores the main interdisciplinary theoretical and empirical literature related to governance for sustainability that applies to the UNESCO model of biosphere reserves. Specifically, this chapter reviews various modes and approaches to governance, noting the key factors that have contributed to a shift from collective decision making chiefly by governments to broader understandings about the value of, and the structures and processes involved in, collaborative systems of multi-stakeholder governance.

The vast literature on governance recognizes that increasing the number and diversity of players in societal decision-making is partly an attempt to keep pace with increasingly complex issues of public concern that transcend political borders and traditional management approaches. Governance is the combined result of all social, political, and administrative actions and interactions; it describes the *structures* and *processes* of collective decision-making. As Kooiman (1993: 657) explains: “No single actor, public or private, has all the knowledge and information required to solve complex, dynamic and diversified problems.” Certainly within practical sustainable development initiatives, collaborative governance has become a new norm.

In this dissertation, sustainability is presented as the main agenda for social change and collaborative approaches to governance are suggested as the primary means by which

social groups might fulfill that agenda. At the same time, the overarching background context for questions of governance is one of highly complex systems, full of inherent uncertainty and surprise. Although the literature on governance for sustainability clearly recognizes elements of systems thinking (e.g., policy networks, multi-level administration, science-policy interfaces, unavoidable uncertainty), an applied systems perspective helps to explain the shifts in governance, particularly in the context of complexity, uncertainty, and the problems of scale.

Understanding the role of multi-stakeholder collaboration in governance for sustainability benefits from at least two interrelated theoretical perspectives, as outlined in Chapter 1. The first is a normative framework about the social, ecological, economic and institutional *requirements* for sustainable development [Section 1.2]. The implications of the sustainability principles and criteria outlined by Gibson et al. (2005) and others for governance are many. They support the shift to collaborative governance and provide a framework for more integrated decision-making processes that account for diverse perspectives at multiple scales.

The second theoretical perspective guiding this work is an applied complex systems approach to understanding the social, ecological, economic and institutional *dynamics* of highly integrated social-ecological systems [Section 1.3]. Since UNESCO biosphere reserves themselves are examples of self-organizing phenomena that attend to the complex (i.e., multi-level, cross-jurisdictional, interdisciplinary, long-term, etc.) dynamics of social-ecological systems, this dissertation adopts applied complex systems

thinking (following Gunderson and Holling (2002) and others) in order to explore concepts such as self-organization of collaborative endeavours.

The focus of this chapter is on collaborative approaches to governance that are adopted by multi-stakeholder organizations. Following a background discussion on governance, this chapter introduces the basic problems of complexity, uncertainty and scale in governance in order to provide some of the broader context for understanding the emergence of collaborative governance. The literature suggests that multi-stakeholder collaboration is an approach that gives citizens and organizations within civil society greater opportunities to organize themselves and to steer their communities toward sustainability. Since the principle of “citizen engagement” is as central to good governance as it is to sustainable development, the themes of public participation and deliberation (drawn primarily from environmental politics) are presented as the antecedents of collaborative governance.

The celebrated phenomenon of civic participation raises some serious questions about the practice and institutionalization of collaborative governance. There are multiple players and influences to account for, plus questions about their respective roles, legitimacy, capability, motivations and structure. What is the proper role of the state? How can civil society organizations be held accountable? And what happens when collaborative governance fails? Each of these questions is partly answered by the literature on governance networks that has been informed for over a decade by political science, systems thinking, and organizational theory, and is reflected in the work of scholars such

as Rhodes (1996); Klijn and Koppenjan (2000); Agranoff and McGuire (2003); and Provan and Kenis (2007).

This chapter concludes with some implications for biosphere reserves. It highlights the most relevant themes and theoretical perspectives on collaborative governance for this research and applies them in the following chapter to the development of a conceptual framework on the role of biosphere reserves in governance for sustainability.

## 4.2 Definitions and Context

The literature about governance is vast and rapidly expanding, and therefore the following discussion highlights selected works that provide an introduction to the main themes of the concept. Governance has come to describe the structures and processes used by a variety of social actors, including government, to influence and make decisions on matters of public concern (Graham et al., 2003). It refers to the roles and capacities of the state, together with those of the private sector and civil society, to steer society. Much of the governance literature seeks to improve current approaches to governance, through an expanded set of players who share responsibilities and interact at a variety of different scales.

Graham and his colleagues (2003: 2) define governance as “the interactions among institutions, processes, and traditions that determine how power is exercised, how decisions are taken on issues of public and often private concern, and how citizens or other stakeholders have their say.” Stakeholders are those who have an interest in a

particular decision, either as individuals or representatives of a group. This includes people who influence a decision, or can influence it, as well as those affected by it; Hemmati (2002) argues that multi-stakeholder processes bring together all major stakeholders in a new form of communication, decision-finding (and possibly decision-making) on particular issues.

Theories about governance have been developed in response to two related shifts in power: the rise of a global political and economic system that has destabilized the dominance of the nation state in governing, and at the same time has given rise to self-organized networks that play greater roles in matters of social, political and economic governance. Broader governance initiatives have also been encouraged by the rise of increasingly complex trans-disciplinary, cross-sectoral and multi-level problems, including the general unsustainability of key global trends and their local and regional analogues.

Not only has the context for governance changed profoundly over the past few decades but also social issues have become much more complex, and decision-making systems, particularly for questions about sustainability, are fundamentally challenged to respond to public concerns. Researchers in the field of governance *for* sustainability try to capture the complex decision making systems that go beyond the established institutions of government, the private sector and civil society, to include broader cultural phenomena, such as assumptions, ideological positions, customs, social norms and everyday practice. They recognize that the governance challenge of “effecting change in informal

governance institutions, such as habits and routines, [also] requires identifying the levels at which the change is desired, the territorial scale at and through which the desired change is to be implemented...” (Kemp et al., 2005: 19).

It is important to distinguish institutions, which are defined as rule systems that specify acceptable social practices (Knight, 1992), from organizations, which are structured to carry out specific sets of tasks. Institutions also exhibit a hierarchy of rules, ranging from basic operating norms through to whole systems of rules for making rules, such as a constitution (Ostrom, 1999). There are several types of institutions, including ones that take hundreds of years to establish (e.g., church and state), those that are structured by rule sets and norms (e.g., education and finance), and social institutions (e.g., property rights) that may be a combination of both formal and informal constraints, such as laws and norms of behaviour. As the sum of the ways that individuals and institutions, public and private, manage their common affairs, governance “is a continuing process through which conflicting or diverse interests may be accommodated and cooperative action may be taken. It includes formal institutions and regimes empowered to enforce compliance, as well as informal agreements that people and institutions have agreed to as perceived to be in their interest” (Commission on Global Governance, 1995: 2).

As Young (1983) set out: “Social institutions may and often do receive formal expression (in contracts, statutes, constitutions, or treaties) but this is not necessary for the emergence or for the effective operation of a social institution.” But as Kemp et al. (2005: 18) have noted: “Finding ways to ensure that all these players act coherently, effectively

and with some efficiency in the pursuit of sustainability demands much higher ambitions and underlines the crucial role of informal institutions.” Citizens’ groups have become more active in creating multi-stakeholder arrangements all across Canada (see Roseland, 2005) and any study of the institutional arrangements of governance can expose the degree to which communities, such as those involved with biosphere reserves, are involved in defining and advancing sustainability through social organization and informal institutions. Empirical work on the role of social institutions in common property resources (Ostrom, 1990) and in natural resource management (Berkes and Folke, 1998) has reinforced the value of informal social institutions for sustainable development.

A study of governance arrangements captures the institutional “layers” and organizational “players” within which biosphere reserves must navigate and engage in order to have influence. Understanding the structure of governance arrangements helps to account for the cross-scale challenge of sustainability and the relative roles of state, market and civil society from local to global levels. The governance layers within any single biosphere reserve, for example, might be made up of formal institutions (rules) such as property rights, aboriginal rights, jurisdictions and administrative authorities, and informal ones that guide local politics for cooperation, decision making, and dispute resolution (Francis, 2004:15) with the players in governance processes being similarly diverse.

Since governance is a neutral term that simply describes a process of decision-making (Wyman, 2000), the quality of that process is “...determined by the design of institutional

arrangements (such as treaties, laws and organizations) and by the way in which decisions are made” (Kreutzwiser and de Loe, 2004:189). Criteria for “good governance” have therefore been developed in many different fields, including international development and protected areas management.<sup>10</sup> Stoll-Kleeman and Welp [Table 2.2], for example, identified several factors for effective governance of core protected areas, such as: political support, adequate funding, absence of corruption, and clear jurisdiction. Abrams et al. (2003) provide a classic set of criteria along with considerations for engaging stakeholders in governance processes [Table 4.1]. And Pollock (2004) outlined similar principles for effective citizen engagement based on a literature review and applied them to governance of biosphere reserves in Canada [section 4.3.1].

Fundamentally, governance is about power and relationships and accountability: who has influence, who decides, and how decision-makers are held accountable. Governance may be used in different contexts – global, national and local, and social and institutional. Governance occurs wherever people organize themselves – formally and informally – to develop rules and relationships with each other in pursuing their objectives and goals. Different “modes of governance” or “styles of governance” characterize different social and political spheres (Meadowcroft et al., 2005; Jamison, 2001, respectively). As a broadly inclusive term then, governance refers to the role and capacities of the state, together with those of the private sector and civil society.

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<sup>10</sup> For a detailed discussion about “good governance” from the perspective of international development institutions see Bernstein (2000) on the UNDP’s (1996) principles of good governance systems. For governance of protected areas, see Graham et al. 2003.

<b>CRITERIA</b>	<b>PRINCIPLES</b>	<b>PROCESS CONSIDERATIONS</b>
<b>Legitimacy &amp; Voice</b>	Participation: All participants should have a voice in decision-making.	Promote free expression of views without discrimination.  Foster relations of trust among stakeholders.
	Consensus orientation: Mediation of different interests to broadly agree on what is in the best group interest (and, where possible, on policies and procedures).	Foster dialogue and consensus.  Create rules that are respected out of ownership, not fear.
<b>Accountability</b>	Accountability: Decision-makers are accountable to the public and institutional stakeholders.	Make accountability linked to concrete sanctions and rewards, not just words.  Ensure that all participants have access to avenues that demand accountability.
	Transparency: Free flow of information so that processes, institutions and information are directly accessible and institutions may be monitored.	Ensure that stakeholders possess an adequate amount, and quality of, knowledge of what is at stake, who is responsible for what, and how responsible parties can be made accountable.
<b>Performance</b>	Responsiveness: Institutions and processes try to serve all stakeholders.	Ensure that administrators are competent.
	Effectiveness and efficiency: Processes and institutions produce results that meet needs while making best use of resources.	Build and maintain sufficient institutional and human capacity to carry out required roles and assume responsibilities.  Build robustness and resilient to overcome a variety of threats/obstacles and learn from the experience.
<b>Fairness</b>	Equity: All men and women have opportunities to improve or maintain their well-being.	Distribute costs and benefits of conservation activities equitably through governing mechanisms (i.e., laws, policies, funding opportunities, conflict resolution forums, etc.).
	Rule of Law: Legal frameworks are fair and are enforced impartially.	Apply laws and regulations consistently and monitor their use and effectiveness.  Provide fair avenues for conflict management and, non-discriminatory recourse to justice.
<b>Direction</b>	Strategic vision: Leaders and the public have a broad and long-term perspective on good governance and human development. Understand the historical, cultural and social complexities in which that perspective is grounded.	Provide effective leadership that generates and supports innovative ideas and processes.  Provide a model of good conduct and consistency in what is said and done.

Table 4.1. Criteria for good governance (Adapted from: Abrams et al. 2003).

Despite the term's varied meanings and applications, several governance theorists have offered comparable analyses of the emergent modes of governance, although some debate remains on how "new" governance really is. Rhodes has argued that "governance signifies a change in the meaning of government, referring to a *new* process of governing; or a *changed* condition of ordered rule; or the new method by which society is governed" (1996: 653, original emphases). From a public administration perspective, this interpretation of governance captures the sense of an increasingly differentiated polity (i.e., divided into interdependent public, semi-public and private agencies) and the changing role of the state.

Others insist that the replacement of government with decentred forms of governance has been overstated and misinterpreted. Marcussen and Torfing (2003: 2) underscore that the transition from *government* to *governance* "...does not refer to a swift and fundamental change in the mode of governing Western societies; rather it indicates a gradual problematisation of the traditional focus on the sovereign political institutions that allegedly govern society top-down...." Public policy is still formulated and implemented through a plethora of formal and informal institutions, mechanisms and processes commonly referred to as governance (Pierre, 2000). While societies have always been governed, or found ways to govern themselves, current approaches to governance are viewed as broader than the responsibility or capability of the state, and structurally different from the forms of governance exercised by either governments or markets alone.

For governing bodies to maintain their legitimacy and cooperation by “the governed,” successful governance mechanisms are more likely to evolve out of bottom-up than top-down processes. Rosenau (1995) argues that governance mechanisms self-organize based on shared needs. Whereas government supports activities defined by formal authority, governance refers to activities defined by shared goals (Rosenau, 1995:17). Governance “...embraces not only government organizations but also informal, non-governmental mechanisms. So you get governance without government when there are regulatory mechanisms in a sphere of activity which function effectively even though they are not endowed with formal authority” (Rosenau, 1992: 3, 6; cited by Rhodes, 1996: 657-8). Accordingly, rule systems may exist in the absence of established legal or political authority, and therefore may foster control mechanisms, such as social norms and sanctions, that sustain governance without government.

Collaborative modes of governance exist alongside the more familiar modes of state authority (regulation, enforcement, resource distribution, etc.) and market performance. Environmental governance is not a new phenomenon that has come to replace national regulatory frameworks, Meadowcroft (2007a) argues, rather governance has evolved in direct response to the changing nature and perception of environmental problems. Stakeholder-oriented approaches, market-based mechanisms and international initiatives that have gained prominence over the past few years in response to environmental problems do not replace existing regulatory or other policy frameworks, they simply are layered on top (Meadowcroft, 2002).

Current approaches to governance bring policy frameworks together with rule sets, institutions, and various kinds of stakeholder involvements. Governance tends to involve “...a wide range of institutions and actors [stakeholders] in the production of policy outcomes including NGOs, quasi-non governmental organizations (quangos), private companies, pressure groups and social movements, as well as those state institutions traditionally regarded as formally part of government” (Painter, 2001: 317). The resulting “tangled jurisdictions” (Paehlke, 1996), “tangled social scales” (Meadowcroft, 2002) and “tangled hierarchies” (Jessop, 2002) are phenomena that illustrate the increasing organizational complexity of governance, as new layers and players are added to the usual challenge of governing society.

#### **4.2.1 Evolutions in Governance**

Underlying the recent governance literature is the perspective that the world's dominant political-economic system is fundamentally changing, and that the prevailing hierarchic nation-state is challenged by higher demands and expectations to govern increasingly complex societies. The broader context for debates about governance revolves around the phenomenon of “globalization” and the effects on political economies in different places and at different scales. Writing on globalization, Therborn (2000: 152) summarizes the tension nicely: “to some writers, we are living ‘the end of the nation-state,’ whereas to others we are englobed by a ‘myth of globalization’ inside which differential national developments are still the main determinants of the world economy.” The roles and responsibilities of governments, along with their influence and power in the face of global institutions, and their accountability to local communities, are important themes within governance studies.

Many scholars attribute the evolutions in governance to the impacts of a restructured global economy resulting in the replacement of one dominant mode of social regulation and economic intervention to another (i.e., from a Keynesian welfare state to a neo-liberal Schumpeterian workfare/competition state (Cerny, 1997; Jessop, 1993)). Other observers have attributed the decline of traditional state powers and responsibilities to a post-Fordist economic era typified by a tighter integration of national economies with international markets and greater mobility of capital that is accompanied by a hollowing out of the nation state (Rosenau, 2000). The process of hollowing out refers to the transfer of responsibilities from the nation state upward to international organizations (e.g., rules of the World Trade Organization) and downward to sub-national levels of government (in Canada, to the provinces and municipalities).

From a systems perspective, the political-economic shift described by Cerny, Jessop and others, might be seen as a “flip” from one type of governance system to another. As the political-economic system globalizes and crosses a threshold, it flips between welfare and competition states – governance as it was known experiences “creative destruction” in Holling’s (1995) terms, giving birth to new governance structures, rule sets, and steering mechanisms that have adapted to be more appropriate to the new context (McCarthy, 2003<sup>4</sup>). While some of the system components remain the same (i.e., market, state, and civil society) they interact and function in dynamically different ways, through a range of new structures, such as private-public partnerships, quangos, networks and collaborative agreements.

What has increased government efficiency (or at least reduced spending) while decreasing direct state control is New Public Management, a management philosophy used by governments since the 1980s to modernize the public sector. New Public management is a broad and very complex term used to describe the wave of public sector reforms that support the position that more market orientation in the public sector will lead to greater cost-efficiency for governments, without having negative side effects on other objectives and considerations. However, the effects of state downloading of responsibilities, often without a simultaneous transfer of power or adequate resources, affects sub-national agencies and local governments who are burdened by new expectations but are without the capacity to govern in those areas effectively.

So-called “downloading” confirms one of the longstanding critiques of government authority: the ability of higher-tier governments to be responsive to local concerns. “Too often, decision makers in liberal democracies are far removed from the impact of their decisions, and the experiences, knowledge and perspectives of those whose practices are more attuned to the changes in ecosystems are not articulated” (Smith, 2003: 62). Calls for greater accountability within governments and other institutions are an important theme within the literature that is not addressed here, but resonates across local, national and international debates.

One field concerned with governance as a form of social control is that of “governmentality.” Based on Foucault’s theories of state power, governmentality

expands the reach of government to social norms that become embodied by a self-governing polity. In other words, in liberal democratic societies where power is decentred, individuals are controlled through social norms and expectations, such as consumption of material goods. Power is manifest through knowledge production, expertise, and discourses that become internalized by individuals, which in turn guides collective behaviour. Governmentality thus refers to this type of governmental rationality (Kerr, 1999) that is a highly efficient form of social control.

Neoliberal governmentality, for example, is a form of governance that mobilizes various “technologies of power” (e.g. of the self or of the market) that perpetuate people who strive to be, and believe themselves to be, free, enterprising, and autonomous individuals (Dean, 1999; Rose, 1996). Under the theory of “ecogovernmentality” (see Darier, 1999; Agrawal, 2005), government rationality regulates social interaction with the natural world. Environmental management is dependent upon the dissemination and internalization of particular kinds of knowledge among individual actors (e.g., environmental impact assessment or modeling) creating a decentred network of self-regulating players whose interests become integrated with those of the state.

Foucauldian analysis is outside the scope of this review, however, it does provide an important lens for exploring governance trends, especially how gaps created by government deregulation and downloading are then filled and normalized by the private sector and civil society. The celebration of “citizen engagement” and the phenomenon of “volunteerism” beg questions about simultaneous abrogation of state authority and

concentration of state powers. Some describe this as an ironic paradox presented by the juxtaposition of, on the one hand, the post-Fordist neoliberal agenda that devolves economic, social and environmental risk and responsibility to local levels (e.g., region, urban municipality, rural community) that must compete, often globally, for economic survival (e.g Gibbs et al., 2002) and, on the other hand, the promotion of “empowering,” participatory citizen engagement in localized governance structures and processes as a central tenet of sustainability (Lerner, 2006).

As noted in the introduction, new approaches to governance can be seen as a collective set of responses to increased global complexity and resulting local vulnerability.

Conventional governance responses, such as “command and control” approaches of government, fail to meet current expectations. Reliance on market mechanisms in a global economy have similarly ignored non-market needs and created heavy environmental impacts from externalized costs. Swyngedouw (2005), for example, points to the growing number of institutional systems or social categories in need of government or governance. Neoliberal market dependency along with government downloading have led to the dynamic evolution of governance relationships and players, including civil society organizations and other types of hybrid partnerships that constitute new arenas and approaches for governance.

#### **4.2.2 Complexity and Uncertainty in Governance**

The literature recognizes that governance is partly an attempt to keep pace with increasingly complex issues of public concern that transcend political borders and traditional management approaches. The capability of governments alone to deal with

issues such as the spread of viruses and disease, pollution and contamination, security or climate change, have been called into serious question. A “risk society” (Beck, 1992) poses new challenges for traditional forms of authority, as a pervasive sense of vulnerability is accompanied by a loss of confidence in the assurances of government and corporate officials relying on scientific, technological or other expert solutions (Gibson, [pers comm.](#), 2006). “Governance means living with uncertainty and designing our institutions in a way that recognizes both the potential and the limitations of human knowledge and understanding (Stoker, 1998: 24). In this respect, governance for sustainability benefits from the perspective of post-normal science.

Post-normal science breaks down the traditional positivist view of the objectivity, neutrality, and predictive capacity of science, in deference to the limits of human knowledge in light of the high levels of uncertainty that are inherent in social systems. Post-normal science is particularly needed where uncertainty is high and the decision stakes are high (Functowicz and Ravetz, 1992). Sustainability can be thought of as the objective of a desirable, yet highly uncertain, experiment that places ecological and social well-being at stake now and for future generations. In the context of governance for sustainability then, post-normal science shifts the role of experts from predicting outcomes to one of bringing a wider range of expert and lay perspectives to bear on plausible scenarios for decision makers and the community with an appreciation of how the future might unfold (Kay et al., 1999).

At the same time that confidence in government and other expert authoritative institutions is waning, expectations for their efficiency and accountability are rising. The limitations of centralized “command and control” government and visible market failures, combined with increased pressures on public authorities and private enterprise to meet collective objectives, creates a scenario in which traditional governance by government alone appears inadequate for addressing complex issues like sustainability. As indicated above: “No single actor, public or private, has all the knowledge and information required to solve complex, dynamic and diversified problems” (Kooiman, 1993: 657). Collaborative governance, especially for addressing the challenges of sustainability across scales, has become the new norm.

#### **4.2.3 Problems of Scale**

From the geographic displacement of toxic pollutants to the challenges of nuclear waste over time, environmental issues interact with spatial, temporal and social scales, making governance for sustainability fraught with complex “cross-scale” dynamics. In terms of sustainable development, decision-makers must assess various types of scales (e.g., geographical terrain, political jurisdiction, social institutions, and time horizons) and sift through various layers within each of those scales. Cross-scale governance recognizes the variety of scales at which collective decision-making occurs, and accounts for complex multi-jurisdictional governance problems and the local to global dynamics that typically influence sustainability.

For example, hierarchical arrangements are commonly found within human systems and can be thought of as systems-within-systems, like nested Russian dolls. Cash et al. (2006)

distinguish various types of scales, including spatial, temporal, and jurisdictional, as the most common types of hierarchical arrangements. Within each scale are multiple levels. Jurisdictional scale is typically structured from localities, sub-national regions, to national governments and inter-governmental organizations. Within a spatial scale might be found habitat patches, landscapes, regions and the entire globe. Multi-level governance refers to local-to-global interactions among and between government agencies, the private sector and civil society (Ostrom, 1999; Young, 2002; Adger [et al.](#), 2005). Social networks similarly move from the scale of individuals to broader international norms, such as human rights.

These authors distinguish cross-scale interactions from cross-level interactions that occur within the same scale. They define a “scale challenge” as a situation in which the current combination of cross-scale and cross-level interactions threatens to undermine the resilience of a human environment system (Cash et al., 2006). They identify three common challenges faced by society, that are further discussed below:

1. the failure to recognize important scale and level interactions altogether (i.e., ignorance)
2. the persistence of mismatches between levels and scales in human interaction (i.e., mismatch)
3. the failure to recognize heterogeneity in the way that scales are perceived and valued by different actors even at the same level (i.e., the challenge of plurality).

For example, *ignorance* of scale dynamics is evident in local actions that aggregate into large-scale problems, or where national or global “structural adjustments” are felt most severely in local economies. As Rapport (2004:50) observes:

With respect to spatial scales, all ecosystems are ‘open’ systems, and thus receive impacts from neighbouring systems. Effective management, therefore,

necessitates the involvement of levels of authority from the local to the global. Co-operation across political jurisdictions is becoming mandatory for implementation of an ecosystem health approach, as ecosystems do not respect political boundaries. While local actions can go a long way towards remedying locally sourced issues, they obviously cannot remedy pressures exerted from outside the region....

Peterman (2000) agrees that some of the focus on neighbourhoods as sites of social change has been somewhat disingenuous, raising community expectations unrealistically in light of these external factors. He writes: “given that local areas are subject to many forces of change that originate beyond their borders...the problem of jurisdiction limits the potential of these [citizen engagement] mechanisms to motivate participation and to be able to affect change” (Peterman, 2000: 59).

In a typical resource use *mismatch* problem, human institutions do not map coherently onto the ecological system. In these kinds of problems, the authority or jurisdiction of the management institution is not coterminous with the problem (e.g., transboundary pollution, ocean fisheries, or aquifer management) (Berkes, 2006). Likewise the temporal dimensions of political systems are ill suited to the sustainability requirement of meeting the needs of future generations. Other challenges of mismatch pertain to knowledge and decision-making, where international-scale scientific knowledge appears to lack relevance to local decision makers or where local knowledge is de-valued by national or international actors and negotiations (Cash et al., 2006).

At the international level, similar problems of *mismatch* arise between local contexts, nation states and global institutions. In a study of the governance of water resources,

Conca (2006: 6) found that international responses applied at the local level had been largely inadequate because they insisted on reproducing a scale-bound institutional form: that of negotiated international agreements. Formally negotiated regimes based on international law and bureaucratic administration tend to be applied to single resource or pollution issues that cross international borders (Young, 2000). However, when applied to complex socio-ecological problems that are felt in particular communities, state-led regimes are likely to be insufficient or to fail.

At the same time as Cash et al. (2006) propose ignorance of scale as a problem, Meadowcroft (2002:175) documents the opposing trend: widespread awareness of scale, particularly for environmental issues. He notes a significant shift toward the recognition of complex environmental issues and the development of broader and more integrated (yet diverse) responses. To summarize the shifts in scalar perspective over the past three decades, he says:

On the one hand, there has been a realization that the physical scale of the human impact on the non-human natural world has reached a point where not just local or regional, but truly global ecological processes are being effected; and on the other hand, there has been an acknowledgement that the social practices which give rise to environmental stress are more deeply embedded, the range of effected interests are more substantial, and the magnitude of the necessary social reforms are larger, than was first imagined.

Indeed, the growing awareness of scale (as a corrective to ignorance) and more integrative and collaborative innovations (in response to scale mismatch and management failure) illustrate the importance of establishing new institutions and organizational frameworks to respond to environmental problems whose scale dimensions are not adequately addressed by existing organizations.

At the same time, existing structures clearly must not be replaced, but rather be integrated into genuinely collaborative responses (Meadowcroft, 2002: 177). Institutional pluralism is therefore required; “a mosaic of institutions, with different and partially overlapping geographic and temporal loci, is best equipped to address effectively the complexity of environmental issues...[that] corresponds with the actual (‘untidy’ and ‘disjointed’) character of social-ecological interactions” (Meadowcroft, 2002: 178). Many point out that scale is an important but insufficient consideration for sustainable development: other considerations include social equality in the form of economic distribution, equality of opportunity, and environmental justice.

In addition to institutional plurality, one of the main correctives to problems of scale is sensitivity to a plurality of values. Decision-making needs to adhere to basic principles of representation and participation to determine what is considered to be economically viable, socially inclusive and ecologically sustainable across spatial and temporal scales in particular places. Trade-offs need to be made. This suggests that there are no universal blueprints for achieving sustainability, but rather heterogeneous context-specific sets of solutions that share the same ethical orientations to human development within ecological systems. Instead of adopting a rationalist-managerial approach to finding singular (“cost-benefit”) solutions that are fixed at one particular scale, decision-making that is sensitive to value pluralism has a greater prospect of producing a suite of decisions targeted at the appropriate scales. As described below, innovative governance that is integrative, place-based and adaptive is viewed as one of the strengths of the biosphere reserve model.

By contrast, challenges that are characterized as purely global or as purely local limit the range of social, political and economic responses available to them. As Cash et al. (2006: 13) explain: “the drive to frame issues at a single level comes from the need to both simplify and control. Governments, for example, frame problems so that they become tractable within their jurisdictions....” The reverse response can also be found: problems seen as intractable or undesirable from a particular jurisdictional perspective, such as transboundary pollution, might be re-framed as the responsibility of another level in order to “pass the buck” as Harrison (1996) observed in the Canadian federal system.

“Redefining problems may shift the configuration of relevant scales, and this is a typical discursive strategy for those involved in environmental conflicts” (Meadowcroft, 2002: 173). The flexibility of the biosphere reserve model to set fluid boundaries (around core, buffer and transition zones) allows a wide range of problems and scales to be addressed, depending on how various stakeholders frame the issues.

Innovative governance mechanisms and new governance institutions need to be able to cross a variety of social and political spheres at different scales. Horizontal integration across disciplinary boundaries (“silos”) and bureaucratic portfolios (“stovepipes”) is needed (Dale, 2003) along with better vertical integration between political jurisdictions and institutions (Young, 2002). Internationally, environmental governance institutions remain weak (Meadowcroft, 2002), unable to delegate to sovereign states and free markets. Likewise, local communities are vulnerable to shifts in global trends often unable to predict or adapt quickly to profound economic or ecological shocks.

Simply because local governance systems are seen as vulnerable to higher levels of governance, however, does not make them impotent in the face of change. Communities in particular localities are often the first to feel the effects of environmental change and they often have more flexibility than higher levels of jurisdiction to provide a range of creative responses to specific problems and opportunities (McAllister, 2005; Conca, 2006). On the downside, sub-national regions, municipalities, and rural communities must compete, often globally, for economic survival (e.g., Gibbs et al., 2002). Urban sprawl and rural decline, economic restructuring and resource collapse are each examples of the effects of interactions between various governance systems at different scales.

Before turning to a discussion on collaborative governance, it is worth noting that a select group of scholars has engaged in debates about biosphere reserves as models of bioregionalism. A bioregion or bio-cultural region is defined as the most local scale of similar ecological landscape, land use, and concurrent human attachment to place (Brunckhorst, 2005). Thayer (2003: 3) argues that a bioregion is "...a unique region definable by natural boundaries with a geographic, climatic, hydrological, and ecological character capable of supporting unique human and non-human living communities...."

Bioregionalism has been described as a practice, a set of principles and as a social movement (started in the 1960s by activists who challenged technological and economic progress with ideas of rural self-sufficiency (Aberley, 1999)). Yet, Thayer (2003) says, it is not a unified philosophy, theory or method. In its more radical forms, bioregionalism embraces eco-anarchy, rediscovering one's "primitive" roots, dwelling in one's "life-place," and reinhabiting the land. This particular vision of bioregionalism expounded by

Kirkpatrick Sale (1985) has been open to much critique (Alexander, 1990; 1993; Atkinson, 1992; Frenkle, 1994).

However, other variants of bioregionalism have evolved since – ones that are less polemical and more pragmatic. Arguably, the wider environmental movement and parts of North American society have taken up tenets of bioregionalism in terms of community engagement in local economic development and stewardship. McGinnis (1999: 3) simply says: “a bioregion represents the intersection of vernacular culture, place-based behaviour, and community.” This definition integrates place theory (e.g., Jackson, 1984; Schama, 1995; Tuan, 2001) with a growing interest in sustainable community development and civil society. Thayer (2003: 5) captures this best when he says: “What is going on is the widespread occurrence of grassroots, on-the-ground action toward resolution of environmental and social issues by voluntary, non-profit groups that strongly identify with naturally bounded regions and local communities.” In this context, civil society networks are often mobilized by an attachment to place (e.g., in Ontario: Save the Ganaraska, Save the Red Hill Valley, Save the Oak Ridges Moraine, etc.).

Proponents of this view hold that regionalism, in its conventional political forms, fails to recognize ecological boundaries, such as those of watersheds. Although state-sponsored regionalism is said to ignore topographic places, there is a long history of government agencies responding to citizens’ groups that have organized around natural landscape features. For example, the greater park ecosystem concept (National Parks in Canada), hydrological basins (Conservation Authorities in Ontario), and wildlife corridors (Yukon

to Yellowstone or Algonquin to Adirondacks initiatives) have all inspired (bio)regional and place-based stewardship responses. The argument that political and economic regions have no identification with places is untenable. Both top-down and grassroots initiatives have flourished within so-called “ecological regions.”

Recent work in systems thinking can be usefully applied to ideas about bioregionalism with regard to the concept of scale. In contrast with earlier thinking on bioregionalism based on “natural” boundaries, current interpretations reject the idea that such boundaries exist outside of human judgment. As Alexander (1996) has noted, bioregions can be defined on almost any basis – physiographic, vegetational, or hydrological contours – criteria that are, in fact, in most cases mutually exclusive. Ecologists Kay and Schneider (1994) strongly argue that boundaries can be drawn at any scale. Ecosystems can be a variety of sizes, from a spoonful of soil up to much larger and more complex systems. Ecosystem structures and their functions must be considered over different spatial scales and time periods, depending on the questions to be addressed. “These decisions, about scale... may be done in a systematic and consistent way, but they are necessarily subjective, and to some extent arbitrary” (Kay and Schneider, 1994: 35).

The view that bioregions are socially constructed rather than naturally given, gives strength to arguments about social perceptions about place. Berg and Dasmann (1977: 218) explain that “the term [bioregion] refers both to geographical terrain and a terrain of consciousness – to a place and the ideas that have developed about how to live in that place.” The power of bioregionalism lies partly in its observer-dependent and

community-defined scope, its identification of cultural landscape values, and its fluid boundaries. Current variants of bioregionalism allow for “telescoping” between scales to encourage communication between actors at different scales (Wadland and Whillans, 2004), since efforts in support of sustainability must go beyond the scale of a single, local place (Carr, 2004).

The main challenge for bioregionalism, and indeed for biosphere reserves, is to avoid privileging one scale over others precisely because of the cross-scale nature of environmental problems and sustainability considerations. To say “the landscape scale is the main scale of human interaction with the environment” (Brunckhorst, 2001: 19) ignores the complexity of a nested hierarchy of ecosystem units and governance systems, over a range of spatial and temporal scales. “Moreover, because the physical and social scale dimensions of environmental problems are so diverse, it is far from obvious which sorts of spatial and temporal ‘eco-scales’ should be privileged...” (Meadowcroft, 2001: 177).

For example, to reject certain forms of renewable energy (e.g., wind power) in favour of regional landscape values begs the question of sustainability criteria and tradeoffs.

Collective local decisions against alternative energy production, as in the case of the [RhenRhön](#) biosphere reserve, may simply exacerbate unsustainable forms of production required outside the region. Likewise, the most sustainable forms of development pursued locally, such as sustainable forestry, may be endangered by shifts in the global marketplace. It is simply not clear that “the regional scale is the critical level at which to

reconcile ecological functioning with social institutions” (Brunckhorst, 2000: 23) given the complexity of cross-scale problems and political jurisdictions.

What is clear is that “sense of place” continues to motivate and mobilize a significant number of experiments in sustainability. Inhabitants that are well-educated about their place simply identify functional boundaries for particular purposes (e.g., watershed management, local food systems) and recognize that bioregions are overlapping and all are nested within larger ecological, social, economic and political systems. From a community sustainability perspective, mechanisms are needed that can address issues that cross scales, such as the pervasive and cumulative impacts on small family farms as a result of global markets. According to Ellsworth and Jones-Walters (2006:5), “communities are at the heart of this governance transition. As places, they experience issues as a web of interrelated problems. As people, they live with direct effects, indirect effects, side effects and cumulative effects of policies....”

The key questions, it seems, are where does power to effect sustainability lie (i.e., at what scale and in whose hands), where would it be most appropriate, and how can and should power be exercised – including from what scale and by which combination of players. Collaborative modes of governance have become a new norm. They provide a suite of flexible approaches (e.g., partnerships, joint initiatives, cooperative management, etc.) that claim to share power and operate across scales. Some of the dynamics of collaboration, particularly in terms of citizen engagement, are explored below, along with some concerns of shifting governance away from governments.

### 4.3 Collaborative Governance

Collaborative governance increases the number of players and perspectives involved in traditional decision-making through a variety of initiatives and approaches and a new level of social and political engagement. Where multiple actors are involved in complex and overlapping decision-making structures, collaborative governance aims to integrate their goals, issues and values. Processes of collaborative governance are thought to demand and produce mutual respect, trust and other forms of social capital that lead, in turn, to the creation of social learning and opportunities for adaptation to change. Collaborative governance mechanisms are particularly flexible and responsive to changing decision rules, cultural shifts and institutional contexts.

In order to examine the characteristics of collaborative governance that may illuminate applications within biosphere reserves, this section highlights the theme of citizen engagement with roots in public participation, deliberative democracy and multi-stakeholder management. These antecedents to collaborative governance are reviewed along with the main challenges of institutionalizing processes of informal collaboration. Final sections raise questions about the proper role of the state in collaboration, the problem of making civil society organizations democratic and accountable, and the emergent phenomenon of self-organization.

#### 4.3.1 Antecedents of Collaborative Governance

The roots of multi-stakeholder decision-making processes can be found in debates about public participation and deliberative democracy. Not only do participation and deliberation point to the fundamental principles of representation, inclusiveness, and

fairness in environmental decision-making – all factors of good governance – but they are also implicit in the quest for sustainability. Indeed, within the field of environmental politics, one of the persistent themes has been the question of institutional reform to improve the effectiveness of governance.

The call for participatory process is partly driven by the democratic position that those affected by a decision should be involved in the decision-making process (Dryzek, 2000; Roseland, 2000; Rydin and Pennington, 2000). Participation in such decisions, it is argued, empowers people to have greater control over their lives and in the case of conservation, encourages people to care for their environment. The rationales for initiating and promoting citizen engagement in governance are “by now almost mantra-like: equity considerations; building trust in institutions; better information from multiple perspectives – for visioning, strategizing, priority-setting, decision-making in general; better public buy-in (ownership) for less conflictual, more efficient implementation of decisions” (Lerner, 2006: 9).

Potential benefits of public engagement with decisions and policy-making are cited as: the development of trust and shared norms (e.g., social capital); increased social networks; more informed and context-specific decisions; and greater efficacy of policies (Fien and Skoien, 2002; Cox 1995; Towers, 2000; Wilson and Musick, 1999). Research shows that “decisions which lack public acceptability... can have serious impacts on the environment as well as economic and social well-being. Decision support is therefore absolutely critical” (Economic and Social Research Council, 1998). Participatory

processes can meet citizens' demands for inclusion and government accountability and governments' needs for increased legitimacy.

However, the potential benefits of participation may be difficult to realize for a number of reasons that relate both to processes and outcomes. Public consultations often fail to be truly participatory, since they can have little bearing on final decisions and have limited influence on resulting policy (Barnes, 1999). Existing power dynamics among the participants may over-ride attempts at fair representation (Clark et al., 2001; Young, 1997). Neither is conflict necessarily reduced through deliberation when contrasting values are made explicit (Botes and van Rensburg, 2000).

Although participants may pursue common goals, participation does not consistently improve the implementation of decisions or the realization of those goals, in terms of ecosystem health or public policy for example (Sharp, 2000). Sommer (2000) has noted problems of securing public interest and involvement, and the excessive pressure from citizens for immediate and visible results. Important issues around power relations, representativeness, insularity, and accountability relate to public participation processes and to non-governmental organizations and civil society in general (e.g., Donahue, 2004; Gibbs et al., 2002; Rydin and Pennington, 2000).

Despite the trend towards greater deliberative democratic processes, participation alone does not constitute or convey the full possibilities for citizen engagement. For people to be effectively engaged in sustainable development, they must establish a shared sense of

purpose and participate in a process that is meaningful to them (Renn et al., 1993; Barnes, 1999; Beierle and Konisky, 2001; Petts, 2001; Rowe and Frewer, 2000). People must be engaged in a strategic, inclusive and transparent process, supported by an enabling environment, with respectful and constructive interaction among stakeholders (Pollock, 2004).

For citizens to sustain their engagement, especially in volunteer activities, they must perceive their involvement as effective and relevant (Pollock and Whitelaw, 2005). This can be measured by how efficient, instrumental and meaningful are the outcomes of their deliberation. As with other decision-making bodies and systems, legitimacy depends largely on transparency, efficacy and fair representation; these are especially important features which will affect the long-term inter-personal and inter-organizational relations involved in governance for sustainability (Pollock, 2004).

#### **4.3.2 Prospects for Deliberative Democracy**

Deliberative democracy has been described as a new orthodoxy within contemporary democratic theory, and has been taken up by many in the field of environmental politics. Encouraging and institutionalizing processes of multi-stakeholder dialogue, it is argued, opens the possibility to identify common values, find new opportunities, and address complex problems. “Dialogue is the foundation for finding consensus solutions which integrate diverse views and generate the necessary commitment to implementation” (Hemmati, 2002: 7). Deliberative public dialogue offers an alternative to the perceived failure of liberal democratic institutions and suggests new approaches to governance.

Deliberation can provide a forum for challenging dominant epistemologies and increasing the potential for social learning – and perhaps for changing social norms. Transmission mechanisms are needed for knowledge to travel between civil society and the state. These could include public inquiries,<sup>11</sup> roundtables, policy think tanks, and research institutes. Other options include mediation and stakeholder organizations, citizens' forums (using consensus, juries, and opinion polls), and wider public events, such as referenda on contentious issues. The goal of such experiments is to build some measure of consensus from a cross-section of the citizenry. Studies on the outcomes of these types of governance processes found citizens to be quite engaged, informed and more civic minded afterwards (Fishkin, 1997).

In contrast to the democratic model of elections, where legitimacy rests on a simple aggregation of views, the fundamental goal of deliberation is reasoned discussion and exchange leading to a common vision of the public interest. The process is not merely an exchange of views (or defence of one's position) but mutual understanding and self-reflexivity. Participants are open to their preferences changing. They recognize the fallibility of their own perspectives. In this context, a key insight is that difference can become a resource for democracy, as Young (2000) suggests.

Building on the work of Jurgen Habermas (e.g., 1984; 1989), a German philosopher and dominant figure in the tradition of critical theory, deliberative democracy incorporates

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<sup>11</sup> One of the classic examples of deliberative democracy at work in Canada was the Berger Inquiry regarding the initial proposal for a MacKenzie Valley oil pipeline in the 1970s. Berger (1977) developed a process that recast the terms of engagement, widened the scope of the exercise to reframe the problems, validated traditional Aboriginal knowledge, and resulted in surprising recommendations that challenged the status quo.

elements of a framework for communicative action. The Habermasian view of rational debate provides a normative theory of unconstrained discourse, where values and norms can be discussed and agreed upon, free of coercion. Applied to governance, public opinion is seen to influence governance primarily through the communicative power of elections. More diverse forms and sources of citizen influence have been identified, including deliberative processes located within the public sphere of civil society that are mediated to the state through discourses taken up in media and social movements.

Both Smith (2003) and Torgerson (1999) draw on the work of Hannah Arendt (1958) who advocates for collective deliberation on the grounds that it strengthens democracy. Arendt explains that validity for particular arguments is only gained through public exchange, rather than through expert discourse, and that a diversity of views are not all relative but actually engage individual, and ultimately, collective judgments. For environmental policy, for example, Meadowcroft (2004) suggests that deliberative approaches promote integration of lay and scientific perspectives, engagement with complex ethical issues and evaluation of risk scenarios. Group-based collaborative interactions are needed to increase the deliberative democratic content of the policy system as a whole. Given that organizations help define environmental problems, he says, they should collaborate on finding solutions.

Likewise, political philosopher Iris Marion Young (2000) insists that deliberative (rather than strategic or instrumental) rationality be achieved through a process that is explicitly egalitarian, uncoerced and free from power. Her main objection is that the emphasis on

dialogue, that is implicit in deliberation, will act to restrict the participation of many people. Habermasian argument, she says, privileges dispassionate, ordered, and gendered debate (Young, 2000). In practice, this means that power is distributed along lines of literacy, articulation of arguments, access to information, understanding of process, and credibility in the face of hegemony – all of which may be affected by issues of race, culture, gender, language and citizenship – and which appear peripheral to deliberation at first glance.

Under the model of deliberative democracy, not only is citizen engagement required, but also a more active form of citizenship is realized in the process of deliberation.

Democracy works poorly when individuals make decisions in isolation and elected governments fail to represent the weak. Smith (2003: 55) explains that “...citizenship is typically a passive affair which, it is argued, leads to a ‘moral and political ‘de-skilling’ (Offe and Preuss, 1991: 165) of the electorate and the spread of cynical attitudes about public affairs and the notion of the public good.” Instead, core institutions of the state and electoral system are open to positive change, public debate is deepened through the media, associations, and civil society at large, and partnerships espouse the potential for more informed political judgments, practical improvements, social learning, and deliberation at other levels of the political system (Meadowcroft, 2004).

Deliberation and related processes and institutions may take effect within communities and up to the level of the nation state, however, they do face constraints at international scales, since democratic states and processes can be undermined by transnational

institutions (such as the World Trade Organization). Others are more hopeful: Christoff (1996: 159) says that greater deliberation “can profoundly reshape the boundaries of traditional political citizenship beyond the nation state, generating... allegiances ranging from the bio-regional through to the global, as well as to other species and the survival of ecosystems.”

New allegiances and new categories for framing global governance are at the heart of Dryzek’s theory of discursive democracy. “The perspective has close affinity with deliberative democracy,” explains Meadowcroft (2007b: 207), “but the ‘discursive’ label is applied to emphasize that the focus is not the design of ideal deliberative forums, but rather the emergence of discursive stratagems through which civil society can transform the understandings embedded in global governance practices.” Here, partnerships that are *rooted in civil society* from local groups to international movements have the potential to subvert dominant discourses that are pervasive and transnational.

### 4.3.3 Challenges to Collaborative Governance

Despite the prospects of deliberative modes of governance, many questions remain. Is too much expected from citizens in deliberative processes given their diverse interests, commitments, and the climate of increasing cynicism and apathy towards government? Are the processes truly representative of the population, or do they simply provide new opportunities for the elite? How does deliberation address the systemic inequality of resources and the insidious use of power in decision-making? Will those with more limited knowledge replace expert knowledge? How can NGOs become democratic and accountable? What is the proper role of the state?

Cross-sectoral partnerships do not reflect the same democratic design as other forms of governance. In an assessment of cross-sectoral partnerships, Meadowcroft (2007) argues that collaborative initiatives are generally not adequately representative, participatory, equitable or accountable and hence, may erode established democratic norms and practices, including the powers of governments to promote the common good. By devolving government authority to hybrid organizations (e.g., public-private partnerships, or non-governmental coalitions) it appears that democratic institutions are abandoning their responsibility to govern in the public interest. “When areas of societal decision-making are handed over to [other] bodies... there can be no guarantee that the public interest and the common good will prevail” (Meadowcroft, 2007b: 198). Government withdrawal, critics note, leads to private interest groups or the private/corporate sector governing; in either case, individual and economic interests of the majority are likely to trump sustainable development interests of the minority.

In response to this set of critiques, one might argue that while partnerships are not formally representative, they do in fact represent a wide range of public interests and bring conflicting interests to bear on collective problems. Collaborative approaches “offer the possibility of a net participatory gain” (Meadowcroft, 2007: 200) and although power is distributed unevenly within society (privileging the participation of elites), participants can be treated equally within a partnership framework, thus equalizing power differentials through the process. Such structures do not operate in a vacuum of accountability either; individuals are accountable to the groups they claim to represent, participants are accountable to the collective endeavour, and elected governments and

society as a whole can evaluate their activities to ensure that they are operating in the public interest. This suggests that collaborative governance processes “do not necessarily undermine elected officials, but can open a new terrain of practical problem-solving” (Meadowcroft, 2007: 202). to a wider number of groups and provide enabling and supervisory roles for government.

For example, elected governments can frame the terms of partnerships with which they are involved and provide information and expertise in terms of environmental monitoring and reporting. Many are concerned about the provision of public funding for policy reviews, independent audits, sustainability assessments, and research institutions.

Together these activities create a culture of reflection about the contributions of collaborations to the public good. From this perspective, governments assume a role of “meta-governance.” In other words, governments “...need to consider how specific initiatives relate to overall policy goals, reconcile conflicting claims and objectives and ensure that different governance modes are operating for the public interest” (Meadowcroft, 2007: 211). In this way, partnerships will be encouraged to meet their democratic potential.

To take a related example, coalitions of groups and hybrid organizations make up the environmental movement, rooted in the public sphere. This movement has occasionally been successful at prying its way into state and market mechanisms. Scholars such as Torgerson (1999) believe that environmental and social movements hold great potential as deliberative democratic institutions. By creating alliances with social justice

movements, the environmental movement has diversified its scope and understanding of sustainability. Yet the principles of sustainability contain values that are divergent and difficult to reconcile. Different orientations towards ecological integrity, social justice, intergenerational accountability and democracy compete with each other, forcing trade-offs and prioritization. For example, as a political movement, environmentalism has had difficulty addressing issues of distribution (Paehlke, 1989) and market efficiency has taken precedent over equality or other non-instrumental values (Paehlke, 2003).

Fortunately, a pragmatic approach that uses existing social, political and economic mechanisms for decision-making can be combined with new approaches to governance. Already strides have been made in public participation, environmental assessment, Right-to-Know legislation, and environmental bills of rights. Each of these mechanisms helps to raise environmental standards, to ensure that existing laws are upheld, to guarantee rights to information and to enable participation. Self-organized groups arising from civil society, through informal, multi-stakeholder collaborative governance arrangements may also be enabled or constrained by the state in subtle ways, including access to resources and policy networks, or charitable status for non-advocacy work.

For example, Simmons (1998) identifies four tactics that civil society organizations use to influence national governments, multi-lateral institutions and corporations: setting agendas, negotiating outcomes, conferring legitimacy and implementing solutions. Each of these four roles may influence existing governance and management structures. Local organizations, such as biosphere reserves, may attempt to define a sustainability agenda

that involves negotiation with government agencies, aboriginal groups, civil society organizations, and interested businesses.

In some cases, local organizations will have experience in negotiating outcomes (e.g., land use plans, resource management agreements) and governments will invite them to participate in negotiating outcomes in an effort to ensure legitimacy ([Whitelaw, 2006](#)~~Whitelaw, 2005~~). They may fulfill an endorsement function, by either promoting or withholding public or political support. Finally, civil society organizations may implement solutions on the ground that government will not, or cannot do, by engaging in multi-stakeholder collaboration. Likewise, political authorities require commitment to support substantive environmental policy goals at the same time as they endorse collaborative, multi-stakeholder and grassroots processes (Meadowcroft, 2004).

Collaborative governance holds prospects for advancing sustainability in new ways. For example, although human action is constrained by wider social and economic forces, Healey (1998) argues that:

“... the development of governance cultures in which collaborative collective action is possible will be more likely to resist forces leading to economic exploitation of people and places, to limit environmental degradation and to maximize the possibilities of human flourishing in sustainable environmental relations, than cultures which are dominated by individualist competitive strategies” (Healey, 1998: 1535).

Collaborative approaches enhance both the outcomes of decision-making processes, as Healey notes, and improves the quality of decision-making when they engage directly with competing perspectives, are open to scrutiny, and foster broader understanding of

complex issues and multiple perspectives. Collaboration, rooted in civil society, can enhance deliberative, participatory democracy structures and processes (Fien and Skoien, 2002).

Yet several important challenges arise when linking deliberative theory with environmental governance. First, there is no guarantee that political institutions will go green. In other words, the best deliberative processes cannot guarantee that decisions will actually favour environmental values. Goodin's (1992) book, *Green Political Theory*, states that democracy requires procedures while environmentalism requires substantive outcomes; however, there is no guarantee that ideal procedures will ever produce desired outcomes. Jacobs (1995) shares the view that deliberative democratic institutions cannot guarantee sustainable outcomes. "The results that emerge from institutions are always uncertain; and hence always open to ethical criticism, even from those who have designed the institution. This is the inherent dilemma of 'democratic sustainability'" (Eckersley, 2004:65).

The second dilemma is that the relationship between informal deliberation in the public sphere and formal decision making of the state is somewhat unclear. Dryzek's theory of discursive democracy avoids the question of decision rules and privileges discourses rooted in civil society and the activities of new social movements. This position questions the democratic potential of the state, although processes such as mediation, citizen forums and the like can enhance democratic deliberation by transmitting public opinion to state decision-makers. Although civil society is celebrated as an autonomous and

active public sphere, engagement with the state – although difficult to navigate – is necessary for environmental regulation.

Some proponents of deliberation take a critical stance towards the state, and advise civil actors against direct engagement with the state out of fear of co-option. This fear also carries over to the market. While it may be “better to build on the islands of democratic control that already exist than to embrace market-based alternatives that may subtly undermine democratic control” (Dryzek, 2005: 39), some engagement with state and market is essential. Deliberation in the public sphere may generate legitimate alternatives that influence state-level decisions and provide a democratic counterweight to the practices of decision-making institutions that are perceived as anti-democratic.

Despite the so-called “hollowing out” of the state or the shifting of state powers across scales to both the local and the global, there remains an important role for governments at the national level. “International institutions remain a poor alternative to democratic, legitimate and accountable states,” Cameron and Stein (2002: 157) argue. Individual nation states can promote democratic processes in both domestic and international spheres (Meadowcroft, 2007). Whitaker (2000: 234) adds that nation states may be “the only agencies capable of enforcing order and combating and containing the macro-irrationality of micro-rational economic behaviour of individual actors.” Thus, national governments have a crucial role to play in fostering sustainable development, by being kept accountable for their governance of society under the pressures from above and below.

Assuming liberal democratic states remain significant political actors, what are the alternatives for environmental governance? Strong federalist systems could decentralize meaningful power and adequate resources to local levels, while simultaneously increasing representation of marginalized groups. The introduction of a proportional electoral system would also increase the diversity of values represented and possibly relieve some public disenchantment with political life. Again, as Torgerson (1999) and others insist, a green public sphere is essential for promoting and articulating green values in a policy landscape that does not support sustainability. Other benefits include the “trickle down effect” where radical ideas from the green sphere slowly percolate into public consciousness and behaviour (Jamison, 2001). These are best supported by strategies for social communication, where people recognize themselves in the message, and that appeal to their values (Trudeau Foundation 2005; McKenzie-Mohr and Smith, 1999). Another major opportunity, as noted by Dryzek (2000), is the creation and dissemination of new discourses, such as “buy local” and “voluntary simplicity” campaigns that help to challenge free market economism and unsustainable consumption (Paehlke, 2003), or the emergence new governance institutions and informal structures, such as the proliferation of social networks.

Governance networks are concerned with horizontal (as opposed to vertical or hierarchical) interactions within societal governance (Kooiman, 1993). Networks are often characterized as adaptable flexible forms. It is their flexibility that gives networks their advantage over hierarchies, which can be cumbersome and bureaucratic. Emergent

or self-organized civic organizations and networks tend to be problem-driven and not outlive their usefulness. The celebrated network form of social organization, explored below, with dispersed control over discourse and a decentralized agenda, is not incompatible with state-based approaches that seek to involve those same organizations to a greater degree.

#### **4.3.4 Self-Organization**

Citizen demands for greater legitimacy, transparency and authentic engagement have resulted in the emergence of collaborative governance approaches and the self-organization of countless community groups and civil society organizations. Self-organized governance arrangements are found in citizen advocacy and service groups, traditional common property resource management, and myriad types of NGOs. Self-organization does not imply that some sort of totally spontaneous process is involved, but rather that the actors themselves organize citizen involvement for their own purposes rather than it being organized by some outside level of government.

Spontaneous organization may emerge where a strong attachment to a particular place exists. The context-specificity of policies and governance arrangements is increasingly recognized as a factor in sustainability planning (Selman, 2001). Place-based governance combines political interpretations of geographic space with a cultural sense of place (Pollock, 2004). In some cases, when a particular landscape, ecosystem, community identity or livelihood, is somehow threatened, a personal and collective latent sense of place may be activated. As Whitelaw (2006) found in his study of two distinct landscapes in Ontario (the Niagara Escarpment and the Oak Ridges Moraine), civil society

organizations mobilized a broad landscape vision (e.g., through trail-building, scientific research, land securement, etc.) and innovative collaboration (e.g. public visioning, use of the media, translation of science for policy-makers). Certain organizations in these two cases transcended their traditional role as advocacy or stakeholder groups, evolving instead into sophisticated planning organizations with the expertise to advise governments, to engage multiple stakeholder groups, and to steer policy development (e.g., the Oak Ridges Moraine Act and Plan).

Institutions that emerge spontaneously do not always involve conscious coordination among participants nor require explicit consent on the part of subjects. Expectations tend to converge without design or explicit awareness. In the case of the Oak Ridges Moraine, for example, two self-organized groups both calling themselves Save the Oak Ridges Moraine (STORM) first became aware of one another at a public conference before joining forces as a coalition ([Whitelaw, 2006](#)[Whitelaw, 2005](#)). Models of individual rationality and self-interested behaviour do not explain this convergence. However, it is easy to see why such groups emerge: they avoid high transaction costs in terms of networking and do not place any formal restrictions on the liberties of individual organizations.

Despite the prospect of sophisticated forms of self-organization in collaborative governance, Young (1983: 102) notes that: “increases in the complexity of social systems will frequently operate to accentuate the role of spontaneous orders.... It is not surprising that the ability of dominant actors to impose order generally declines as a function of

social complexity. But it is important to note that it will ordinarily become harder and harder for groups of actors to arrive at meaningful or coherent bargains as the issues at stake become increasingly complex.”

Nevertheless, Szerszynski (1997:151) maintains these “self-generating initiatives” are closer than are bureaucracies to people’s lives and sustainability concerns: “their agendas and activities are more likely to be ‘owned’ by their participants, as opposed to being felt to have been determined and imposed from outside.” Associations develop trust, which is required if people are to change their values and behaviours in support of sustainability and to address collective-action problems; “the very act of participating in associational activity can itself generate the kind of human flourishing which any definition of sustainable development should include” (Szerszynski, 1997:157).

#### **4.4 Systems Perspectives on Governance**

As indicated in the introduction, the field of governance *for* sustainability tries to capture the complex decision making systems that go beyond the established institutions of government, the private sector and civil society, to include broader cultural phenomena, such as assumptions, ideological positions, customs, social norms and everyday practice. In other words, if sustainability is a set of principles and processes that are broad and evolving social objectives, then governance for sustainability is an adaptive set of approaches by which societies might move closer to meeting those objectives. This section highlights themes for collaboration from governance network theory and then

turns to examine the governance of networks themselves – one of the most common roles proposed for UNESCO biosphere reserves in Canada.

#### 4.4.1 **Governance Networks**

Networks have been widely recognized by both scholars and practitioners as an important form of inter-organizational governance. Networks are comprised of independent and autonomous organizations and are essentially collaborative endeavours. UNESCO biosphere reserves in Canada are commonly organized into networks and also emerge as lead organizations to facilitate or govern networks for sustainability. Networks are a popular metaphor that has spread throughout the social sciences (Klijn, 1996). For example, policy network theory developed in order to account for relatively tight professional policy communities and looser, sometimes parallel, civil society issue networks (Rhodes, 1996). Organizational network theories are largely descriptive of network components and structures (e.g., nodes, links, etc.) with a focus on individual actors and their relational configurations. Most recently, research about how networks govern themselves has become a focus (Provan and Kenis, 2007).

From a systems perspective, collaborative governance is frequently expressed as having the structure and dynamics of a network. Early on, Emery and Trist (1965) proposed that the appropriate organizational structure for turbulent organizational fields (fields characterized by complexity, uncertainty, and multiple interconnections among component systems) was not a single hierarchical organization. Emery and Trist (1965) put forward the case, as summarized by Benn and Onyx (2005: 88), that an “inter-organizational domain, held together by shared values, is the most appropriate

organizational form” because “social order is negotiated between the stakeholders rather than imposed at the outset.” Many analysts agree. For example, Paquet (2005) elaborates on essentially the same idea in describing what he calls “distributed governance,” as does Barraket (2005:83) in reference to “coalition governance.”

Rhodes (1996: 657) uses two systems theories to understand the structure and dynamics of governance: the study of “socio-cybernetic systems” and “self-organizing networks.” These theories propose that governance is the resulting pattern or structure that emerges from socio-political interaction (see Kooiman, 1993). Governing is about goal-directed intervention; governance is the total effects of intervention and interaction. From this review of the literature, Rhodes crafts his own widely-cited definition of governance as self-organizing, inter-organizational networks. To him, the four characteristics of network governance are: (1) interdependence between organizations, state and non-state actors; (2) continuing interactions between network members to exchange resources and negotiate goals; (3) game-like interactions rooted in trust and regulated by agreed-upon rules; and (4) significant autonomy from the state (Rhodes, 1996: 660). In other words, self-organizing networks may involve or negotiate with government, but are not accountable to the state.

While networks may contribute to “governance without government,” many individual network members, such as non-governmental organizations, rely on state policies (e.g., for charitable status) or direct state funding. It can be argued that sustainable development requires regulations, incentives, and enforcement by the state to a certain

degree to change or “flip” unsustainable norms and behaviours within all three spheres of market, civil society and state. Within collaborative networks, responsibility and accountability are shared.

The themes of interdependence and autonomy run throughout the governance literature, raising some interesting tensions. Rosenau (1995: 15) notes: “interdependence involves not only flows of control, consequence and causation within systems, but that it also sustains flows across systems. These micro-macro processes – the dynamics whereby values and behaviour at one level get converted into outcomes at more encompassing levels, outcomes that in turn get converted into still other consequences at still more encompassing levels – suggest that global governance knows no boundaries – geographic, social, cultural, economic, or political.” Networks appear to account for cross-scale perspectives better than hierarchical bureaucracies that are structured around those traditional categories.

Jessop (1997: 575) captures both the themes of autonomy and interdependence nicely when he says that governance is “the complex art of steering multiple agencies, institutions and systems which are both operationally autonomous from one another and structurally coupled through various forms of reciprocal interdependence.” This definition highlights the structural relationships (“micro-macro processes” noted above) that exist between market, state and civil society forms of governance and their hybrids. At a still broader level, metagovernance refers to the overall institutional system of rules that govern the distribution of power, authority, and responsibilities among the

components of the three sectors. It “involves managing the complexity, plurality, and tangled hierarchies found in prevailing modes of coordination” (Jessop, 2002: 6).

In theory, network participants must have a stake in the issues at hand and have resources and competencies to contribute to the group. Although they may be dependent on one another to “get things done” they are operationally autonomous in the sense that they act independently. While some actors can be stronger and more central than other actors (e.g., lead organizations or central nodes), the relations within the network are characterized by exchange rather than commands. Trust among network members and consensus on goals are two of the primary factors that bind networks together (Provan and Kenis, 2007).

Negotiations occur through bargaining (e.g., over the distribution of resources) but within a framework of deliberation that facilitates understanding, learning and joint action. As Marcussen and Torfing (2003:8-9) explain: “...negotiations...take place within a relatively institutionalized framework...[that] provides rules, roles and procedures [regulative]; ...norms, values and standards [normative]...codes, concepts and specialized knowledge [cognitive]... identities, ideologies, common hopes and visions [imaginary].” Changes to the institutional framework are negotiated as actors interact. “Thus, the complex institutional structures enframing [sic] negotiations within governance networks (e.g., rules, norms, codes and identities) are not fixed once and for all. Rather, they are constantly being defined and redefined through negotiations.”

Finally, governance networks are said to contribute to the production of public purpose within a certain policy realm (e.g., sustainable development). “Public purpose is an expression of visions, understandings, values and policies that are valid for and directed towards the public. The network actors are thus engaged in political negotiations about how to identify and solve emerging policy problems” (Marcussen and Torfing, 2003:9). Governance networks distinguish themselves from other forms of networks (e.g., business, technology, or policy) by their deliberate attempt to contribute to the production of public purpose through horizontal negotiation.

Ultimately, network effectiveness is the attainment of network-level outcomes that could not normally be achieved by individual organizations acting independently. In the case of governance for sustainability, such outcomes might include: strengthened community capacity to solve social and environmental problems; improved access and integration of critical services to vulnerable populations; enhanced regional economic development; and adaptive responses to changing economic or environmental conditions.

#### **4.4.2 Network Governance**

Given the proliferation of self-organized, other-organized (mandated) and hybrid networks in the public sector, scholars argue that contemporary forms of governance are about network management (Klijn and Koppenjan, 2000; Agranoff and McGuire, 2003). “The task of government is to enable socio-political interactions, to encourage many and varied arrangements for coping with problems and to distribute services among the several actors” (Rhodes, 1996: 657). Despite the broad attention given to the role of government in governance, proponents of self-organization and deliberative democracy

within civil society might caution against developing such a strong role for government as enablers and network managers.

Recent scholarship in network governance recognizes the huge diversity of networks across the public and private sectors and shifts attention away from the role of the state in governance to the role of network participants. Rather than using traditional “functionalist” arguments to claim that networks are a positive response to market failures, and failures of hierarchical coordination (or to societal and technological change), network governance scholars seek to interpret the overall functioning of networks. As Provan and Kenis (2007: 7) suggest: “For problems that require collective action, organizational governance is no longer sufficient – network governance is required to achieve broad, network level goals.” As an emergent theory, network governance attempts to “illuminate the structure of collective action” (Powell et al., 2005: 1133). Specifically it aims to explain the impact of network *governance* on network effectiveness (from a community stakeholder perspective).

Arguably, network governance is necessary to ensure that network participants engage in collective, and mutually supportive action, that conflict is addressed, and that network resources are acquired and used efficiently and effectively. As Provan and Kenis (2007: 3) insist: “Understanding the functioning of networks is important since only then can we know how networks should be designed to produce certain outcomes, and how networks should be managed given the tensions that can be expected when coordinating [multiple organizations].” Klijn et al. (1995) agree that networks do not respond to managers as

system controllers. The effective network manager plays a facilitative role; that is, does not seek to achieve his or her own objectives. Rhodes (1996: 665) also supports the fact that “planning, regulation and competition need to be supplemented with facilitating, accommodating and bargaining, the keys to effective network management.”

The network may be governed equally by all members (shared governance), or managed by a lead organization within the network, or externally by a designated network administrator (Provan and Kenis, 2007). The network is usually self-governing rather than being part of a hierarchical chain of command or being subject to the laws of the market (Scharpf, 1994:36); however the environment in which the network operates can facilitate or constrain self-regulation. “Governance networks always operate in the ‘shadow of hierarchy’” according to Scharpf (1994:41). The main tensions in network governance are to strike a balance between inclusiveness and efficiency; internal and external legitimacy; and flexibility and stability (Provan and Kenis, 2007). Beyond these tensions that are characteristic to networks, part of a future research agenda is reflective of the same public participation concerns for representation, accessibility, legitimization, accountability, and transparency in both governance networks and in network governance.

#### **4.5 Implications for Biosphere Reserves**

In the context of UNESCO biosphere reserves, the governance literature has important implications. First, more complex problems appear to require more sophisticated forms of cooperation and sharing of power and knowledge. Second, governance requires a high

degree of civic participation for legitimacy and effectiveness. Third, governance is constituted both through structures and processes, and a mix of both formal and informal institutions. If biosphere reserves are functionally self-organizing multi-stakeholder networks that influence behaviour or policy related to sustainability, then they hold the prospect of contributing to governance in a variety of ways. This study therefore seeks to understand collaborative environmental governance and how sustainability can be advanced, using biosphere reserves as exemplars.

Biosphere reserves seek to integrate conservation of biodiversity with sustainable development while building social and institutional capacity for these related endeavours. In the following chapters, the activities of local biosphere reserve organizations will be explored through a governance lens. Biosphere reserves provide excellent sites for observing the organization, structure and function of cross-scale and multi-level governance approaches and to what extent they integrate a variety of institutions, perspectives and values through multi-stakeholder collaboration.

In Canada, biosphere reserves typically evolve from small local non-profit groups to broker much broader networks of stakeholders involved in sustainable development. Biosphere reserves can be seen as organizations that act as umbrellas that “do not comfortably fit into the established framework of local, state and federal governments” (McKinney et al., 2002). In some cases they are able to simultaneously integrate and transcend existing political jurisdictions in order to create new norms for sustainability across whole landscapes ([Whitelaw, 2006](#)[Whitelaw, 2005](#)). Biosphere reserves also strive

to frame local issues, such as conservation of biodiversity, in a global context.

As biosphere reserve organizations transcend local and landscape-level concerns to address more complex multi-level issues, they perhaps have greater opportunities to broker collaborative processes that combine local and expert knowledge to inform and influence decision-makers. The biosphere reserve model also suggests that such organizations initiate new governance structures (e.g., networks and coalitions) by facilitating informal collaborative governance processes (e.g., community dialogue, visioning exercises, issue forums, local marketing mechanisms, and numerous types of partnerships).

The effects of state downloading of responsibilities, often without a simultaneous transfer of power or adequate resources, is relevant to local governments and non-governmental organizations who are burdened by new expectations but are without the capacity to govern in those areas effectively. How biosphere reserves navigate and respond to these types of challenges is unknown. Biosphere reserves, and other organizations concerned with sustainability, need to find ways to address the dynamics of scale that constructively engage people locally and other players at multiple scales and levels of authority.

Network governance brings the necessary “layers” and “players” for sustainability together through negotiation and collective decision-making. Thus, governance networks may be an especially apt description of how biosphere reserves contribute to governance by bridging multiple organizations under an umbrella of shared goals, resources and

knowledge. However, the prospect of managing complexity in governance for sustainability is quite daunting. As noted above, it is important to assess the current institutional or governance “layers” and “players” in sustainable development across multiple scales. Further work is required to track progress (or regression) in sustainability practices. As Francis (2004: 25) explains:

...a biosphere reserve organization has two major roles. One is to serve as facilitator and partner, providing both a forum and a helping hand for groups to join together to discuss and understand conservation and sustainability issues of mutual concern, and then deal with them as best they can. The other is to keep abreast of all that is happening in a biosphere reserve and report on this from time to time to all who live there and to anyone else that may be interested. In general, Canadian biosphere reserves are quite involved with the first role, but (as periodic reviews indicated) have not yet taken up the latter to the extent communities would generally welcome. No one else does this. It is a special niche for a biosphere reserve group, and a demanding one.

Biosphere reserves appear to be innovative governance mechanisms for fostering collaborative multi-stakeholder processes and for brokering informal governance arrangements and networks for implementing sustainability within particular landscapes. It is hoped that the experience of biosphere reserves might illuminate how processes of self-organization, citizen engagement, network governance, and sustainable development occur on the ground and that they might offer a conceptual framework that conveys the necessary collaborative and integrative governance dynamics for achieving sustainable development.

## 4.6 Conclusions

Taken together, the foregoing literatures about governance, including multi-stakeholder collaborative governance and network governance, provide a wealth of opportunities for

research and for testing new ideas about governance for sustainability. An interdisciplinary review suggests that governance systems are constituted through complex structures and processes, and that governance arrangements take on highly diverse forms for different purposes and in different contexts. For democratic legitimacy, citizens and other non-state actors require a meaningful role in governance. Collaborative governance has emerged as a new mode of governance and one that holds prospects for advancing sustainability in new ways.

As outlined in the introduction, sustainability requires new norms, new institutions, and new development paradigms. New governance institutions need to be able to cross a variety of social and political spheres at different scales. Multilevel or cross-scale governance recognizes the variety of scales at which collective decision-making occurs, and accounts for complex multi-jurisdictional governance problems and the local to global dynamics that influence sustainability.

Those involved with governance for sustainability must do a number of things. They must recognize complex social-ecological systems and create appropriate political frameworks that account for longer time frames, diverse knowledges and social learning in order to enhance the adaptive capacity for resilience of social institutions and ecological systems (Meadowcroft et al., 2005). Furthermore, they must adopt a highly integrative form, where the principles of sustainability can be advanced as a whole. The extent to which biosphere reserves are aware of these requirements and engage with them will be explored through the conceptual framework.

Lerner (2006) suggests that we “build toward a conceptual framework that locates ‘governance for sustainability’ in collaborative networks of actors (highly-organized and institutionalized NGOs, various public/private/civil society actors in partnerships, strategic *ad hoc* alliances, etc.) and [examine] how these function on the ground in specific localities.” Biosphere reserves are sites that encourage innovative community-based and multi-stakeholder experiments in sustainability. They constitute ideal places to explore innovative governance approaches to sustainable development.

## 5. Conceptual and Analytical Frameworks

### 5.1 Introduction

This chapter aims to fulfill the first objective outlined in section 1.46, namely, to develop and apply a conceptual framework to guide the case study analysis about governance for sustainability through the lens of UNESCO biosphere reserves. Here it is important to distinguish the international UNESCO model from the local application of that model in biosphere reserves, their managing organizations and their governance arrangements. To assess the role of biosphere reserves in governance for sustainability is to observe and to assess these local organizations, their approaches to sustainability, their approaches or modes of governance, and their governance structures. Below, several research propositions help to shape a detailed conceptual framework. The framework outlines the main dimensions of the problem to be studied [section 5.4] while the concluding analytical framework [section 5.6] outlines specific parameters for evaluating empirical findings.

### 5.2 Towards a Conceptual Framework for Governance of Biosphere Reserves

If sustainability is a set of principles and processes that are broad and evolving social objectives, then governance for sustainability is an adaptive set of approaches by which societies might move closer to meeting those objectives. This research takes biosphere reserves to be not only static international “models” for sustainable development, but also

dynamic multi-stakeholder organizations capable of influencing and initiating governance processes at different scales. What this study aims to explore is how selected biosphere reserve organizations in Canada influence governance for sustainability along three related dimensions.

First, the *ethical* dimension of governance refers to how the UNESCO ideal of three integrated functions (conservation, sustainable development, and logistic support) across three interrelated zones (core, buffer, transition) is applied within biosphere reserves.

Second, the *procedural* dimension of governance should be further explored to understand the various governance modes or approaches used in biosphere reserves and by their local organizations, particularly in terms of citizen engagement and multi-stakeholder collaboration. Finally, the *structural* dimension of governance is of interest for how biosphere reserves use networks to build capacity by bridging multiple organizations.

The literature and participant observation suggest that biosphere reserves have the potential to initiate and influence various governance processes, across different scales, using diverse approaches – yet these are not well documented or understood. It also appears that many biosphere reserve organizations are largely consumed by the work they do “on the ground” and are not aware of their actual or potential roles in governance for sustainability, limiting the potential for social learning and adaptation – essential ingredients for establishing resilient social-ecological systems.

### 5.3 Research Propositions

As described above, the conceptual framework developed in this dissertation puts forward the following research propositions related to the role of biosphere reserves in governance for sustainability:

- i. Biosphere reserves provide models for integrated approaches to sustainability;
- ii. Biosphere reserves develop collaborative multi-stakeholder approaches to governance; and,
- iii. Biosphere reserves create governance network structures.

The general hypothesis of this study is that biosphere reserves prescribe certain *ethics and standards* for sustainability with which to guide certain *modes and approaches* to governance, resulting in the creation of innovative governance *structures* that support sustainable development. The following sections develop the plausibility of these three propositions, which are then examined in detail in case study chapters 6, 7, and 8.

### 5.4 Conceptual Framework for Biosphere Reserves

A conceptual framework is a tool to help think about a phenomenon and to frame analysis of a problem. As noted in the methodology, grounded theory is used in multiple and iterative stages of data collection (Strauss and Corbin, 1998). Rather than developing theory, which is outside the scope of this dissertation, a conceptual framework is developed, applied in the case studies and refined for future application. Rapoport (1985: 256) explains that conceptual frameworks "...help to think about phenomena, to order material, revealing patterns – and pattern recognition typically leads to models and

theories.” The conceptual framework thus provides a tool to understand collaborative environmental governance through biosphere reserves.

#### **5.4.1 Biosphere Reserves as Models for Integrated Approaches to Sustainability**

The UNESCO model of biosphere reserves provides a framework for integrated sustainability in at least five respects: (1) the model integrates the functions of conservation with sustainable development and is explicitly cross-scale and multi-level in its design; (2) it uses principles from conservation biology to integrate the three zones of core-buffer-transition; (3) the model recognizes the significance of both scientific and cultural interpretations of landscape; (4) the model integrates the principles for sustainability and aims to work across economic spheres, social groups, and ecological and temporal scales; and (5) it strongly supports social learning and adaptation by treating biosphere reserves as “demonstration sites,” “learning laboratories” or “learning platforms” for experiments in sustainable development.

Although this set of ideals may be quite daunting for those attempting to achieve it, the biosphere reserve model (or “concept” as practitioners would say) provides the inspiration and the flexibility for people in biosphere reserves to develop their own innovative approaches to governance for sustainability. As indicated in the introductory chapter, the “lofty ideals” of biosphere reserves provide ample room for critics concerned with application on the ground. Francis (2004: 25) noted that:

Volunteers in biosphere reserves would be the first to point out discrepancies [between theory and practice]. While scholarly critiques might be helpful, there is the much larger context within which this all exists. It can be identified as the dynamics of complex systems and governance arrangements through which communities might learn, adapt, and be able to respond while still maintaining democratic traditions.

The conceptual framework developed here aims to incorporate the specific components and dynamics of the biosphere reserve model but in a larger systems context and by attending to the themes of citizen engagement, self-organization, and democratic collaborative processes.

### ***(1) Integrating Conservation and Sustainable Development Across Scales***

First, and in the most general terms, biosphere reserves were established under the Man and the Biosphere Programme (MAB) to “balance nature and people” by integrating conservation with sustainable development. In contrast with earlier paradigms of protected areas that were separated from human use, biosphere reserves recognize that human livelihoods are fundamentally dependent upon natural resources or ecological goods and services (Millennium Ecosystem Assessment, 2005). The model encourages communities to pursue development that protects or restores local biological diversity through sustainable harvest practices, integrated projects such as habitat protection and food production, and eco-tourism that supports local traditions and economies.

As the draft *Madrid Action Plan (2008-2013)* highlights in the introduction, the model of integrating science and society remains salient almost 40 years after the MAB programme was established:

The Biosphere Reserve concept has proved its value beyond protected areas and as such is becoming a tool embraced by scientists, planners and policy makers to bring a variety of knowledge, scientific investigations and experiences to bridge biodiversity conservation and socio-economic development for human wellbeing (Draft 10/XII/07 of the Madrid Action Plan: 1).

Beyond the original goal of reconciling people with nature, the MAB programme was explicit about developing a global network of representative ecosystems that could be monitored and protected by local populations. Indeed, the idea “think globally, act locally” that later emerged in the Brundtland Commission’s (WCED, 1987) work was embedded in the formulation of the biosphere reserve model since each site was an integral part of a World Network of Biosphere Reserves (WNBR). Hence, the UNESCO model refuses to privilege the local or regional over other relevant scales. Rather:

...the focus is on developing models for global, national and local sustainability, and for biosphere reserves to serve as learning laboratories and platforms for policy professionals, research and scientific communities, management practitioners and stakeholder communities to work together to translate global principles of sustainable development into locally relevant praxis. (Draft 10/XII/07 of the Madrid Action Plan: 1)

The nomination process might be considered a modest exercise in cross-scale, multi-level thinking. Citizen engagement and organization at the local grassroots level must expand to a regional or landscape scale in order to fulfill the criteria for appropriate biosphere reserve zonation (i.e., sufficient size to support biodiversity). The local support for the concept often garners increasingly higher levels of political support until it is endorsed by national authorities and sent to UNESCO for possible approval. The designation of biosphere reserves is both a cross-scale exercise (temporally, averaging 5-7 years and sectorally, across a diverse range of stakeholders) to prepare a successful nomination and a multi-level process (requiring local commitment to secure international attention).

Local sustainability efforts are initially rewarded by UNESCO and then scrutinized on the world stage (Wadland pers. comm., 2005).

One of the interesting features of the biosphere reserve model is that local commitment to implementing solutions for sustainable development is placed squarely within an international framework of the World Biosphere Reserve Network. Beyond the integration of three functions across three inter-related zones, communities that fall within a world biosphere reserve gain a tremendous moral authority from UNESCO's designation. UNESCO (2005: 2) recognizes that "...projects are underway [around the world] to enhance people's livelihoods and ensure environmental sustainability.... UNESCO's recognition can serve to highlight and reward such individual efforts."

Although biosphere reserves have no formal authority – no official jurisdiction or power – they gain moral authority from their participation in an international program. The biosphere reserve "brand" lends a unique credibility to local biosphere reserve organizations and to new proposals for sustainable development activities.

### ***(2) Integrating Land Uses Across Zones***

Another feature of the biosphere reserve model is that land use is integrated through a distinct zonation pattern based on the principles of conservation biology that links cores and corridors. Core areas are required to provide full legal protection for areas of rich biological diversity or other ecological significance. They are typically governed as public spaces (e.g., parks, nature reserves, etc.) or sometimes as private land holdings for the purposes of conservation, while buffer areas allow for sustainable human use,

including grazing or fishing “commons” and renewable resource activities such as (organic) farming or (sustainable) forestry. Buffer areas are also intended to support education, research and monitoring activities – using core areas as long-term baseline research sites together with buffers for measuring environmental change across gradients of human impact. Transition zones or “areas of cooperation” (the term preferred in Canada) contain the highest concentrations of human settlement and development activities.

Although the model in Figure 5.1 reflects three concentric zones, there is ample flexibility in the actual designation of biosphere reserve lands. For example, buffer areas need not be contiguous with core areas, although there are known ecological benefits to doing so, as illustrated in Figure 5.2. In sparsely populated areas, such as the north, the concentric zones are often reversed: human settlements constitute a concentrated “transition” area, with surrounding “buffer” and remote and vast “core” areas of ecological significance (Roots, pers. comm., 2006; Pollock, forthcoming).

The idea of reverse zonation also might apply to urban areas, where sustainable cities concentrated in a core area reduce their ecological footprint (as compared to sprawling cities) and are ideally surrounded by a mix of natural areas (for ecological service provision) and productive land for non-industrial agriculture.

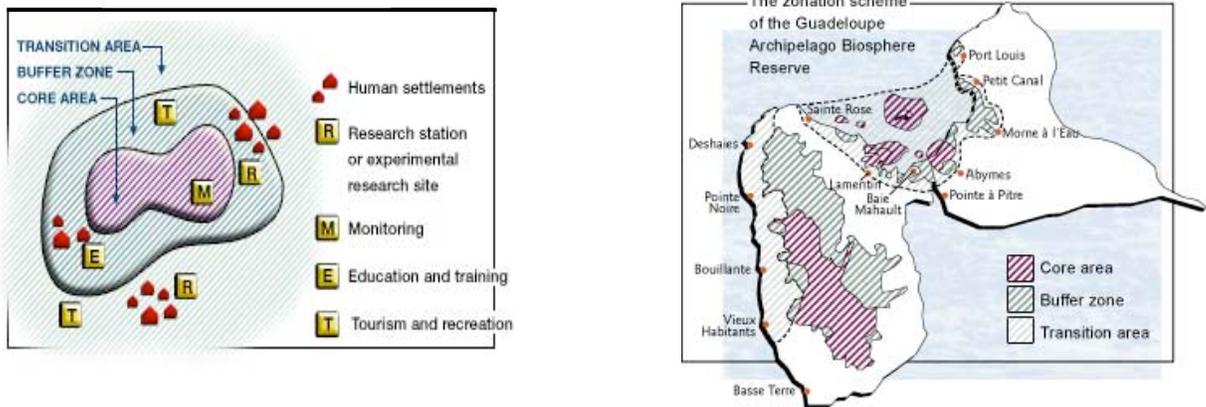


Figure 5.1. Zonation schemes of UNESCO biosphere reserves (UNESCO, 2004)

Since the inception of the MAB programme, the function of each of the zones has been opened to wide interpretation at international and regional network meetings: must core areas represent only ecological significance or might they also be designated as culturally significant sites (e.g., of indigenous occupation and use)? Although human settlements are encouraged in the outer transition areas, what is the range of allowable human impacts in buffer areas (e.g., harvest and mining practices)? Likewise, some of the original (first-generation pre-Seville) biosphere reserves have strictly enforced core areas that exclude human presence. Should they not be made accessible for people to learn about the value of biodiversity?

The role of urban areas in biosphere reserves constitutes another long-standing debate. Traditionally, biosphere reserves are established in rural or natural resource-based areas; therefore, what is the role of urban areas that lie within their transition zones? Should a separate type of urban biosphere reserve be developed that reverses zonation: a densely developed core, interspersed with urban green spaces as buffers and surrounding farmlands or forests to provide essential ecological services?

Since the MAB programme recognizes urbanization as a principal driver for ecosystem-wide pressures, the *Madrid Action Plan* promotes the nomination of biosphere reserves in an urban context. Proponents of “urban biospheres” argue that world cities could use the biosphere reserve concept as a tool for planning and managing sustainable urban development. For example, the biosphere reserve model could “...provide a tool for integrating emerging issues in the urban environment, e.g., reduction of greenhouse gas emissions, improving energy efficiencies and innovative approaches to waste management, transport, etc.” (Draft 10/XII/07 of the Madrid Action Plan: 13).

Opponents of the “urban biosphere” designation fear that the original biosphere reserve model will lose its identity: too much flexibility in the interpretation of the model will cause it to lose its normative power and international credibility (Robertson Vernhes, pers. comm., 2008). Others caution that however the incorporation of urban areas proceeds, the essential concept of protecting biodiversity in core areas must be preserved. Commentators from Canada insist that: “the designation of urban-centred biosphere reserves begs the very definition of a Biosphere Reserve” (Birtch, 2008). They recommend instead that biosphere reserve *principles* (e.g., participatory approaches, partnerships, and inclusion) be applied across the landscape and extended region, including urban areas. The third World Congress on biosphere reserves in Madrid aimed to resolve some of these debates at the programme level and set directions for implementation for both new and existing biosphere reserves.

Although debates about the biosphere reserve model continue, the essential zonation formula provides a strong foundation for integrating human and ecological systems. Without fencing off nature from human use, the core-buffer-transition design integrates the three functions of conservation, development and capacity building to accommodate and to perhaps slowly transform human activities. Having a gradient of human impacts across once “natural” ecosystems enhances scientific research and long-term monitoring.

As such, in the biosphere reserve model, core areas are never isolated from external drivers (see Berkes, 2006) or from surrounding human influences. As one observer noted: “Biosphere reserves acknowledge that ‘life happens’ and that human activities should be mediated by their surrounding ecosystems” (Sweeney, pers. comm., 2007). Essentially, the physical delineation of core-buffer-transition zones serves to reinforce the message of balancing people and nature, conservation and sustainable development, across spatial and temporal scales.

### ***(3) Integrating Ecological and Cultural Landscapes***

While the structure of biosphere reserves is informed by science, the model clearly integrates both scientific and cultural values. In the nomination process for new biosphere reserves, for example, applicants must outline the ecological *and* the cultural significance of the proposed landscape (including the history of human settlement, current development patterns and opportunities for sustainable development). Biosphere reserves are designated when they demonstrate both scientific importance and cultural significance, along with sufficient political commitment to pursuing sustainability.

Since biosphere reserves can be constructed both as scientific and as cultural landscapes, the normative potential lies in having people connect with them more conscientiously. Campbell (2005: 202) argues: “We need to be able to distinguish where humans have imposed on the environment and where they have adapted to it, and recognize that a landscape is a product of both dynamics.” Sustainability studies such as Wilson’s (1991) work on the *Culture of Nature* expose the lie that culture is somehow separate, or independent, from nature. Wilson unravels the false dichotomy between nature and culture, calling us instead to dwell in place, in a way that is ecologically responsible. His call is compelling because it is contingent; it recognizes that sense of place and values resonate differently across generations, classes and cultures. Reconciling conflicting values within a shared sense of place is a task for sustainable development and a potential role that biosphere reserve organizations might help to mediate.

Biosphere reserves capture the particular history and cultural values that are embedded in places. In Ontario, for example, scholars have noted that many of our biosphere reserves are “iconic landscapes” – from the cliffs of the Niagara Escarpment and the Long Point sand dunes, to the rugged islands of Georgian Bay (Francis et al., 2004). Some theorists argue that landscapes like these engage people because they are increasingly rare:

Mitchell (2004:20) says that:

Beautiful scenery has not lost its capacity to move great numbers of people...precisely because they are so estranged from it. Landscape is now more precious than ever – an endangered species that has to be protected from and by civilization, kept safe in museums, parks, and shrinking “wilderness areas.”

However, for many people working with biosphere reserves, landscapes have come to represent much more than vanishing scenery and species. They share a growing awareness of ecosystems functioning across scales, such as watersheds and wildlife corridors, and that social well-being, economic vitality and the integrity of ecological systems are intimately linked.

Within the model then, biosphere reserves represent “working landscapes” – iconic (or otherwise) landscapes that carry socially constructed meanings worthy of naming and painting, but also invoke meanings for the ordinary people who live in them. J. B. Jackson’s (1984) *Vernacular Landscapes* explores everyday experience of landscape as the setting for life and work. Wilson (1991:89) also guides his readers to consider the significance of working landscapes:

Those working landscapes – the ordinary places of human production and settlement – are enormously complex places. Their history is in part a history of engineering – of how we build bridges, contain water, prune trees, and lay sidewalks. But it is also an aesthetic history. It is about shaping, defining, and making the world beautiful in a way that makes sense to us in the time and place that we live.

At the same time, human societies literally live off the land, whether by subsistence or as part of a fossil-fuelled, resource-based global market economy. The biosphere reserve model refuses to allow for a static preservation of particular landscapes; it forces acknowledgement of human livelihoods that respect land and landscape; it celebrates cultural landscapes as a source of social and ecological connection and a motivation for collective stewardship and sustainability.

Arguably, the growing number of biosphere reserves in Canada attests to an ongoing interest in stewardship and conservation, but one that is now guided by an explicit attempt to realize greater sustainability in certain communities within their larger and more complex ecosystems (Pollock, 2004). In his book, *Planning at the Landscape Scale*, Paul Selman (2006: 69) points out the main attraction of the landscape scale as a framework, "...is its holistic nature, and its capacity to integrate human and environmental systems with identifiable and distinct places. However, this also makes for great, perhaps overwhelming, complexity."

Fortunately, individual biosphere reserves provide a focal point for "getting our heads around... whole landscape units" (Selman, 2006: 69). In Canada, biosphere reserves provide innovative mechanisms for involving local communities in whole-landscape approaches (NRTEE, 2003). Most of these approaches are experimental, diffuse, and adaptive rather than rational, top-down or managerial. However challenging it is to pursue sustainability across particular landscapes or regions, the UNESCO biosphere reserve model attempts to apply the principles of sustainable development in a holistic and integrated fashion, rather than in a fragmented or narrowly sectoral way.

#### ***(4) Integrating the Principles of Sustainability***

In the 1970s, the biosphere reserve model helped to demonstrate what were later termed the three conventional pillars of sustainability: society-economy-environment. As noted, biosphere reserves aim to protect the building blocks of life on earth through conservation of biological diversity (across scales, from the genetic to the landscape). At

the same time, the model aims to protect social values related to culture, traditional knowledge, and sustainable resource use. The third pillar of economic development, however, is usually captured through the wider lens of “economic and human development that is socially and ecologically sustainable.” Biosphere reserves are concerned with sustainable livelihoods of which a vibrant society and a robust economy based on a healthy environment are equal parts.

From the perspective of sustainability assessment (Gibson et al., 2005), the biosphere reserve model is clearly concerned with integrating several principles: (1) livelihood sufficiency and opportunity; (2) resource maintenance and efficiency; and (3) socio-ecological civility and democratic governance. Although less explicit attention is given to (4) intra- and (5) inter-generational equity in the biosphere reserve mandate, many biosphere reserves adopt and promote the Brundtland (WCED, 1987) definition of “sustainability for future generations” and are highly involved with building opportunities for youth, particularly where rural de-population is a problem. More recently biosphere reserves have adopted the Millennium Ecosystem Assessment’s (2005) goal of maintaining and securing access to ecosystem services for human well being, including health, security and social/economic justice and equality.

As noted in the introduction, the normative view of sustainable development promoted by the biosphere reserve model requires a tremendous level of integration – across economic spheres, social groups, and ecological and temporal scales. Biosphere reserves themselves need:

...the appropriate knowledge and governance capacity to maintain economic vitality with social inclusiveness in opportunities and benefits, provide for

ecological sustainability and the protection of biodiversity to guide the use of resources, and promote social equity within and across groups and generations. All three are necessary and no one of them alone is sufficient. These requirements must also hold across a range of spatial and temporal scales (Francis, 2004: 21).

The sixth principle of “socio-ecological system integrity” as described by Gibson et al. (2005) is arguably central to the biosphere reserve mandate and reflects a growing concern for systems and resilience thinking. Gunderson ~~and Holling~~[et al.](#) (1995) revealed cases where social and ecological systems have adaptive cycles that are linked or that mirror one another (in terms of phases of organization, stability, collapse, and re-organization). Similarly, Berkes and Folke’s (1998) work on social-ecological systems explored how social institutions and ecosystems co-evolved in traditional forms of community-based resource management. Although traditional resource management at a local scale has been shown to develop highly adaptive social institutions that can respond quickly to environmental feedbacks (unlike centralized agencies), as resource problems cross scales, the institutional needs for managing cross-scale problems are largely unknown. For these and other reasons, both Francis (2004) and Elmqvist (2006) have pointed out that the dynamics of complex social-ecological systems actually set the broader context within which biosphere reserves have to operate.

The seventh principle of “precaution and adaptation” in biosphere reserves is best captured by the themes of social learning and adaptation, as discussed below. Biosphere reserves are recognized as “experiments in sustainable development” or “living laboratories” and “learning platforms.” As part of a world network, they are encouraged to share experiences and learn from one another and to be demonstration sites for

surrounding regions. Like many other areas of the world, biosphere reserves share emerging concerns about the need for precaution (due to the uncertainty of complex systems and the effects of rapidly changing technologies) and the fundamental need for adaptation to change (such as biodiversity loss, global economic restructuring, or climate change).

For the purposes of this conceptual framework, Gibson et al.'s (2005) eighth and last principle of "integration" is seen to be crucial. From bridging science and society and balancing people and nature, as identified in the early 1970s, to more recent models of ecological integrity, resilience and human well-being, the theme of integration for sustainability has remained central to the biosphere reserve model. Rather than using the model of the three pillars of sustainability that tends to perpetuate fragmentation rather than integration, biosphere reserves attempt to address the complex social and political realities of human development. By incorporating basic understandings of cross-scale and multi-level governance with guiding principles for sustainability, the biosphere reserve model provides interested communities with a practical, but ambitious, framework for pursuing integrated sustainable development.

#### ***(5) Social Learning and Adaptation***

The final element related to integrated sustainability relates to social learning and adaptation. As noted in the introductory chapter, sustainable development itself can be viewed as a process of social adaptation to change (Kemp [et. al.](#), 2005). Governance for sustainability involves "participation in, and the responsiveness of, decision making

processes, but also the capability of institutions to accommodate changing conditions” (Becker et al., 1997: 19). Since biosphere reserves are explicitly designed as “experiments in sustainable development” for sharing knowledge and learning, they provide a framework for social learning, particularly in the context of governance and decision-making.

In response to the inherent uncertainty of decision-making, Dryzek (1997: 198) argues that we need to increase “the capacity to facilitate and engage in social learning in an ecological context. Environmental issues feature high degrees of uncertainty and complexity, which are magnified as ecological systems interact with social, economic, and political systems. Thus we need institutions and discourses which are capable of learning – not least about their own shortcomings.” Paehlke and Torgerson (2005) add that societies require a means of social choice that will perform better than existing institutions and will facilitate their own critical examination and modification.

Social learning is also seen as a critical element for adaptation to change, often expressed as capacity for adaptive management (Holling, 1978; Lee, 1993) or adaptive governance (Brunner et al. 2005; Olsson et al., 2006). Since prediction is almost impossible in a complex system, organizations must adopt strategies that recognize interdependence and resource limitations. Interest groups, the identification of shared values, continuous learning and continuous scanning, evaluation and modification are all part of adaptive planning in these conditions.

Faced with complexity and uncertainty, biosphere reserve groups could usefully adopt the model of “learning organizations;” that is action should be based on available knowledge and take into account new knowledge generated in the process. For example, Maarleveld and Dangbegnon (1999: 1) suggest that systems thinking, experimentation and communicative rationality are essential to social learning in collective decision-making processes around managed resource systems.

Integrated sustainable development involves iterative processes of citizen engagement, collaborative governance and social learning, with positive feedbacks developing over time. Self-organized citizen activities, such as those of environmental NGOs, have also been shown to involve social learning (Lerner, 2006). Citizens are challenged to learn a myriad of skills: question authorities, research technical subjects, resolve conflicts, organize and speak at public meetings, prepare and present briefs, find funding and allies, and other activities required of NGOs and similar civic groups. This leads to strong learning curves not only for participating members individually but collectively for the groups themselves. In the process, of course, social capital is created and drawn on, and action competence develops ([Whitelaw, 2006](#); [Whitelaw, 2005](#); McCarthy, 2006).

Social learning is considered a potential outcome for organizations and networks involved in collaborative governance. Negotiations among network members may result in the generation of new knowledge and new or enriched capacities. Continuous discussion and analysis encourages learning in the network and cultivates the development of a common understanding of the social world and of the role of the network within that world (Marcussen and Torfing, 2003: 17) and development of

increasing skill and confidence in collaborative deliberation and decision making. Pretty and Frank (2000) believe that both social capital and social learning are critical to the effective functioning of community-based natural resource management and collective decision-making.

In summary, biosphere reserves have various elements that work together to create a framework for integrated sustainable development. However, to transform such a model into practical undertakings, multi-stakeholder collaborative efforts are required. The next sections present collaborative multi-stakeholder governance as the procedural dimension of the conceptual framework on biosphere reserves, using illustrations from the Canadian experience.

#### **5.4.2 Multi-Stakeholder Collaboration in Biosphere Reserves**

The second dimension of the conceptual framework refers to governance processes, such as the collaborative modes and approaches to governance promoted by the UNESCO model for biosphere reserves. Collaboration increases the number of players and perspectives involved in traditional decision-making through a variety of innovative approaches. Where multiple actors are involved in complex and overlapping decision-making structures, collaborative governance aims to integrate their goals, issues and values. Processes of collaborative governance are thought to demand and produce mutual respect, trust and other forms of social capital that lead, in turn, to the creation of social learning and opportunities for adaptation to change. Collaborative governance mechanisms are particularly flexible and responsive to changing decision rules, cultural shifts and institutional contexts.

An analysis of the biosphere reserve model reveals at least three considerations for collaborative governance: (1) self-organization and the formation of local governance arrangements; (2) the role of place-based governance for engaging citizens and public participation; and (3) defining specific characteristics of collaborative processes. First, in order to prepare a world biosphere nomination for UNESCO's consideration, a nominating group is often self-organized across sectors and scales to stimulate the appropriate local organizational arrangements. As described below, the process of local organization for biosphere reserve "management" can take many forms and this flexibility is considered a major strength for governance (Francis, 2004).

Second, place-based governance helps to engage citizens and other stakeholders in defining sustainable development for their local circumstances (Pollock, 2004). Finally, collaborative governance must be better defined (Donahue, 2004) to assess whether the work of multi-stakeholder organizations such as biosphere reserves constitutes collaborative governance. The most recent studies on this show that participatory management and collaborative governance are practiced by an increasing number of biosphere reserves (Stoll-Kleemann and Welp, 2008).

### ***(1) Self-Organization of Local Governance Arrangements***

UNESCO has no specified types of organization that it requires for a biosphere reserve, and leaves the question of organization up to each country to decide. In Canada, decisions about organizational arrangements are made locally. Many in the Canadian Biosphere

Reserves Association would agree that this flexibility allows for place-based, situation-specific arrangements which are adapted to local circumstances and can evolve over time as may be necessary. Francis (2004: 10) notes that:

The key to success in biosphere reserves lies with establishing local organizational arrangements that can initially serve to promote and explain the concept (not only what it is, but especially what it is not), build support (or “buy-in”) from community groups and governments, [and] help develop the functions that biosphere reserves are meant to serve....

Standard activities might include research, monitoring, education, public information, and demonstration projects where multiple stakeholder or partners share resources and governance responsibilities.

Indeed the key lessons from the governance literature are: (1) that governance requires a high degree of civic participation for legitimacy and effectiveness, especially for sustainability; (2) that more complex problems appear to require more sophisticated forms of cooperation and sharing of power and knowledge; and (3) that governance is constituted both through structures and processes, and a mix of both formal and informal institutions. Governance as collaboration requires particular skills that are typically learned, enriched and entrenched individually and collectively through experience.

Although no two biosphere reserves in Canada are identical in the local organizational arrangements they have developed, Francis (2006) has noted that there are five discernable patterns in the structure of biosphere reserves in Canada. The strengths and potential weaknesses for each approach are noted briefly in the list below, although the

case studies will show that hybrids exist and both governance structures and approaches are known to evolve over time.

These five types of organization all rely on multi-stakeholder involvement to some degree. Even where the biosphere reserve is led by an existing organization (e.g., a national park, a university research station, or a government commission) multi-stakeholder collaboration is required to carry out the full range of activities assigned to the biosphere reserve.

**1. An existing organization adopts the biosphere reserve function.** Usually, it is an organization that has responsibilities for a particular function or geographical area within the biosphere reserve.

*Strength:* The organization can devote some staff time, budget and other support in kind. Its core function is consistent with at least some of the scope expected from biosphere reserves.

*Weakness:* The organization may limit itself to activities consistent with its own core function, or geographic jurisdiction, and ignore or discourage staff from involvement in other areas that biosphere reserves are meant to address.

**2. Two or three existing organizations agree to take on different aspects of the biosphere reserve.** The assumption is that they can and will coordinate closely.

*Strength:* Multiple organizations can immediately offer existing capacity and better “coverage” of biosphere reserve functions.

*Weakness:* Each organization remains pre-occupied with its core function or jurisdiction. Gaps in effort or coverage arise.

**3. A Steering Committee is set up with representatives from different organizations.**

*Strength:* Most biosphere reserves start this way. The committee can often develop a consensus on relatively non-controversial issues such as research or information dissemination, and on low cost activities.

*Weakness:* Budget or other funding for biosphere reserve expenses have to be approved (and can be effectively vetoed) in higher echelons of different bureaucratic systems with resulting delays and loss of coordinated commitment and effort.

**4. The biosphere reserve group incorporates as a non-profit and appoints its own Directors.**

*Strength:* Each biosphere reserve decides on the composition of its Board, and whether or not government representatives are *ex officio* or full voting participants. It plans and implements its own programs.

*Weakness:* The resulting biosphere reserve organization can become pre-occupied with constant fund-raising, weak or no government support, and “burn-out” among its volunteers.

**5. Biosphere reserve group is incorporated as a membership-based organization.**

*Strength:* This has potential for broad-based support rooted in the communities in the biosphere reserve.

*Weakness:* Different community groups may pressure the organization to take sides in local disputes, and the organization may be perceived as having been taken over by “particular interests.”

**(2) *Place-based Governance***

Recent developments within the fields of public participation, community development and collaborative planning suggest that *place-based* governance creates opportunities for sustainability by linking local and regional identities to processes that engage citizens, stimulate the development of social capital, and strengthen civil society. The notion of place-based governance combines ecological and political interpretations of “space” with sociological and cultural senses of “place” to develop context-specific approaches to sustainable development (Pollock, 2004). “The flexibility to develop ‘place-based’ arrangements (rather than follow a prescribed format) has been viewed favourably at

local levels since it allows for change and re-organization as local circumstances change” (Francis, 2004: 10).

As noted in the discussion above, biosphere reserves capture the particular history and cultural values that are embedded in places. The distinctive landforms and diverse topography of biosphere reserves seems to invoke a strong sense of place and attachment for many residents and regular visitors; and the integration of human uses with high quality attractive surroundings helps foster an ethic and motivation for stewardship commitments (Francis et al., 2004). As Lerner (1993) has documented for conservation and stewardship volunteers, a sense of place remains a major source of motivation for their involvement.

In Canada, some policy analysts have also attuned to the importance of place. Bradford’s (2005) study for the Canadian Policy Research Network argues that complex problems are resistant to traditional sectoral interventions designed and delivered in a top-down fashion by individual government departments. Required instead are place sensitive modes of policy intervention – strategies constructed with knowledge of the particular circumstances in communities and delivered through collaborations crossing functional boundaries and departmental silos.

At the international level, it is recognized that biosphere reserves must develop strategies for sustainable development that are most appropriate to their local context. Indeed, one of the four goals proposed for the *Madrid Action Plan (2008-2013)* was to:

Enable the active use of places included in the WNBR as learning platforms and “laboratories” for sustainable development; i.e. demonstrating approaches to enhance cooperation... to address and solve *context specific problems* to improve environmental, economic and social conditions for human and ecosystem well-being (Draft 10/XII/07 of the Madrid Action Plan: 2, emphasis added).

From a community sustainability perspective, governance mechanisms are needed that are indeed context-specific but that are also able to address complex issues that cross scales. A study of governing water resources by Conca (2006) urges locally-developed solutions, since the transfer of centralized or larger-scale approaches undoubtedly fail when applied to particular places. Young (1995) insists that macro-scale systems are not merely small scale systems writ large, or vice versa.

Berkes and Folke (1998: 432) find that although local-level (place-based) institutions are more adaptive and responsive to environmental feedbacks than are centralized agencies for resource management, most environmental issues are cross-scale and therefore, “...problems must be tackled simultaneously at several levels.” They propose the redistribution of power from central agencies – not their elimination – and a co-management system of institutions at nested scales. These authors make a strong case for place-based, multi-stakeholder and cross-scale collaboration that is similarly reflected in the biosphere reserve model. Other examples in the Great Lakes region include the development of Lake Area Management Plans (LAMPs) and the related local Remedial Action Plans (RAPs) for highly contaminated Areas of Concern that use multi-level government resources and tools (e.g., scientific research, monitoring, policies, regulatory frameworks) in concert with place-based organizations and community groups that are supported in their public education, remediation, restoration and stewardship activities.

### ***(3) Multi-Stakeholder Collaboration***

While collaborative governance is a term that is now widely used, a number of authors have emphasized the need for greater precision in defining collaborative governance. Below are eight dimensions along which collaborative governance might be better defined [Box 5.1]. These characteristics are adapted from Donahue (2004: 3-4) and enhanced by Marcussen and Torfing (2003) and help to further develop the conceptual framework for UNESCO biosphere reserves. The main considerations for defining collaboration are their origin or initiation and degree of formality, their duration and membership, their number of linkages and relative stability, and their main focus, scope, and orientation to governance activities.

Although this is a useful set of characteristics, it does not include direct attention to a core governance concern – the extent of power and influence. Eckersley (1995: 24) reminds us that there are “...many microcosms of power – constellations of interests, institutions and interpersonal relations...” It is critical to assess where power lies, how power differentials are created, and how they might be corrected. In the case of biosphere reserves, they have no formal regulatory power. They may claim a lack of power in order to claim neutrality – itself a significant form of influence in complex deliberations.

Moreover, a biosphere reserve may be only a small player in a much larger governance landscape with very little overall influence for sustainable development. While their

collaborative governance activities may be exemplary, they may also be peripheral to the decisions that are made by those with “real” authority – municipal, provincial, federal, and Aboriginal governments. Alternatively, biosphere reserves may provide loose networks of other players that lead to “messy” decision processes, but decisions that are ultimately effective for sustainability planning and implementation.

### Box 5.1. Eight Dimensions for Defining Collaborative Governance

**Origin/Initiative:** which collaborating institution(s) instigated the joint effort and for what purposes? What is the allocation of initiative among the parties for defining goals, assessing results, triggering adjustment and so on? Who is leveraging whom? Governance networks may result from the gradual emergence of stable patterns between a group of actors. Or they may be legislated, with either formal interaction or informal contacts. As Donahue (2004: 3) insists:

First, to count as collaborative governance, a large and even dominant share of the initiative must rest with a player holding a plausible claim to represent the broad public interest... Second, each of the collaborating parties must have some role in setting the goals of the collaboration. Third, the relationship among the parties must be strategic, in the sense that each acts with an eye to the others and anticipates that the others will respond to its own behaviour.

**Formality:** Governance networks may involve formal interactions between formally organized members (agreements, objectives, meetings, agendas, rules of negotiation, and proceedings). Other governance networks will interact through highly informal conversation and circulation of information, ideas and propositions and meet on an as-needed basis. Governance networks often have a formal core of members and a more informal periphery.

**Duration:** collaborative governance arrangements range from permanent (intended to be infinitely enduring) to *ad hoc* collaborations that dissolve as soon as a crisis is resolved or a goal achieved. Collaborative arrangements, unlike bureaucracies, have been said not to outlive their usefulness. Some networks will have been planned for a short duration while others will fail and dissolve prematurely. Long-lasting networks may not be a feature of their functionality; some assume a life of their own, become resistant to external challenges, and survive for decades. Other would-be networks never reach a tipping point (i.e., critical mass, political leverage, level of participation) despite contributions to governance that are useful and even necessary.

**Membership/Institutional diversity:** a minimum level of diversity among participating institutions (public and private) is required.

**Linkages or “valence”:** refers to the number of distinct players linked together in a collaboration and the number of links between them. Power lies not with the actors or players (people or organizations) themselves but in the links that bind the actors together (Latour, 1986). The critical point here is that “power is associative, invested not in entities but in relations” (Woods, 1997: 323).

**Stability vs. Volatility:** a collaboration is stable to the extent its members share a normative view of successful governance, and volatile to the extent members’ norms or interests diverge. The less stable is the collaboration, the more of its energies must be devoted to maintaining the collaboration itself.

**Focus, Scope and Scale:** Governance networks may be limited to a single issue (that may mobilize a wide range of stakeholders) or single sector (e.g., agriculture) or a network of wide societal concern (e.g., sustainable development). Governance networks tend to incorporate both public and private spheres and cross multiple levels; decisions confined to a particular level are increasingly rare. Governance networks are often tangled and run athwart various administrative and regulatory levels.

**Problem-driven vs. Opportunity-driven:** is the collaborative primarily “defensive” – devoted to solving or ameliorating some joint threat [e.g., NIMBY] – or primarily “offensive” – meant to pursue a shared opportunity [i.e., sustainability]? That is, is the success of the collaborative defined as maintaining, or as or changing, the status quo?

Using this type of analytical framework, with the additional considerations of power and influence, collaborative governance can more easily be assessed and defined for particular biosphere reserves, and indeed when patterns emerge, for the biosphere reserve model as a whole. Beyond this type of rapid appraisal of collaborative governance, it may also be interesting to note how biosphere reserves move toward or away from collaboration at different points in their history and for what purposes.

In Canada, the development of cooperation plans has been found to be a useful tool to increase participation of a wide range of interests in biosphere reserve activities. In 2002, CBRA developed the *Cooperation Plan* as a tool for biosphere reserve coordination and tested it in ten Canadian biosphere reserves. Plans involve local consultation and contain: background, vision, challenges, goals for the three functions of a biosphere reserves, partnership roles, and resources and strategies to achieve goals. Projects that emerge from the plans are often led and financed by partners or stakeholder groups. Signatories of the nomination form (e.g., managers of core and buffer areas) have a moral, but not a legal, authority to pursue the objectives of the biosphere reserve (Birtch, pers. comm., 2006<sup>7</sup>).

Typically, the local coordinating committees work with, or constitute themselves as, regional networks, to carry out sustainable development activities. As Birtch (2007: 2) explains:

By virtue of their broad mandate as models for co-operative effort, biosphere reserves, and their associated facilitating bodies, help to build regional networks, long-term community capacity, and provide a forum for dialogue around common interests. This valuable role could be better profiled as a means to overcome the institutional inertia and barriers to addressing sustainable development issues.

Collaborative, multi-stakeholder approaches to governance are at the heart of the biosphere reserve concept in Canada, and are directly related to the formation of governance networks.

### **5.4.3 Biosphere Reserves as Governance Networks**

The third and final dimension of the conceptual framework on biosphere reserves is structural, i.e., their role in creating governance networks and in managing those networks through “network governance.” This section draws on the literature from Chapter 4 to highlight the structures and dynamics of governance networks. Since the biosphere reserve model encourages the formation of governance networks, by building trust and social capital and by bridging multiple organizations, this section explores how biosphere reserves initiate and influence governance networks, across different scales and using diverse approaches. It briefly incorporates new literature on the function of network bridging and boundary organizations (Hahn et al., 2006; Olsson et al., 2006).

#### ***(1) Governance Networks***

Biosphere reserves must navigate and influence the governance layers and players around them; they do this through the formation of both formal and informal governance networks. Networks structure the process of governing through network creation and decentralized, collective decision-making. Features that characterize governance networks are their ability to link independent and autonomous actors (organizations) into some collective endeavour. Networks are greater than the sum of their parts, since they produce outcomes that could not normally be achieved by individual organizations acting

independently. Within collaborative networks, responsibility and accountability is shared and networks both demand and generate trust to function effectively.

Once common goals are established, then network governance is often the resulting pattern of interaction. Governance networks create new inter-organizational domains<sup>12</sup> for legitimate, non-coercive, horizontal negotiation. The institutional framework (or the rules of engagement) is not fixed but evolves through negotiation. Governance networks typically account for and operate across multiple levels and scales. These seven features offer a rapid appraisal of governance networks; they:

- i. Link independent and autonomous organizations;
- ii. Establish common goals, collective action, inter-dependent outcomes;
- iii. Share responsibility and accountability;
- iv. Require and generate trust among individuals and organizations;
- v. Produce inter-organizational domains for negotiation;
- vi. Use flexible and adaptive institutional “rules”; and,
- vii. Operate and influence across levels and scales.

In any biosphere reserve in Canada, the local organizational arrangements involve networking processes to decide upon particular roles and priorities that the biosphere reserve group itself will take on. This is an expression of governance in the sense that the networks reach beyond government to include business organizations and non-

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<sup>12</sup> A domain is defined as “a ‘social space’ as perceived and defined by the actors who share it. The focus of a domain can be a geographic area, a social or economic sector, or certain kinds of problems and issues. As a social construct, a given domain may have no firm boundaries because as actors come together within it, their perceptions of what should be included by it can change. Domains arise when actors within them become aware of their interdependence with similarly situated actors” (Francis, 2003: 235).

governmental groups (civil society) to provide services not sufficiently covered by government or the market sector (Francis, 2004; 2008). Indeed, building networks can be one of the most effective ways of enrolling others into the process of defining and achieving sustainable development for specific places. Several illustrations<sup>13</sup> of collaborative governance networks in Canadian biosphere reserves follow.

In the Frontenac Arch Biosphere Reserve (Ontario), the board of directors recognizes that the local watershed is an effective scale for organizing collective action. This biosphere reserve has simply become known as “The Biosphere Network” due to its active management of its multi-stakeholder organizations and its identity as a “network of networks.” About 80 individual organizations are linked into eight distinct networks, each facilitated by biosphere reserve volunteers and three or four paid staff. As facilitators and network brokers, they are involved with 20-30 partner organizations at any given time on diverse projects for capacity-building. This approach of community-based, “bottom-up” networking for sustainable development will be explored through the case study in subsequent chapters.

In the Clayoquot Sound Biosphere Reserve (British Columbia), the UNESCO designation has provided a framework for planning sustainable community development, with the economy shifting from dependence on logging and fishing to a more diversified one that includes tourism, aquaculture, and production of marine and forest products (UNESCO, 2005: 3). The overall governing structure is a formal co-management arrangement with

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<sup>13</sup> These examples were prepared by Francis (pers. comm., 2008) for the third World Biosphere Reserve Congress in Madrid, Spain (February, 2008).

equal representation from Aboriginal and non-Aboriginal communities. The Clayoquot Biosphere Trust (a federal endowment fund from 2000) supports research, education and cultural development. Many programs are set in the context of on-going negotiations for a comprehensive Treaty and Aboriginal approaches for sustainability in resource use are promoted through a variety of community-based projects for community health, resource stewardship, Aboriginal language retention, cultural awareness and local capacity building.

In Waterton Biosphere Reserve (Alberta), the major accomplishment over the past decade was the acquisition and protection of over 14,000 ha of native ranchlands that fall immediately adjacent to the National Park (the core area of the biosphere reserve). This effort was led by ranch owners themselves with outside funding from various organizations, such as the Nature Conservancy of Canada. These lands are critical for wildlife conservation and are being maintained through traditional ranching techniques rather than being developed for mountain-view resorts or private homes.

In the Riding Mountain Biosphere Reserve (Manitoba), the biosphere reserve board of directors, working with the National Park, was able to respond creatively to a perceived threat of bovine tuberculosis in elk that was in danger of spreading to cattle in adjacent agricultural areas outside of the park. In 2000, T.B. in cattle was a major threat to the economic base of the local agricultural economy from possible US restrictions on imports from Manitoba, and from government condemnation (destruction) of infected herds. In response, the biosphere reserve organized a multi-agency Task Force for Bovine

Tuberculosis among farmers and several government agencies to track the incidence of TB and seek preventive measures.

In the Fundy Biosphere Reserve (New Brunswick), the organizing committee consulted widely over several years with multi-stakeholder organizations in the region in order to begin to align themselves with others to gain full support for biosphere reserve nomination. This collaborative process built upon the successful experience of the Fundy Model Forest program. Other sites, including Frontenac Arch (designated in 2004) and the Oak Ridges Moraine (currently under exploration for possible UNESCO nomination) are good examples of the need to take the time to embed the concept of a biosphere reserve into local understanding and encourage gradual acceptance of what is required to make it work in practice.

As these cases illustrate, UNESCO biosphere reserves in Canada commonly emerge as lead organizations to facilitate or govern networks for sustainability. Network governance or management (as described below) is an inherent challenge, especially given the cross-affiliations of people and other kinds of networks active within the biosphere reserve (Francis, 2004: 11-14). Network governance brings the necessary “layers” and “players” in any given network together through negotiation and collective decision-making.

## ***(2) Network Governance***

As the literature suggests, network governance is necessary to ensure that network participants engage in collective, and mutually supportive action, that conflict is

addressed, and that network resources are acquired and used efficiently and effectively. However, networks do not respond to managers as system controllers (Klijn et al. 1995). To be effective network managers, biosphere reserves must play a facilitative role; they must seek to build the capacity of their partner organizations as their main objective.

Provan and Kenis (2007) remind us that a network generally takes one of three forms: it may be governed equally by all members (shared governance), or be managed by a lead organization within the network, or be externally managed by a designated network administrator. In the Canadian examples provided above, most of the networks are “managed” by the local biosphere reserve organization itself, although shared governance is also a common approach, especially in the “networks of networks” that may be created.

Clearly, governance issues arise at a larger scale beyond particular networks being fostered by the local biosphere reserve group. At the broadest level, metagovernance refers to the overall institutional system of rules that govern the distribution of power, authority, and responsibilities among the components of the three sectors. It “involves managing the complexity, plurality, and tangled hierarchies found in prevailing modes of coordination” (Jessop, 2002: 6). Biosphere reserves are thus challenged to manage their place in the higher levels of metagovernance complexity due to their commitments to sustainability, without an explicit mandate from UNESCO to do so.

To be effective players in governance, however, they must be aware of the current institutional frameworks or governance “layers” and “players” that influence sustainable

development – both within and outside their immediate sense of place. There is a complex overlay of institutions and organizations in most biosphere reserves. As biosphere reserves transcend immediate local and landscape-level concerns to address more complex multi-level issues, they have greater opportunities to broker collaborative processes that combine local and expert knowledge to inform and influence decision-makers at higher levels of jurisdiction. The biosphere reserve case studies presented in the following chapters suggest that such organizations initiate new governance structures (e.g., networks and coalitions) by facilitating informal collaborative governance processes (e.g., community dialogue, visioning exercises, issue forums, local marketing mechanisms, and numerous types of partnerships).

According to new organizational theories, these functions can be described as “bridging” activities by “boundary organizations” (Guston, 2001; Hahn et al., 2006). A major challenge for organizations working across multiple levels, timeframes or domains is to more effectively create knowledge that is salient, credible and legitimate across disciplinary and sectoral boundaries. Guston (2001) refers to solving this challenge as boundary management and to organizations that explicitly focus on this intermediary function as “boundary organizations.” Biosphere reserves may qualify as boundary organizations because they often play an intermediary role between different arenas (layers and players) and facilitate the co-production of knowledge.

In Canada, one of the most innovative features of biosphere reserves is the convening, bridging, or open forum services they provide for regional stakeholders to address

challenging inter-jurisdictional issues that are typically beyond the scope of any one authority (Birtch, [2007: 2pers. comm., 2006](#)). Although some biosphere reserves evolve from small local non-profit groups to broker much broader networks of stakeholders involved in sustainable development, many do not. Their internal governance capacity is constrained by factors such as limited social capital (Millard, 2005), institutional effectiveness (Reed, 2006), and local participation (Stoll-Kleemann, et al., 2006).

How biosphere reserves initiate and influence external governance structures and processes to accomplish their sustainability objectives is still largely undocumented. Therefore, the final sections of this chapter review the research propositions on that question, summarize each of the elements within the three dimensions of the conceptual framework described above, and then suggest some possible roles for biosphere reserves in governance for sustainability for exploration in the following case study chapters.

## **5.5 Summary of the Conceptual Framework**

The conceptual framework described throughout this chapter has drawn on literature from each of the previous chapters. It uses the principles for sustainability (Gibson et al., 2005) to frame the types of structures and processes that support governance for sustainable development. The conceptual framework therefore highlights the ethical, procedural and structural dimensions of governance for sustainability within the UNESCO model of biosphere reserves.

It aims to test, through qualitative exploration, the argument that biosphere reserves contribute to governance for sustainability in three major ways: (1) through the integration of sustainability principles, (2) through highly collaborative multi-stakeholder modes of governance, and (3) through the creation of innovative governance structures, such as cross-scale networks. The three research propositions that have been elaborated in this chapter are re-worked into an analytical framework, below, for use in subsequent case study chapters.

From the conceptual framework, various potential roles for biosphere reserves in governance for sustainability become clearer. Within the UNESCO model, for example, biosphere reserves become a guiding light for regional sustainability: they provide a standard, highly integrated framework for conservation and sustainable development, across three inter-related zones. They integrate modern conservation biology (e.g., protected cores and corridors) with social values, such as a sense of place, history and a commitment to stewardship.

Biosphere reserves implicitly model the eight principles for sustainability and provide a flexible template for context-specific problems to be addressed. As experimental demonstration sites, they encourage social learning and adaptive management. The UNESCO designation brings a certain international caché, moral authority and recognition to local efforts. Although such a model has many aspects and rather high ideals, it is quite attractive to practitioners committed to sustainable development, who wield the model as a tool for integration, education and collaboration.

Due to their commitment to citizen engagement, local participation, and wide representation, biosphere reserves are instrumental in facilitating multi-stakeholder collaboration. The very process of UNESCO nomination demands significant consultation with affected parties (e.g., formal authorities at multiple levels, civil society organizations, local businesses and industry sectors) – to “encourage ‘buy-in’ for the work of a biosphere reserve” (Francis, 2004). Self-organization of interested groups, both to pursue designation and to “manage” the work of the biosphere reserve, is common. The biosphere reserve model thus supports the major themes from the governance literature: (1) civic participation for legitimate and effective sustainability; (2) sophisticated forms of cooperation and sharing of power and knowledge; and (3) that for sustainability, innovative structures and processes, and a mix of both formal and informal institutions, are all needed.

With their broad mandates for sustainability as “theatres for reconciling people and nature” ([Seville Strategy UNESCO](#), 1995), and their ability to cross scales and domains, biosphere reserves often take the role of conflict mediator and provide an open forum to air contentious issues and to make difficult decisions. A neutral, non-advocacy approach to collaboration (that is consistent with the BR mandate) provides the biosphere reserve organization with enhanced credibility. For public deliberation, the role of mediator is key: the facilitator must take an active stance to ensure equal participation and must manage appropriate participation to create an effective political space. As Smith (2003: 84) remarks, “mediators protect and nurture the public sphere.”

As such, another role for biosphere reserves is that they become trusted brokers for broader networks of organizations. They become what Rhodes (2006: 664) describes as a “nodal point of a network coordinating multiple stakeholders.” As Francis has noted:

The main and interrelated roles for a local biosphere reserve group are to identify particular situations in which the biosphere reserve group can facilitate or “broker” greater “networking” among other organizations in order to address the functions of a biosphere reserve more effectively (i.e., keep in close communications with various agencies, other organizations, and local communities).

Likewise, Klijn et al. (1995) remind us that effective network managers play a facilitative role; they must seek to build the capacity of their partner organizations rather than seeking to meet their own objectives. To that end, biosphere reserves play “bridging” and “brokering” functions to help diverse organizations identify common goals or similar organizations (in different geographic locations or spatial scales) combine efforts and resources for mutual benefit. In this sense, biosphere reserves attempt to “organize self-organization” and qualify as “boundary organizations” due to their role as mediators and translators. They tend to lead from behind, building the capacity of their partners. Given the limited capacity of most local biosphere reserve organizations and the breadth of their conservation and sustainability agenda, the UNESCO “logistic function” is specifically related to building capacity – for research, monitoring, conservation, development, and governance – of other organizations within the biosphere reserve. Fulfillment of the three functions can only be achieved through collaborative effort.

The collaborative potential for biosphere reserves points to two levels or stages of decision-making concerning the issues to address: (i) the initial selection of problems or opportunities to take on (consistent with their mandate and participants’ interpretations of

local priorities, and (ii) the adoption of a non-advocacy approach to collaboration on the chosen issues. The process of nomination and UNESCO designation “casts the net wide” to capture a diverse representation of stakeholders and either mobilizes an embedded sense of place or may actually create a new landscape domain ([Whitelaw, 2006](#)[Whitelaw, 2005](#)) around which government authorities can be steered by civil society towards sustainability. (e.g., to the creation of new legislation). Strategic brokering by biosphere reserve groups may also result in the creation of new inter-organizational domains that garner the legitimacy to develop creative solutions to sustainable development.

Finally, as noted above, biosphere reserves are faced with the daunting task of “managing for complexity,” given the range of organizations and initiatives that are dedicated to sustainability. Biosphere reserves play a critical role in their understanding of “metagovernance” ([Jessop, 2002](#)[3](#)) since they should attempt to track overall institutional systems of rules that govern the distribution of power, authority, and responsibilities among governance players: state, market, and civil society. To be effective players in governance, biosphere reserves must therefore navigate and try to influence existing institutional layers and regimes (e.g., norms, rules, policies and agreements).

To be effective in fulfilling their mandate, “they must keep track of the ‘big picture’ about all that is being done in the biosphere reserve that exemplifies what biosphere reserves are meant to do” ([Francis, 2007a](#)), not only every ten years for UNESCO’s periodic review, but on an ongoing basis in order to guide strategic actions, priorities, facilitation, brokerage and other interventions. It appears that biosphere reserves would

benefit from taking on this type of role but generally have not, perhaps because they are coping with the daily survival of their organizations or because they have not reflected on metagovernance as a potentially valuable role for them.

## **5.6 Analytical Framework for Biosphere Reserves**

The fields of governance and sustainability are vast areas of scholarship that are not easily applied to empirical research at the level of single organizations or to inter-organizational networks. In order to translate the broad conceptual framework for biosphere reserves into a useful analytical tool, each of the three dimensions of the framework is translated into specific questions for case study analysis [Table 5.1]. In other words, each research proposition is focused through a set of evaluative questions that are used to guide the qualitative interview questions, the codes and categories used in data analysis, and the overall interpretation of findings.

For a fuller analysis, not only should the questions help to determine to what extent each of these elements is present in the case studies, but they should also help clarify at each stage: to what effect? Application of an analytical framework to the research data helps to elicit illustrative stories about the actual and potential roles of biosphere reserves. It also provides a tool to refine the guiding conceptual framework by identifying factors that contribute to more effective governance for sustainability.

<p><b>I. Integrated Sustainability:</b></p> <ol style="list-style-type: none"> <li>1. To what extent does the biosphere reserve (BR) integrate sustainable livelihoods and conservation considerations in its organizational focus and in its broader community initiatives?</li> <li>2. To what extent does the BR address cross-scale dynamics (i.e., multi-level jurisdiction, external drivers, spatial and temporal consideration) across its three distinct zones?</li> <li>3. To what extent does the BR accommodate both scientific and cultural interpretations of place and how does that relate to citizen engagement?</li> <li>4. To what extent does the BR integrate the eight criteria/principles for sustainability?</li> <li>5. To what extent does the BR foster social learning and adaptation?</li> </ol>
<p><b>II. Collaborative approaches:</b></p> <ol style="list-style-type: none"> <li>1. To what extent has/is the BR self-organized? What local governance arrangements [in which the BR participates?] are in place and what are their strengths, weaknesses, challenges and opportunities?</li> <li>2. To what extent is place-based governance used to define and address context-specific sustainability challenges?</li> <li>3. To what extent does the BR organization engage in collaborative governance and how can it be characterized?</li> </ol>
<p><b>III. Governance networks:</b></p> <ol style="list-style-type: none"> <li>1. To what extent are local BR organizations involved with networks and in what capacity?</li> <li>2. To what extent do BRs participate in network governance as managers or facilitators?</li> <li>3. To what extent are BR organizations aware of the dynamics of metagovernance?</li> </ol>

Table 5.1. Analytical Framework for the Role of Biosphere Reserves in Governance

## 5.7 Conclusions

This chapter fulfills one of the primary objectives of this study by developing a conceptual framework on the role of biosphere reserves in governance. It draws on the

literature from each of the previous chapters to reveal that governance for sustainability prescribes certain *ethics and standards* for sustainability with which to guide certain *modes and approaches* to governance, resulting in the creation of innovative governance *structures*. From this basic formula, the research proposes to explore UNESCO biosphere reserves as models for integrated sustainability, as collaborative multi-stakeholder modes of governance, and as innovative governance structures. The framework suggests a diverse range of potential roles for biosphere reserves in governance – roles that are explored in the next several case study chapters and comparatively assessed in the concluding chapter.

## 6. Case Study: Long Point Biosphere Reserve

### 6.1 Introduction

The purpose of this chapter is to explore the ways in which the Long Point Biosphere Reserve<sup>14</sup> contributes to governance for sustainability. First, the core, buffer, and transition zones of the biosphere reserve are described to set the general context for governance. Second, the development of the Long Point World Biosphere Reserve Foundation (LPWBRF) is described, using specific issues and initiatives to illustrate the challenges, opportunities and roles that the biosphere reserve has played in governance for sustainability.

The case study shows that the focus of the Long Point Biosphere Reserve (LPBR) evolved over two decades (1986-2006) from one concerned with the aquatic ecosystems of Lake Erie and its fisheries; to one concerned with forest restoration and terrestrial ecosystem monitoring on the adjacent mainland; to one that now attempts to account for much broader regional land uses, such as agriculture, tourism, and residential/industrial development in the regional municipality of Norfolk County.

The formal case study analysis, beginning in section 6.4 draws on these experiences in light of the conceptual framework to assess the degree to which the LPBR is a model for integrated sustainability, uses collaborative modes of governance, and supports

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<sup>14</sup> The term “biosphere reserve” is used throughout the case study chapters in two ways: to describe the territorial designation from UNESCO (indicated by the LPBR acronym, for example) and to describe the local biosphere reserve organization (e.g., the Long Point World Biosphere Reserve Foundation (LPWBRF)).

governance networks. Throughout the chapter, empirical data are presented from participant observation (e.g., Pollock field notes), personal communications, qualitative interviews, and grey literature. Quotations from interview participants are coded (e.g., LPBR-1, LPBR-2) to preserve anonymity. The chapter then closes with a summary of emergent themes and offers some concluding observations.

## **6.2 The Long Point Biosphere Reserve**

The Long Point Biosphere Reserve is located in southwestern Ontario on Lake Erie. The Long Point area contains a rich mosaic of landscapes, including the open waters of Lake Erie; the inner bays, marshes and beaches of the prominent Long Point sand spit; the largest remaining tracts of Carolinian forests in Canada; agricultural lands dominated by tobacco farms; and rural towns and villages. Each of these images represents a complex social-ecological system linked to each of the others: lake geomorphology supporting commercial and recreational fisheries; watershed hydrology and wetland ecology altered by engineering and over-hunting; shoreline cottage developments and nearby industrial resource extraction; historic land clearings and subsequent forest plantations; farms that once included lucrative tobacco production, a sector now vulnerable to economic collapse; and rural communities facing the pressures of agricultural changes and urban growth in nearby regions, especially the Greater Golden Horseshoe.

### **6.2.1 Core Areas**

The core area of the biosphere reserve consists of the 3,250 ha Long Point National Wildlife Area (administered by Environment Canada's Canadian Wildlife Services) and

the adjacent properties of the Long Point Company (a private hunt club), for a total of 6,250 ha. Transport Canada governs the lighthouse at the tip of the Point and public access is prohibited in the core area. There are no permanent residents and special permits must be issued for bird studies. However, as noted below, the Point has a vibrant cultural history and an important conservation legacy.



Figure 6.1. Map of the Long Point World Biosphere Reserve (LPWBRF, 2002)

Long Point itself is named for a sand spit formation extending 32 km into Lake Erie. It is the largest erosion deposit formation in the Great Lakes, created by water-borne sediments swept eastward and deposited along an underwater glacial moraine. The Point is a dynamic physical feature subject to partial displacement during high water levels or storm surges and subsequent reformation (Nelson and Wilcox, 1996). Surrounding the

Point is a rich variety of habitats and biological diversity, including southern species that are unique to Canada. The Inner Bay area supports a waterfowl staging area and a migratory corridor for birds and insects; the area was recognized as an international Ramsar wetland site in 1982 and as a globally significant Important Bird Area in 1996 (Francis and Whitelaw, 2001).

The UNESCO biosphere reserve nomination application in 1985 focused entirely on the Long Point complex and the Inner Bay [Figure 6.1]. Outer boundaries in Lake Erie were defined by the 10 m water depth contour, while on the mainland side, the boundary was set at the 100 year flood line, because as Francis and Whitelaw (2001: 41) explain: it had been mapped and special restrictions on development had been imposed by municipalities due to the hazard of floods. Francis et al. (1985: 5) underscore that these boundaries were and are an arbitrary delineation around a geographic area of interest; the Long Point ecosystem is open to external influences, including lake dynamics (e.g., sedimentation, erosion, outflow, and water exchange), air quality, and a variety of human impacts.

Historically, Aboriginal peoples inhabited the area and flourished during an “Early Iroquoian” period of agriculture (ca 900 – 1300 AD) with production of corn, beans, tobacco, and squash, and seasonal fishing camps on Long Point (Francis and Whitelaw, 2001). Iroquois activity peaked in the 1400s and ended in the mid-17<sup>th</sup> century from attacks by the Haudenosaunee. The area was subsequently (circa 1690) occupied by the Mississauga and Chippewa who eventually surrendered it to the British in 1792.

Characterized by rapid cultivation and bountiful harvests, European settlement patterns led to dramatic landscape changes, especially in terms of deforestation, shoreline erosion, over-fishing, and the loss of habitat and wildlife. Trappers and hunters swarmed the area for pelts and game birds. Ducks, passenger pigeons (now extinct), ruffed grouse, quail and wild turkey were all decimated for food and for sport.

The government provided little protection. So the ruthless slaughter spread from the lakes of eastern Ontario... to the last remaining incubator for wild duck in southern Ontario – the great marshes of Long Point...with no thought for preservation or conservation of this great resource.... The depletion of wildlife was accompanied by depletion of tree cover, and consequently of the land itself. Increased (mostly illegal) lumbering denuded the ridges of their cover, and protection from wind and water was lost. Large areas of the always unstable Point began to succumb to the waves (Barrett, [19792000](#): 144-45).

The Point itself was a no-man's-land, extending far into Lake Erie, beyond the arm of the law. As Barrett ([19792000](#): 143-44) explains:

Accessible to, but still separated from, the growing settlements on both sides of the lake, the Point developed an unenviable reputation for drunkenness, murder, and debauchery of every kind. ...Gamblers and others wishing to indulge in activities now being regulated by the laws of both the American and Canadian governments could readily reach the Point by steamboat or sailing schooner hired from Buffalo or Erie. Few officials followed them – or could prove lawbreaking if they did. For a brief period Courtright Ridge supported a full-fledged brothel....

In response to these various forms of excess, and with the costs of control far too high, the government decided to sell it. In 1866, the Long Point Company, a private club founded by a group of businessmen and sportsmen, purchased 6044 ha of the Point from the Province and thereby owned almost the entire Point by 1871. The Long Point Company Charter governed this area, and authorized the granting, patrol and regulation of hunting and fishing in it. Private regulation of the Point immediately put it under strict protection – “the founding members began to lay down rules of management which to

this day have given the Company a good name with conservationists” (Barrett, [19792000](#): 146-47). In 1979, the Long Point Company transferred half of these lands to the Canadian Wildlife Service to become the Long Point National Wildlife Area. The other half is still held by the Long Point Company (although this arrangement is not widely known, even in the conservation community, LPBR-1).

The core protected area of Long Point Biosphere Reserve meets UNESCO’s criteria of Article 4 of the Statutory Framework for the World Network of Biosphere Reserves (1995), including that: (1) The biosphere reserve should encompass a mosaic of ecological systems representative of major biogeographic regions, including a graduation of human interventions; and, (2) The biosphere reserve should be significant for biological diversity conservation. The Long Point National Wildlife Area affords the strictest level of protection, with almost total restriction of human access to the area, while the Long Point Company lands remain under private management.

While the conservation function is most easily fulfilled within the core area, it becomes much more challenging outside the core, particularly beyond the buffer zone (described below) and onto the mainland, where the mosaic of ecological systems are used for agriculture and residential development. With that said, Norfolk County has retained or restored, on average, 23% forest cover compared with, for example, Essex County in extreme southwestern Ontario, which has only 3% remaining (LPBR-2). The proposal to designate new core areas within the LPBR is discussed in section 6.3.4.

Unlike other biosphere reserves that have national or provincial parks at their core, LPBR has core zonation that fails to involve the public due to strict protection regimes over the core area. Some people feel that the core area has the potential to be used for environmental education about the ecosystem dynamics surrounding the Point, the historic changes to Lake Erie, and other issues facing southern Ontario and the Great Lakes (Pollock, field notes, 2006). Total restriction limits public awareness of the cultural history of the Point, and the wider patterns of exploitation and conservation that occurred in their region in the past.

The biosphere reserve's close association with the Point itself, and with adjacent aquatic systems (e.g., fisheries, as discussed below) has perhaps created the perception that the biosphere reserve is a static international conservation designation, rather than a dynamic concept that seeks to integrate human activities across its zones. Several people I spoke with from the farming community, for example, indicated that they were aware of the "world biosphere" designation and associated it only with a restricted area "down there on the Point" (Pollock, field notes, 2007). As the communities in Norfolk County debate the future of tourism as an economic development strategy, controlled access to the Point (through trails, Boardwalk, signage, etc.) will be a consideration (LPWBRF, 2006).

Yet, critics suggest that the ecological integrity of the Point has been maintained historically by a strict conservation ethic and should continue to be reinforced through a federal regulatory framework. There has long been public and government pressure to open the land to public use. In 1979, current members of the Long Point Company were

said to “respect the aim of the founding members – to save the land from destruction by overuse – and they fear public access would undo one hundred years of their work”

(Barrett, [1979](#)[2000](#): 178).

Furthermore, “should a government agency... attempt the same control, the worst offenders from among the general public would exert such political pressure that soon the most unsavoury and thoughtless citizenry would be invading...The resultant harassment of the wildlife and destruction of vegetation over the unstable dunes would spell the demise of that fragile and beautiful sandspit as we know it” (Barratt, 1979: 179). These views suggest that the biosphere reserve’s conservation function might be difficult to sustain without the current governance arrangements in place. These arrangements are explored further in section 6.3.

### 6.2.2 Buffer Zone

The 34,000 ha buffer zone extends along the north shore of Lake Erie, east to the tip of Turkey Point and west to encompass the extensive Big Creek Wildlife Area marshes. It also extends out over the marshes of the Inner Bay. The buffer zone includes Long Point Provincial Park and intensive cottage development at the base of the Point, which acts to concentrate recreational activities away from the core area [Figure 6.2].

The beaches adjacent to the Provincial Park support some residential, cottage and marina development in the order of 500 permanent residents and 3,000 seasonal ones per year, along with approximately 130,000 visitors to the park (Francis and Whitelaw, 2001). Management agencies in this area include Ontario Parks, the Ontario Ministry of Natural Resources, and the Canadian Wildlife Service, along with the public and private organizations that play a conservation stewardship role.



Figure 6.2. The Long Point sand spit and surrounding agricultural lands (Google Earth, 2006)

### 6.2.3 Transition Area

As a pre-Seville Strategy or “first generation” biosphere reserve, Long Point has no formally delineated transition area. With 15% in core areas and 84% buffer, the boundaries of the remaining 1% transition zone are largely undefined. Prior to 1995, the concept of a surrounding transition zone (or “area of cooperation”) to concentrate human activities and promote cooperation, was undeveloped and secondary to the requirements for core-buffer protection.

Like other areas in southern Ontario, the Long Point complex is subject to many environmental stresses including commercial and residential development, forest

fragmentation, exotic species invasions, shoreline alterations, nutrient loading, and recreational activities (Craig and Francis, 1993). Each of these cross-scale influences was recognized as important to the biosphere reserve's mandate, but no formal attention was given to addressing sustainable development dynamics on the mainland at the time of designation. Francis and Whitelaw (2001: 42) noted in their periodic review report for UNESCO:

While conceptually it would have been reasonable to include the 730 km<sup>2</sup> Big Creek Watershed (which drains into the Inner Bay) as part of the transition area... the organizational complexity entailed by adding more municipal and agricultural organizations into the mix was deemed (at the time) to make this unfeasible. The early difficulties experienced by the biosphere reserve group in developing an organizational structure that "worked" seems to have confirmed this judgment.

However, the Long Point World Biosphere Reserve Foundation (2008) has long recognized an implicit transition area:

In a geographical sense the Big Creek and Dedrick Creek watersheds are considered part of the Zone of Co-operation, since land use there affects the welfare of the Inner Bay... [and] might be high-lighted in descriptive statements of the Biosphere Reserve boundary. The guidelines under which we operate are flexible enough to allow for the extension of boundaries and/or the recognition of satellite areas of interest.

Recognition of fluid boundaries creates the possibility of responding to sustainability issues that cross scales. This is fundamental to the UNESCO model. Not only does it allow the biosphere reserve organization to link projects across a gradient of human impact (core-buffer-transition), but it also connects globally significant ecosystems with local residents' sense of place. Moreover, few other organizations that have the explicit flexibility in their mandate to cross scales and to actively facilitate collaborative governance for sustainability. As the brief governance profile for Long Point below

shows, there is a vast range of governmental and non-governmental organizations involved with conservation and sustainable development, and the biosphere reserve organization must navigate tangled jurisdictions and familiarize itself with the many players in order to identify the best collaborative arrangements to fulfill the three functions of the UNESCO model.

### 6.3 Governance Profile of Long Point

The idea of a biosphere reserve for Long Point arose more than 25 years ago from an inter-university “Great Lakes Ecosystem Rehabilitation” working group concerned with human-induced stresses on this area of the Great Lakes Basin. The technical report published by the Great Lakes Fishery Commission, called *A Prospectus for the Management of the Long Point Ecosystem* (Francis, et al., 1985) included a type of governance analysis for the Long Point area. Because of the dominant role of government in the early 1980s, the authors surveyed the governmental institutions, public policies, and administrative arrangements involved in ecosystem management. The authors first identified 18 categories of ecosystem stress (e.g., fishing, recreation, habitat disruption, nutrient loading, dredging and drainage, toxic pollutants, etc.) and then identified their attendant governance arrangements. In total they found 71 organizations, including 19 government agencies, 22 government policies and programs, and 30 other types of stakeholder groups and community organizations (Francis et al., 1985: 48-49).

They found that the agencies could be grouped into two categories: those having regulatory enforcement and/or direct resource management responsibilities, and those

having only some support functions such as planning, information gathering or project funding. In this way, the key group of agencies consisted of seven federal departments, seven provincial ministries, the Conservation Authority, and regional and local municipalities. In practice, the main burden of formal ecosystem management fell to only these groups:

- Federal Department of Fisheries and Oceans (DFO)
- Federal Department of Environment (Environment Canada)
- Canadian Wildlife Service (CWS)
- Federal Department of Transport (Transport Canada)
- Ontario Ministry of the Environment (OMOE)
- Ontario Ministry of Natural Resources (OMNR)
- Long Point Region Conservation Authority (LPRCA)
- Regional and Local Municipalities.

Within the biosphere reserve's core and buffer areas, governance was influenced by specific management plans, including:

- Official Plan – for the former Regional Municipality of Haldimand-Norfolk
- Watershed and Shoreline Management Plans – LPRCA
- Long Point and Big Creek National Wildlife Area Management Plans – CWS
- Long Point Provincial Park and the Crown Marsh - OMNR

Since then, the surrounding governance structure has changed a great deal. The regional municipality was disbanded in 1999 (under the Conservative government's amalgamation plan). All the former townships in Norfolk and the Towns of Simcoe, Delhi, Port Rowan and Port Dover were amalgamated into the single-tier municipality of Norfolk County in 2001. This restructuring, coupled with severe reductions in budgets and staff at all levels of government, resulted in a declining role for conservation and resource management agencies, out-of-date management plans, and a lack of guidance for land use decision-

making (Edge and McAllister, 2006; Francis and Whitelaw, 2001). Norfolk County subsequently completed a new Official Policies Plan in 2006.

The neoconservative period of the 1990s experienced a significant increase in the number of NGOs involved in conservation and wildlife, hunting, fishing and outdoor recreation, local land use and development, environmental protection, and local cultural heritage and tourism activities (Francis and Whitelaw, 2001). Some of these groups – most notably the Norfolk Field Naturalists, Ducks Unlimited Canada, the Long Point Area Fish and Game Club, and the Long Point Foundation for Conservation (Parker et al., 2003) – attempt to influence local decision-making processes. A recent governance profile by Edge and Buck (2006) confirms approximately 30 NGOs dedicated to conservation, the same as found in the review by Francis et al. (1985), along with a slightly expanded set of government players and programs.

Appendix V presents a sample of the governance “layers” and “players” involved in fulfilling the conservation function of the biosphere reserve, including: bi-national organizations and agreements, federal and provincial agencies and agreements, quangos and partnerships, and municipal conservation initiatives. This type of governance profile illustrates the tangled jurisdictions that overlay any geographic landscape, and the complexity within which the biosphere reserve is nested and must navigate.

However, this list of conservation agencies and organizations fails to capture the full scope of groups involved in sustainable development for the region. In preparation of

documentation for the Long Point Biosphere Reserve's UNESCO application for eventual expansion and renaming, Francis (2007c) tried to capture the full scope of governance for sustainability. He attempted to account for all groups that concerned themselves with social issues and community well being, local economic development, land and water stewardship, conservation, and research, monitoring, education, and training. The final tally of non-governmental groups involved with sustainability initiatives in Norfolk County (including social service groups, agricultural associations, and local economic development agencies) ranged between 160 and 170 (compared with only 30 for conservation). This type of exercise, of defining the most basic players in governance for sustainability, becomes further complicated by having to account for cross-scale organizations and influences (e.g., global trade, production and commodity chains).

Practically speaking, numerous biosphere reserve activities have been carried out in cooperation with these various groups to enhance the overall capacity of local governance. Yet, there still remains a need to strengthen governance capacity through improved data availability, facilitated information exchange, public outreach, and collaborative projects. "Therefore, it is a continuous challenge and process of self-evaluation for the LPWBRF to identify its unique and most effective role amongst various other organizations" pursuing conservation and sustainable development objectives (Edge and McAllister, 2006).

As described below, the focus of the Long Point Biosphere Reserve – through the efforts of the non-governmental Long Point World Biosphere Reserve Foundation – evolved between 1986 and 2006 from one concerned with the aquatic ecosystems of Lake Erie and its fisheries; to one concerned with forest restoration and terrestrial ecosystem monitoring on the adjacent mainland; to one that now attempts to account for much broader regional land uses in the regional municipality of Norfolk County. The lack of a clearly delineated transition zone had both advantages and disadvantages in terms of the extent to which the LPBR could play a role in defining and advancing integrated, cross-scale sustainability. The current thinking is that the transition zone should coincide with Norfolk County itself.

#### **6.4 Long Point World Biosphere Reserve Foundation**

The degree to which the Long Point Biosphere Reserve upholds the UNESCO model and fulfills its three functions is largely dependent on the effectiveness of the local biosphere reserve organization and related governance arrangements. In any biosphere reserve, numerous groups (government, civil society, and private sector) will pursue their own mandates in ways that may contribute to conservation and sustainable development. However, the biosphere reserve concept is designed to integrate functions, sectors, and stakeholders, and (in Canada) is usually championed by one local organization working through partnership with others.

The development of the Long Point Biosphere Reserve and its local organization, the Long Point World Biosphere Reserve Foundation (LPWBRF) could be described in four

phases. These periods roughly correspond with: (1) the initial proposal for biosphere reserve nomination to the self-organization and incorporation of a non-governmental organization from 1985-1995 (2) the subsequent focus on the functions of conservation, research, monitoring, and education from 1995-2001 (3) the LPWBRF's turn toward integrated sustainability planning and initiatives and (4) the proposal for a formal expansion (addition of new core areas) and re-naming of the LPBR (to the Long Point Carolinian Biosphere Reserve) in an application to UNESCO. For each period described below, specific issues or initiatives have been selected to illustrate the challenges, opportunities and roles that the biosphere reserve has played in governance for sustainability.

#### 6.4.1 Nomination and Organizational Development

As noted above, an academic working group identified the Long Point area as a potential biosphere reserve in the early 1980s. The *Prospectus for the Management of the Long Point Ecosystem* (Francis, et al., 1985) provided an overview of the major ecosystem stresses and their various levels of government response, mainly in terms of policies and programs. The authors concluded:

The overall impression from this review was that while the activities [of government agencies] were for the most part quite compatible with ecosystem protection or rehabilitation, they were also very fragmented. Some seemed devoid of a shared perspective that might help bridge gaps in policies and programs and encourage more coherence among the various individual endeavours (Francis et al., 1985: vi).

Although the report showed “no serious gaps in the overlay of institutions for [ecosystem] planning and management of the Long Point area, there were considerable opportunities for improving communication and cooperation among them, and seeking a

broader basis of community support for maintaining the ecological health of the whole area” (Francis and Whitelaw, 2001: 4), especially “...to address the impacts of land use activities on the Great Lakes nearshore ecosystems” (Francis et al., 1985: 51).

The authors were familiar with the MAB programme and noted that its thrust was toward interdisciplinary, management-oriented, ecological research and monitoring to sustain natural resources in a cooperative fashion. Their report concluded that:

The Long Point ecosystem would be an excellent area to nominate as a biosphere reserve. ...Should this concept of a biosphere reserve be applied to the Long Point ecosystem, it would include a number of major ownership and management units that comprise the total area. The key factor for making the most use from a UNESCO/MAB designation is for all the “actor” organizations who have a stake in the larger complex to come together under the umbrella of a biosphere reserve. ...the full potential of the biosphere reserve concept is expressed in the nature of the cooperative work it can help foster among all concerned (Francis, et al., 1985: 97).

Discussed from 1981-1984, the concept of a biosphere reserve circulated among academics and management agencies concerned with the proposed core and buffer zones and gained wide support in public meetings. A formal nomination submission was made to UNESCO where it was approved in 1986.

However, local management arrangements for the new entity were difficult to establish, in part because over 30 organizations were already involved in the functions of a biosphere reserve and had an interest in the concept (Francis and Whitelaw, 2001) and in part because the expectations for governance of biosphere reserves – with only 4 in Canada at the time – were unclear. Despite the appeal of a multi-stakeholder organization, such creatures were rare, and effective governance arrangements (including

the new structure for the biosphere reserve) required testing. Interestingly, the governance arrangements for the biosphere reserve were originally going to take the form of inter-agency cooperation among various federal, provincial, regional and local government agencies. However, NGOs expressed an interest in more formal involvement and this resulted in the Long Point Foundation for Conservation (LPFC) taking the lead in the formation of a biosphere reserve organization.

These turned out to be difficult years for the self-organization of a volunteer administration for the biosphere reserve. The original LPFC arrangements fell through when the person who was to organize it moved out of the region. Local groups then rallied to discuss what could be done. An initial public meeting in 1986 of 80 people produced 30 volunteers, and then a committee of 15 from which six members “considered options for designing local organizational arrangements which would be inclusive as well as effective” (Francis and Whitelaw, 2001: 15). Local concerns were dominated by high lake levels and property damages to the extent they became the subject of almost any public meeting convened during several years in the latter 1980s, including ones to discuss the biosphere reserve. After much deliberation among the founding members, a non-profit charitable association was formed in 1990, with open membership for whomever wished to join. What is now the Long Point World Biosphere Reserve Foundation (LPWBRF) was incorporated with charitable status in 1993.

Like most other Canadian biosphere reserve organizations, the LPWBRF is a volunteer-based non-profit organization that does not receive any core funding from government.

During the 1990s in Ontario, a neoconservative government systematically decreased or ended support for its environmental agencies (e.g., Ontario Ministry of Environment; Ontario Ministry of Natural Resources), public programs, and intervener funding for public participation in environmental deliberations. Despite this hostile political climate for environmental initiatives, the LPWBRF receives in-kind support from numerous partners, secures intermittent funding from a variety of government and foundation grants, membership fees, donations, and fundraising events. This chronic lack of financial capital is directly related to its organizational capacity and explains its halting pattern of development, which is largely based on the energy of individual volunteers at different times. As described below, the volunteer nature of this local biosphere reserve organization faces distinct challenges in promoting and implementing sustainability initiatives within the core and buffer areas, let alone across the wider region.

After LPWBRF was incorporated, it soon became clear that cooperation among such diverse groups would be difficult to achieve, when strong personalities were involved and environment-versus-development rhetoric ran high. As one founding member explained:

According to UNESCO, you get every shade of group, every opinion, and put them together and then discuss, compromise and work things out.... If we could get everyone on board to agree that as long as the core and the buffer are protected everything will go well... But it is very difficult to get a group together of such diversity and cooperate. If this situation was an example of consensus decision-making, well then “deliver me from it” as it was very difficult. [One of our most vocal critics] thought that we people were all rabid tree-huggers, and that tree-huggers were bad for business (LPBR-7).

In the early days there was much confusion about what the biosphere reserve was and what it meant; the term biosphere “reserve” was not popular locally (LPBR-1). Divisions

between the biosphere reserve's perceived "extreme environmentalists" and other groups, such as boaters, anglers and hunters began to surface. "There was suspicion that the biosphere was meant to be anti-development and it still suffers from those preconceived notions" (LPBR-2). "They didn't want [the biosphere reserve designation] to change anything, and they perceived the biosphere reserve as having more power than it does, because of the UNESCO designation, so they wanted to control it... and that hindered the evolution of the mandate" (LPBR-5). The view that "the biosphere reserve should be able to stop [certain kinds of development] is unrealistic. It's unfortunate because such beliefs support the myth that a biosphere reserve is just conservation based" (LPBR-4).

Over the first few years, internal governance issues preoccupied the volunteers attempting to establish the biosphere reserve as a concept and as an organization. As LPBR-7 recalls: "we had not accomplished anything really important [in the first few years]. We did promote small things, but they were all small [e.g., signage, educational brochures, and local newsletters]. [Until 1994] we had not made any important dent on the community."

#### **6.4.2 The Early Focus on Conservation**

Members of the LPWBRF volunteer board of directors included representatives from government agencies with jurisdiction over core areas, educational institutions, and conservation organizations. In the mid-1990s the Executive Committee was renewed with some young energetic new members interested in promoting cooperation within the biosphere reserve. Specific people and their organizational affiliations, especially with

government agencies, helped to expand the LPWBRF's networks and influence (LPBR-5).

Along with educational signage, brochures and posters, funding was secured for public consultations about a Community Action Plan to address environmental issues such as recycling, energy, environmental education, conservation initiatives, including establishment of biodiversity monitoring plots and close work with the Long Point Bird Observatory. More youth were involved through schools and a summer camp, annual fundraising Groundhog Day Dinners were also begun in this period, and Annual General Meetings were held. As one participant explained: "The biosphere reserve does a lot in anonymity, and it's a lot of good stuff" (LPBR-4).

Research, monitoring, education and training programs (the logistic function of the biosphere reserve) were, and are still, generally carried out by other agencies and organizations with formal jurisdiction, management plans and policies. However, the LPWBRF assists with a variety of projects by providing informal communication and cooperation among the various players, including the ones that Francis and Whitelaw (2001: 20-21) described as below:

- Environmental monitoring workshops
- Establishment of forest biodiversity monitoring plots
- Studies on deer populations and impacts on vegetation
- Studies on the ecology of Lyme disease in small mammals
- Studies on migratory landbirds at the Long Point Bird Observatory
- Studies on waterfowl staging at Long Point
- Studies on the longshore transfer of sediments at Long Point
- Studies on breeding bird populations in the Big Creek National Wildlife Area
- Monitoring of fish stocks in the Long Point Bay
- Water quality sampling in Long Point Bay

The LPWBRF (2008) website lists several other projects undertaken during the 1990s:

- The “Give Ducks Room” environmental education project
- Project C.A.R.E. (Carolinian Action Restoration and Education)
- The Biosphere School program for elementary schools in Norfolk and Oxford County
- Climate monitoring tower in the Long Point Region Conservation Authority
- Long Point Area Monitoring Assessment Project
- Ontario Ministry of Natural Resources Environmental Youth Corps summer students.

One of the first multi-stakeholder events held by the LPWBRF was a Fisheries Symposium in April 1995. It was in direct response to tensions between commercial and recreational fishing interests and a desire to understand the ecological changes in Lake Erie. Although the biosphere reserve clearly had no jurisdiction over fisheries management, they experimented with a bridging role between somewhat antagonistic organizations.

Designed as an opportunity to share multi-stakeholder perspectives on the problems and prospects of the commercial and sport fishery (Craig, 1996), the symposium effectively conveyed the dynamics of a complex social-ecological system. Fisheries biologists from universities and government agencies gave presentations along with area fish and game clubs, and the Lake Erie Fishermans', Fish Packers' and Fish Producers' Associations. Sharing both scientific and local knowledge (including a history of harvests, ecosystem changes due to nutrients and contaminants, the impact of invasive species, and so on) helped to reduce conflict in the community over this particular resource management issue. It also introduced a complex systems perspective in terms of the tight integration of social and ecological, terrestrial and aquatic systems.

Seeking an identity at the time, the biosphere reserve sought to promote cooperative approaches to resource use and the role they chose was to facilitate dialogue and social learning in an open forum. “Ecosystem management was a hot topic at the time” (LPBR-2) and resource conservation was an obvious choice for the LPWBRF to pursue. Walker (1996: 4) wrote in the *Biosphere Bulletin*: “...one of the mandates of the Biosphere is the sustainable use of natural resources. Conservation of biodiversity is an important segment of that mandate.”

<b>Sources of Funding for the LPWBRF in 1996</b>	
The Bluff Club	
Canada Trust Friends of the Environment Foundation	
Carolinian Canada	
City of Nanticoke	(municipal government)
Ducks Unlimited Canada	
Environment Canada	(federal government)
Long Point Area Fish & Game Club	
Long Point Bay Anglers Association	
Long Point Ducks Unlimited	
Long Point Waterfowlers Association	
Norfolk Secondary School	
Ontario Federation of Anglers & Hunters	
Ontario Hydro	(provincial government)
Ontario Ministry of Natural Resources	(provincial government)
Ruffed Grouse Society	
Royal Bank of Canada	
Simcoe Kinsmen	
The Smithsonian Institute	
The University of Waterloo	
Waterford Chamber of Commerce	

Table 6.1. Funding sources for LPWBRF activities in 1996 (Source: Craig, 1996)

It is unknown whether a similar forum hosted by government bodies (often perceived negatively by resource users as meddling regulators) would have succeeded in the same way. The symposium shows how the biosphere reserve, lacking any formal authority, was endorsed as a neutral broker for sharing multiple perspectives. The extent

to which new groups “bought in” to the concept of the biosphere reserve, or at least no longer felt threatened by its presence, is shown by the range of funding support in Table 6.1 received in the year following the Symposium, including new partnerships with organizations that were formerly unaffiliated with, or distrustful of, the LPWBRF.

For the next ten years (1995-2005), the LPWBRF embarked on a variety of projects supported by private and public funding sources, including forest biodiversity and salamander monitoring. Funds ranged from a few hundred dollars per year to an annual average of about \$50K between 1995-2000; these amounts varied widely (from \$6K to \$130K) and were entirely dependent upon the time that volunteers could devote to successful fundraising from government, corporate and foundation grantmakers. It was also reflective of the personal interests, skills and connections of individual Board members. Local fundraising efforts included the Annual Groundhog Day Dinner and sponsored athletic events, where one Board member actually swam more than 50 km across Lake Erie.

The LPWBRF in this period had about 200 members and was run by a 15-person Executive Committee (elected for a one-time renewable three year term, with five members elected or re-elected at each annual meeting). In the UNESCO Periodic Review carried out by Francis and Whitelaw in 2001, they estimated approximately 50 people who served terms on the Executive Committee of the biosphere reserve, who are still resident and active in the local community, and who remain supportive of it. As citizens, they reflect a cross-section of local business people, farmers, foresters, biologists,

engineers, teachers, writers, and civil servants from all levels of government (acting in a personal capacity). Francis and Whitelaw (2001:67) also noted that: "...with the other organizational affiliations many of them retain, there is considerable acceptance of the biosphere reserve within the community."

However, the inter-personal conflicts that plagued the LPWBRF in its formative years were not entirely avoided in this second phase. The Board failed to engage some key representatives within the conservation community because of "personality conflicts" and because some perceived that a meaningful role for the biosphere reserve was not clear (LPBR-1; LPBR-4). In the words of one interviewee, "Politics got in the way" (LPBR-7). Some people perceived the focus on ecological monitoring narrow and unproductive; they felt that there were other community projects that could have kept the local community more engaged (LPBR-1). Gaps in leadership and volunteer turnover within the LPWBRF also delayed the maturation of the organization.

As noted, there was fairly widespread misunderstanding of the biosphere reserve's objectives, purpose and function (LPBR-6). A 1997 article in a *Biosphere Bulletin* explained that the misunderstanding typically involved exaggeration of the LPWBRF's authority:

Roles of the biosphere reserve are: conservation of the ecosystem; demonstration of ecologically sustainable land and resource use; and logistic support for research, monitoring and education. Although many people think the biosphere committee provides the area with a legislated protection, this is not so. The executive committee's mandates are limited to the above. The committee may provide input into matters affecting the biosphere, but not take official positions on issues (Helsdon, 1997).

Some people felt that “the biosphere reserve loses credibility by maintaining political neutrality and by not taking a stand on controversial issues” (LPBR-1). However, others recognize that “the biosphere reserve is not about causing political rifts; it’s supposed to maintain a diplomatic role and facilitate partnerships” (LPBR-6). “From a biosphere reserve perspective we needed to cast a wider net... the Board composition was somewhat of a hindrance in terms of broadening our agenda” (LPBR-5).

The biosphere reserve faced a paradox in how it was perceived: some suggested that “the initial Board was too much to the preservation side... with extreme conservationists [alienating other members]” (LPBR-5), while others interpreted that the mandate of the biosphere reserve as having drifted from conservation priorities to “community development” and the interests of “business people” (LPBR-1 and LPBR-7, respectively). Whether other conservation organizations felt threatened by the biosphere reserve’s broad mandate or felt disappointed by its lack of capacity to take a leadership role within the conservation community is not clear. Inter-personal conflict appeared to fuel inter-organizational conflict, acting to marginalize the LPWBRF somewhat and deepen the fragmentation of institutional arrangements governing the conservation of biodiversity (Pollock [fieldnotesfield notes](#), 2007).

Despite the divergent perceptions, the way that the biosphere reserve perceived its own mandate from UNESCO and conveyed it to the wider community was distinctly oriented towards conservation during the first two periods of its development. Again, as a pre-Seville biosphere reserve, it lacked the broader context for sustainable development that

would guide later biosphere reserves. Most of the attention was directed to the core and buffer areas, including lake levels, fisheries, shoreline, wetlands and habitat restoration.

As the LPWBRF (2008, emphasis added) pointed out at the time:

Through speakers at the LPWBRF annual meetings, and through various seminars and workshops, we have provided information and *a forum for discussion* of local problems related to our mandate. For some issues, we have used a project-oriented means to acquaint the public with the nature and significance of the Biosphere Reserve movement.

During this second phase of biosphere reserve development, activities were largely project-based and were dedicated to the conservation and logistics functions of the biosphere reserve; they were opportunistic in terms of partnerships and funding, and were driven by the interests of individual Board members. These years also helped to confirm the role of the LPWBRF as supportive of other organizations fulfilling the biodiversity conservation, research and monitoring functions of the biosphere reserve. As Francis and Whitelaw (2001: 23) explain:

Unlike other biosphere reserves associated with national parks which have a statutory obligation to manage and monitor for “ecological integrity,” there is no organization within the Long Point complex which is formally required to manage for ecosystem health... that might serve as the focus for a more extended collaborative effort. Nevertheless, the desirability of being able to develop “state-of-the-environment” reports for the area is generally recognized.

In an effort to conduct state of the environment (SOE) reports, the LPWBRF commissioned a 1996 survey that identified a total of 55 ecological monitoring programs. These were administered by the following groups: 4 federal agencies, 4 provincial agencies, 2 municipalities, 6 NGOs, 3 universities and one local industry association. “The data and information generated from these monitoring programs is [sic] collected for specific purposes relating to the mandates of each agency and organization, and is not

readily accessible or usable for SOE reporting because there is no “place-based” framework to guide collection, analysis and reporting” (Whitelaw, et al., 2004: 65).

In the *Prospectus for the Management of the Long Point Ecosystem*, Francis et al. (1985: 4) identify an important tension with regard to what would become part of the logistics function of the biosphere reserve. On the one hand they note: “there is sufficient understanding, institutional capability, and commitment among key individuals, agencies and groups [for effective ecosystem management].” On the other hand:

There is a need to collaborate on developing an integrated interpretation of information concerning the entire complex of the Long Point ecosystem. This interpretation will be the basis for agreeing upon the shared monitoring of fluctuations, trends, and associated ecological changes. The needs and opportunities for ecosystem monitoring are currently addressed by no single organization or combination of them.

Given the dramatic loss of “institutional capability and commitment” for monitoring through government reductions and restructuring in the 1990s, it appears that 20 years later the gap has grown and the need for collaboration is even more pressing ([Environmental Commissioner of Ontario Government of Ontario](#), 2007).

In some ways the development of a Long Point Monitoring Framework is an ideal activity to translate existing monitoring data into meaningful information and to help coordinate the efforts of various agencies and organizations involved in this wide range of environmental reporting. Whether the LPWBRF will be able to provide leadership on this largely depends on the involvement of former Board members, available funding,

and the prospects of hiring a project coordinator (LPBR-5). It is difficult to assess what other organization might adopt this networking role if the biosphere reserve does not.

Another major focus for the LPWBRF was a project that started in 1995 called “Restoring Forest Corridors to Benefit Agriculture and Wildlife” where parcels of land along creeks and streams were planted with native species. Graduate students who had participated in the University of Waterloo’s Long Point Folio project (Nelson, 1996) recommended developing or enhancing an interconnected system of habitat cores and habitat corridors throughout the Long Point area. “We did some landowner contact and everybody thought it was a good idea (e.g., hunters would have more deer, good for the community, etc.)” (LPBR-5).

The Forest Corridors project was later expanded through Ontario Power Generation’s (OPG) Carbon Sequestration and Biodiversity program which links the need to sequester carbon, as an offset to greenhouse gas emissions from their fossil fuel plants, with habitat restoration for forest wildlife that are at risk in the highly fragmented landscapes of southern Ontario. LPWBRF president, Bernt Solymár, explained the multiple benefits of the project in a January press release: “These restoration efforts are effectively contributing to habitat conservation of our plants and animals, promoting biodiversity, reducing the adverse effects of climate change, providing enhanced ecosystem services, and improving recreational opportunities for our community.”

Since the spring of 1999, the LPWBRF in partnership with the Long Point Regional Conservation Authority has planted trees on 73 sites in Norfolk County adding over 555 acres of habitat to the region. Figure 6.3 shows the Conservation Authority's jurisdiction across several counties and their forest restoration sites, many of which fall within

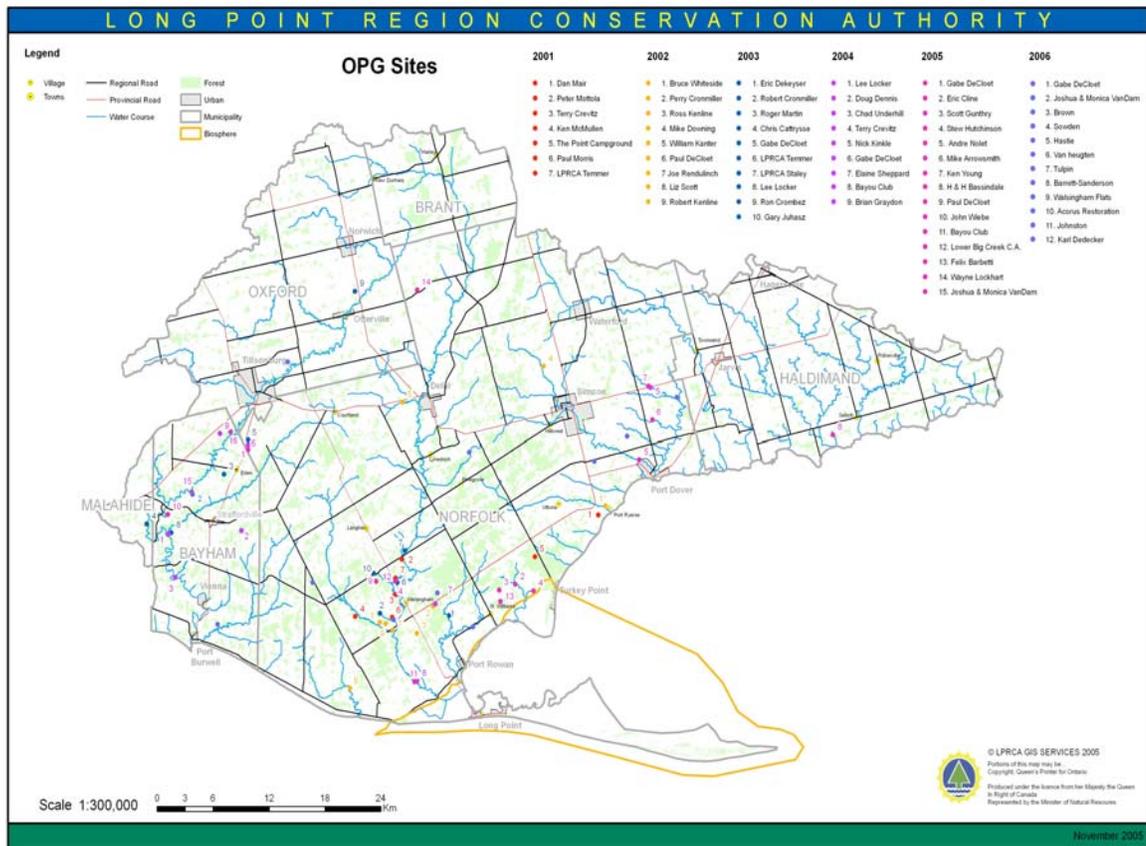


Figure 6.3 OPG reforestation sites in the Long Point Region Conservation Authority

Norfolk County, yet all of which fall outside the biosphere reserve's formal core and buffer areas. OPG has contributed over \$1 million in the past ten years and the most recent funding will provide for the restoration of another 194 acres on private and public lands to enlarge existing forest tracts, or provide riparian or terrestrial connections between forest tracts.

Unlike the monitoring initiative, the forest regeneration project brings very few partners together, since it is fully funded by industry. One participant suggests that “the fewer partners you have, the more effective it is” (LPBR-3) since common goals and objectives can be determined more easily and major decisions can be made in a timely fashion, without inter-organizational networking or public consultation. With guaranteed financial support from Ontario Power Generation to sustain the project on a long-term basis, the LPWBRF is a non-governmental funnel for resources that uses the administrative and technical capacity of the Conservation Authority to plant trees.

The Forest Corridors project illustrates how the original focus of the Long Point Biosphere Reserve shifted from the aquatic systems of Lake Erie surrounding the Point, including fisheries management, to restoring the terrestrial systems of “Carolinian Canada” and enhancing forest corridors. Even without a formally defined transition zone, the LPBR moved quite naturally into issues on the mainland, and working with the Conservation Authority, across Norfolk County. Although the geographic focus for their work shifted to a broader spatial scale, and multiple benefits for sustainability have been noted, this project retains the LPWBRF’s original emphasis on biodiversity conservation.

Presumably, many other conservation organizations in the Long Point area could have taken leadership on this project; however, a representative of OPG identified the LPWBRF as a preferred partner which then helped build credibility for the biosphere reserve as it reached out to other organizations and landowners. The limited number of primary project partners and the long-term financial support, contributed to a positive

experience overall and gave the LPWBRF a “success story” that would help to catalyze larger collaborative initiatives (such as the Causeway Improvement Project, described below).

#### **6.4.3 An Evolution in the Identity and Role of the LPBR**

A third phase of biosphere reserve development could be said to have begun in 2001, when the LPWBRF Board decided to expand their activities from conservation to consider broader sustainability concerns. They were motivated to respond to the social and economic impacts of changes in agriculture, including the collapse of tobacco farming, the lack of employment opportunities for youth, and the decline in tourism. As Nelson and Wilcox (1996) noted over a decade ago: the Long Point area has experienced deepening economic decline as soil fertility degrades, international market competition (especially for tobacco) rises, and subsidies for Canadian agriculture decrease.

In consultation with academics at the University of Waterloo, the LPWBRF board developed a series of “Community Sustainability Workshops” leading to a “Sustainable Norfolk County” conference to inform and expand local perceptions about the biosphere reserve, engage community members in defining and planning for sustainable development, generate new ideas and partnerships, and revitalize the LPWBRF, which still lacked sufficient volunteers to sustain its organizational mandate and capacity.

Despite the broad base of people who pay membership dues, the dedicated volunteer base of the LPWBRF tends to fluctuate and has, for some time, been quite small. Several factors might explain a weak volunteer base: most of the general public is unaware of the

biosphere reserve designation (or if they are, “they don’t really understand the principles of what a biosphere reserve is” LPBR-4). As noted above, the paradox that plagues LPBR is that some conservation groups perceive the biosphere reserve as focused on community development at the expense of environmental protection, while others perceive the biosphere reserve as merely another environmental group. The lack of a clear identity, purpose and role for the Long Point Biosphere Reserve has affected its ability to participate in governance for sustainability.

Unlike a number of other biosphere reserves in Canada that have the formal support of a national park or a university research centre, LPBR has little institutional support and must rely on a small pool of dedicated volunteers. They have been engaged in a narrow range of projects without much wider communication about the broader purpose or success of those projects. The divisive issue of environment-versus-development distracts people from the three interrelated functions of the biosphere reserve and limits the potential of a more integrated approach to sustainability. Moreover, at a regional scale, rural decline and depopulation are major issues that preoccupy personal and political agendas.

Beyond problems in perception of the LPWBRF and communication of the biosphere reserve concept, there has been a chronic lack of financial resources to support essential components of organizational development, such as Board governance, staff and office, or strategic planning. Clearly the internal governance challenges of the LPWBRF have hindered their ability to broker collaborative sustainability initiatives. As noted, there has

also been a history of deep division between competing organizations and a noticeable lack of cooperation among stakeholders. So limited collaboration among like-minded organizations, particularly within the conservation community, is somewhat surprising given the potential benefits of sharing resources and undertaking joint efforts. There have been several notable achievements, nevertheless, and the LPWBRF continues to evolve in surprising ways, as illustrated below.

Workshop and conference organizers wrestled with “how we could further build upon the sustainable development [function of the biosphere reserve] and the building of partnerships. We recognized the importance of getting everybody to work together (because all members of the community are part of the biosphere reserve, whether they know it or not).... [The challenge was] to make it a general community thing (not just the town of Simcoe but the entire biosphere reserve catchment area), to celebrate Norfolk County and the biosphere reserve concept and allow [other organizations] to showcase what they’re doing. There are so many groups out there that it is hard to know what’s going on” (LPBR-6).

The LPWBRF decided: “not only would we celebrate the successes of the community... but that we would push toward advancing a sustainability agenda” (LPBR-6). Another interview participant explained: “We [the LPWBRF] want to identify projects that need to be done and gaps that need to be filled, and then facilitate partnerships to achieve common objectives. Put less of an emphasis on doing things on our own and instead, facilitate others in cooperation with our Board to get things done.”

These comments suggest that the LPWBRF made a conscious decision to adopt and promote a more integrated sustainability agenda. They were keen to expand far beyond the biosphere reserve's defined core and buffer areas and influence the whole region within municipal jurisdiction. Aware of the inherent connections between issues and scales, the LPWBRF chose to promote the biosphere reserve concept as a model for sustainable development.

The theme of celebrating accomplishments and highlighting how the economy and the environment are linked was thought to enhance the likelihood of others becoming engaged in the biosphere reserve's work. Several interview participants (both LPWBRF members and outside observers) suggested that a facilitation role was key to advancing the new agenda. Not only would the biosphere reserve highlight the importance of integration of conservation and sustainable development, but it would also play a facilitative role, seeking to build the capacity of their partner organizations rather than seeking to meet their own objectives (as per network management theory, cf. Klijn et al., 1995).

In early 2006, four different workshops were held with distinct stakeholder groups: (1) Business and Industry, 6 participants (2) Social Services, 6 participants (3) Conservation, 25 participants and (4) Agriculture, 19 participants. A total of 56 people participated in these workshops and helped to identify the trends, barriers, existing resources, and new approaches to advance sustainability across Norfolk County.

Each workshop introduced the concept, history and accomplishments of the LPWBRF and included a presentation by the Planning Department about the County's 2026 Sustainability Vision (Norfolk County, 2006) developed as part of the Official Plan review. One organizer noted that: "it took so long to explain some of the basic concepts and to inform people about what a biosphere reserve actually was, that it took away from more action-oriented discussions. Yet there has to be information shared before future actions can take place" (LPBR-6). Following the formal presentations were small, facilitated discussion groups on topics chosen by participants themselves.

Participants identified a similar range of trends and threats to sustainability within their sector and across the whole region. Many people identified local economic recession in the agricultural sector as a result of global trade and related these to problems to out-migration and other social impacts on the rural community. Possible solutions included economic diversification within and beyond agriculture, to include branding and marketing local "Long Point" products, working with local chefs and food services, creating an agricultural gift box, supporting farmers markets and associations, and promoting concepts such as the Alternative Land Use Services (ALUS<sup>15</sup>) program and the 100-mile diet.<sup>16</sup>

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<sup>15</sup> The LPWBRF supports the Alternative Land Use Services (ALUS) program, under the Norfolk Federation of Agriculture and the Norfolk Land Stewardship Council. The components of ALUS involve: providing rebates for ecological stewardship (e.g., grass buffers along drains), sending extension people to farms (a farmer-to-farmer education program), sharing start-up costs for maintenance of natural capital (often 50-75%), and an annual payment for environmental services based on acreage.

<sup>16</sup> The 100-Mile Diet is considered a social movement that advocates eating locally-grown food. It is also the title of a book by Smith and McKinnon (2007), where the authors restrict their diet, for one year, to include only foods grown within 100 miles of their residence.

The workshops provided a forum for discussion and helped to establish common goals across diverse stakeholder groups (LPWBRF, 2006). Specifically, participants helped to build a new agenda for the biosphere reserve, through the following themes:

1. Communication – of the biosphere reserve designation and concept
2. Education – about biodiversity and sustainability, including nature interpretation
3. Ecotourism – as an economic development strategy, including access to the Point
4. Rural Decline and Poverty – directly related to the decline of tobacco
5. Regional Trends – of retirement communities increasing and youth leaving
6. Global Trends – affecting agriculture and alternatives (such as ALUS pilot projects)

The workshops served to engage citizens in thinking about integrated sustainability: using the biosphere reserve to highlight the ecological significance of the area, participants were encouraged to suggest new directions for the biosphere reserve that would reflect their concerns. The workshops also raised awareness about the three integrated functions of UNESCO biosphere reserves and helped to change the perception of the LPBR as simply a conservation organization.

The workshop discussions elicited a wealth of local knowledge from community members and brought together people even within the same sectors who had not met before. With the exception of the conservation stakeholders group, none of the participants had had previous contact with the biosphere reserve. As one person noted: “before coming to this meeting I didn’t have a clear idea of what the biosphere reserve was. But after checking some websites, it turns out the biosphere is everything I thought it was not” (Pollock, field notes, 2006). Farmers of all ages exchanged phone numbers about Environmental Farm Plans, the forest corridor project, and the ALUS demonstration sites (Pollock, field notes, 2006). The informal networking that occurred

among participants was likely as valuable to them as their suggestions were for the LPWBRF.

As Edge (2007: 152) concluded in a review of local governance capacity in Norfolk County, the biosphere reserve “[s]ustainability workshops, in conjunction with previous community engagement processes such as the Norfolk County Official Plan Review process, and the Norfolk Tobacco Community Action Plan process, have assisted in enhancing the overall local governance capacity by mobilizing citizens and enhancing opportunities for social and institutional learning.” Although a number of promising ideas and suggested partnerships emerged through facilitated dialogue, the biosphere reserve cannot be expected to provide strong leadership in any of the new areas simply due to the volunteer nature of the LPWBRF organization (LPBR-8). Community-based, multi-stakeholder collaboration has perhaps become a new norm for public consultation and planning, but it clearly requires more time and energy than the Long Point Biosphere Reserve has available at present.

Following the workshop series, the LPWBRF organized a large community conference in November 2006 called “Building a Sustainable Norfolk County,” with sessions on sustainable agriculture, ecotourism and agro-tourism, green business, reforestation programs, trails, and field trips. The conference was held during local municipal elections so as to generate added interest by political candidates and the media. Notably, some of the LPWBRF’s former members and most vocal critics also attended the conference and appeared to be interested, if not actually supportive (LPBR-6; LPBR-7).

Not only have the LPWBRF's focus and identity begun to shift from conservation to broader community sustainability, but they have also renewed their base of volunteers. One member noted: "We have a more well-rounded Board from different sectors, resulting in a broadened social network.... The workshops resulted in recruiting more people/volunteers, and these people are not necessarily your conventional environmental types. The mandate is now evolving because of the people and different interests and skills that have been brought to the table" (LPBR-5). The list of current board members and their broad affiliations are listed below in Table 6.2.

Although organizers were exceptionally pleased with the outcomes, other observers felt that "environmental conferences are often preaching to the converted.... You always see the same people which is great but to convince other people is necessary. The problem is figuring out how to communicate more sustainable ways of living to the public at large" (LPBR-4). Although this observer felt that the biosphere reserve "does good work, it needs to work harder to communicate with farmers and with the manufacturing sector. The Sustainability Conference was a good step in that direction."

In terms of the future, this person added: "I think the biggest opportunity the biosphere reserve has is with communication. Improving communication through promoting an understanding of what the biosphere reserve is and what it does (and through changing perceptions) opportunities can be created. There also needs to be something that connects people in the County as belonging to a community. Instead of an 'us versus them' [attitude] there needs to be more cooperation. Communication and trying to facilitate

partnerships is the biggest thing. I think the biosphere reserve needs to affiliate itself with other organizations with like-minded goals” (LPBR-4).

LPBR Board of Directors	Affiliation
Norwich Resident	Civil society – resident
Simcoe Resident (former health professional)	Civil society – resident
Long Point Regional Conservation Authority	Government - provincial
Earth Trumper Consulting Inc.	Private sector
Formerly with Norfolk County	Government – regional
Point Pelee National Park	Government – federal
Simcoe Resident	Civil society – resident
Citizens Environment Watch	Civil society – NGO
Simcoe Resident (farmer)	Private sector
Simcoe Resident (former teacher)	Civil society - resident
Norfolk County	Government – regional
Backus Heritage Conservation Authority	Quango

Table 6.2. Board members for LPWBRF and their broad affiliations in 2007

One LPWBRF member noted that since conflict on the Board has been reduced, people have more time for reflection; they go to conferences and learn about other biosphere reserves, for example. LPBR-5 said that guest speakers from other biosphere reserves are especially helpful in bringing in new perspectives. For example, a member of the Frontenac Arch Biosphere Reserve explained the concept of a biosphere reserve playing “an umbrella role” for other organizations. “We [the LPWBRF] have since felt that our Board is more suited to acting as a facilitator for forming partnerships and relationships with different groups and members of the community” (LPBR-5).

Another member observed: “If you take the biosphere reserve and its principles, the Field Naturalists and their principles, and the Federation of Agriculturalists and their principles, there would be differences, but I don’t think there would be a lot of differences. The biosphere reserve does its best to be all things to all people but it’s

difficult to communicate all of those things. I think the biggest problem with the biosphere reserve is that it doesn't have a lot of community support through different organizations. If you were to take Ducks Unlimited and ALUS and all those groups in a room together, the pooling of resources from those groups could potentially make a large impact on the environment. This doesn't seem to happen anywhere, but if it did, much more could be done politically and monetarily" (LPBR-4). The LPWBRF has been successful in securing some project funding and maintaining modest income from membership fees [Table 6.3].

<b>Year</b>	<b>Funding Source</b>	<b>Purpose</b>	<b>Amount</b>
2008	Multi-party	Causeway project	\$74,000
2008	Ontario Power Generation	Forest Corridor project	\$171,000
2008	Memberships	General expenses	\$2,200
<b>Total</b>			<b>\$275,200</b>

Table 6.3. Funding sources for LPWBRF activities in 2008

The LPWBRF has recently embarked on projects relating to sustainable tourism and sustainable agriculture that appear to align well with broader community interests and also have the potential for strong political support. The role of the biosphere reserve in rural and regional sustainable development was noted in both the Norfolk County Official Plan and in the Tobacco Action Plan (Gowan, 2004). The Official Plan (Norfolk County, 2006: section 3-25) calls the Long Point Biosphere Reserve "a model of sustainability, balancing economic and social considerations with the truly unique features of ecological and natural heritage importance." The only other reference in the Plan (section 6-18) is to a total restriction on development in the core area of the Long Point sand spit. Some members of the biosphere reserve feel "that we did have an important influence in the

Official Plan; they actually invited us for our participation and insight. And the plan has restricted development; it is much more forward thinking than before” (LPBR-5).

In contrast, the Tobacco Action Plan (Gowan, 2004) only identifies “the Long Point Biosphere” as an ecotourism stakeholder and recommends that it should work with others to develop and promote new experiences, including “access to much sought after environmental settings such as the long closed-to-the-public Long Point Biosphere” (Gowan, 2004: 14). Not only does one Plan advocate protection of the core area while the other urges its development, but also neither Plan distinguishes between the lofty UNESCO ideal “biosphere model” and the modest capacity of the LPWBRF to actually fulfill that ideal itself.

Nevertheless, as one participant explained: “I think sustainable tourism and agriculture is a healthy direction for [the biosphere reserve] to go. It’s not one that can be easily criticized and I think it’s a natural direction for this area given the landscape...” (LPBR-2). As this person noted, the high biodiversity, forest cover, and crop diversity in the County is largely due to the success of tobacco farming which was an intensively farmed, lucrative crop that preserved buffer areas and marginal lands. It was also rotated with wheat or rye and provided windbreaks for critical habitat connection. With a decline in tobacco, there is a serious risk of larger farms and cash crops; smaller margins of profit are conventionally assumed to demand larger acreages, equipment, and chemical inputs.

As in other rural municipalities, the broader context in Norfolk County is the drive for traditional economic development. Rural municipalities facing depopulation are especially concerned with attracting outside investments, industries and expanding their tax base. Despite innovative projects such as ALUS, some conference participants feel that these are not widely supported in the community. In fact, they recognize “the overriding goal in Norfolk County is not sustainability but is economic development. The interests are to get more young people down here and more businesses. The overall direction locally is ‘that it is not a problem to have multinational corporations come in and swallow up local dollars at the expense of local businesses’” (LPBR-4).

As several people have noted, the turn to sustainable community development is enhancing both the presence and the credibility of the biosphere reserve in Norfolk County. Although the LPWBRF seeks to play a facilitative role for sustainability initiatives, its difficult history of multi-stakeholder collaboration is an obstacle to overcome. Only recently have opportunities arisen that position them as a broker for meaningful collaboration (McCarthy, 2006<sup>67</sup>; Edge and McAllister, 2006).

Along with the promotion of sustainable tourism and agriculture, the LPWBRF has responded to a specific and practical community need: the reconstruction of the Long Point Causeway. Built in 1927, the Long Point Causeway is a road extension of Highway #59 that enables public access to cottages, beaches and a marina. It passes through the Big Creek Marsh Delta area and is a barrier to wildlife crossings, especially by species of reptiles and amphibians. Road mortalities of endangered species, changes in water quality

and hydrology to Long Point Bay, and human safety have topped the list of concerns (Ashley, 2006). The LPWBRF is now leading a collaborative multi-stakeholder project to prepare a preliminary feasibility study with consulting engineers. A LPWBRF Board member chairs the ad hoc committee and the biosphere reserve provides the administrative support for communicating with stakeholders.

The Long Point Causeway Improvement Project goes beyond engineering new infrastructure to secure wide community support, to bridge stakeholders who have never worked together previously, and to integrate divergent goals under a common purpose to produce multiple (social, ecological, and economic) benefits. Partners for this advisory role include Environment Canada's Canadian Wildlife Service, the Norfolk Land Stewardship Council, Bird Studies Canada, the Ministries of Natural Resources and of Transportation, Norfolk County, the Nature Conservancy of Canada, the Long Point Regional Conservation Authority, the Norfolk Field Naturalists, the Long Point Country Chamber of Commerce, the Long Point Ratepayers' Association, the Anglers' Association, Fish and Game Club, and local landowners. This project may prove to confirm the role of the biosphere reserve as a facilitative body for more integrated sustainable development.

#### **6.4.4 Proposed Changes to LPBR**

A fourth phase for the Long Point Biosphere Reserve is on the horizon. In light of the recent work that the LPWBRF has undertaken to establish itself as a multi-stakeholder, community-based organization with concern for sustainability, new members of the LPWBRF are pursuing the possibility of a formal application to UNESCO to expand the

boundaries of the biosphere reserve to encompass more of Norfolk County. The process has begun with strategic consultations with municipal councilors, affected organizations, and private landowners. This initiative is largely in response to the UNESCO periodic review that took place in 2001, where reviewers acknowledged the evolution of the LPBR's scope of involvements:

...as the LPBR found its role among the various organizations and agencies, its interests have extended into issues of forest restoration and management on the mainland... this has become a *de facto* part of the transition area / zone of cooperation. However, there is some reluctance to specify this with lines on maps because it could give rise to various misunderstandings among people who remain very concerned about private property rights (Francis and Whitelaw, 2001: 43).

Indeed, a number of interview participants commented on the proposal to expand the geographic scope of the biosphere reserve. Some confirmed that: "lines on a map are scary to people because of the implications to private property rights.... We're in an area right now, particularly in the farm community, where it's hard to get your foot in the door because of the strong feeling of government intrusion and regulations as a means of achieving sustainability... there may or may not be the need to re-define the boundaries" (LPBR-2). Others were critical of the proposal to include new core areas, such as private properties, land trust holdings, or Conservation Area lands. One person felt that the proposal was "too ambitious and that the biosphere reserve really hasn't proven its effectiveness" (LPBR-1), so why should it expand?

Despite these concerns, the reviewers made the formal recommendation to "reconfigure the biosphere reserve in order to include a terrestrial component on the adjacent mainland" (Francis and Whitelaw, 2001: 25) in a new nomination application to

UNESCO. The proposed new boundary would encompass the 730 km<sup>2</sup> Big Creek Watershed and Norfolk County's rural landscape for a new total of 160,700 ha (including the original Long Point complex). New core areas might include protected forested areas, such as the 491 hectare Backus Woods, administered by the Long Point Conservation Authority, and other sites now maintained by the Long Point Basin Land Trust. Defining the transition zone and a proposed name change to "the Long Point Carolinian Biosphere Reserve" are both under discussion.

Despite the success of the Long Point sustainability workshops and conference, and the expanded role for the LPWBRF as facilitator of the Causeway project, securing support for biosphere reserve expansion has been difficult. Several leading NGOs, such as the Norfolk Field Naturalists, endorse the proposal, but there was some resistance from people associated with the Conservation Authority. LPBR-8 wonders: "why is this so threatening to them? They want to know if the new boundaries and biosphere reserve designation will affect the regulation of their lands – and I keep saying 'no – this is just recognition of areas that are already protected.'" Interestingly, several individual local government officials have been supportive, and the LPWBRF is currently seeking a formal letter of support from Norfolk County Council.

It is difficult to assess what kind of impact an expanded and renamed biosphere reserve would have on governance for sustainable development in Norfolk County. Aside from bridging diverse stakeholders, the biosphere reserve might provide a regional framework for specific initiatives related to conservation and sustainable livelihoods. One of the

barriers to this is that the biosphere reserve concept is still unclear to many and thus a proposal for expansion raises the same fears as it did 20 years before in terms of private property rights and respect for government jurisdiction and authority. It is also difficult to determine where a shared sense of place may lie and how it might best be mobilized to create a new domain for sustainable community development. For example, only 500 people reside year-round in the current biosphere reserve configuration. Although there are a number of communities situated close to the lake and people are increasingly aware of the unique Carolinian forest remnants and restoration projects, the region's identity is predominantly agricultural, as celebrated in numerous festivals and cultural events. The municipal amalgamation in 2001 created -Norfolk County, a higher-level jurisdiction to which residents may not yet relate.

Nonetheless, the proposed "Long Point Carolinian Biosphere Reserve" emphasizes the two major aquatic and terrestrial ecosystems of concern and represents an excellent opportunity for public education. As Jamieson et al. (2008: 139) note: "The Long Point Biosphere Reserve has experienced several rhythms of activity since it was designated in 1986." Deliberations on the expansion proposal may indeed be a powerful means of strengthening awareness of the biosphere reserve concept and use of the biosphere reserve as an umbrella for networked collaborations. A great deal of personal contact and trust-building will be required for the submission to UNESCO to be enthusiastically endorsed by all relevant parties. If successful, the same stakeholders will then be engaged in a whole new phase of conservation and sustainable development within the expanded boundaries of the biosphere reserve.

## 6.5 Case Study Analysis

This section draws on the experiences of the Long Point Biosphere Reserve to reflect on each of the three dimensions of the conceptual framework about environmental governance and the role of biosphere reserves in sustainable development. To what degree the LPBR provides a model for integrated sustainability, uses collaborative modes of governance, and supports governance networks are each explored in the following discussion.

### 6.5.1 Long Point as a Model for Sustainability

The Long Point case illustrates that the biosphere reserve model of three integrated functions across three inter-related zones is an ideal that faces enormous implementation challenges. However, the historic context of nomination and designation followed by a significant evolution of the LPWBRF's mandate and community involvement, point to some possible roles for the biosphere reserve as a model for integrated sustainability.

As outlined in the conceptual framework for this research (section 5.4.1), the UNESCO model of biosphere reserves provides a ~~normative~~ framework for integrated sustainability in at least five respects: (1) the model integrates the functions of conservation with sustainable development and is explicitly cross-scale and multi-level in its design; (2) it uses principles from conservation biology to integrate the three zones of core-buffer-transition; (3) the model recognizes the significance of both scientific and cultural interpretations of landscape; (4) the model integrates the principles for sustainability and aims to work across economic spheres, social groups, and ecological and temporal scales; and (5) it strongly supports social learning and adaptation by treating biosphere reserves

as “demonstration sites,” “learning laboratories” or “learning platforms” for experiments in sustainable development.

The early focus on conservation around the core areas reinforced the public perception of the biosphere reserve as a local-level conservation or environmental organization, rather than one concerned with cross-scale integrated sustainable resource use and livelihoods. Although the LPWBRF’s 1994 Community Action Plan engaged citizens to some extent, it was a reflection of fairly narrow, but popular issues of the time (such as recycling, energy conservation, and environmental education). As the capacity of government agencies charged with ecosystem management waned through the 1990s, the work of the LPWBRF – driven by the interests of individual volunteers – reinforced the role of the LPBR in supporting conservation, research and monitoring projects.

This evolution can be better understood in light of the changing requirements of UNESCO biosphere reserves at the international program level. Before the implementation of the Seville Strategy (1995), most biosphere reserves were simply national parks nominated by national governments for their conservation value and research opportunities, acting essentially as core areas without the capacity for, or commitment to, sustainable development. The conservation focus in Long Point was a reflection of the UNESCO/MAB biosphere reserve design at the time (circa 1985) and perhaps acted to limit the integrated sustainability mandate or potential of the LPWBRF.

As illustrated in the list of conservation agencies and organizations active in the Long Point area [Appendix V], the biosphere reserve is simply one small organization in the overall governance landscape. Given the myriad government agencies, policies and programs already concerned with the Great Lakes at the time, and with Lake Erie in particular, it may have been difficult for the LPWBRF to establish a clear identity for itself, let alone to play a substantive role in facilitating the function of biodiversity conservation. With limited financial and volunteer-based organizational capacity, divergent interests of board members, and competition among environmental organizations, it is not surprising that the LPWBRF was not a major player at the time.

The fisheries symposium in 1995 suggests that the LPWBRF glimpsed a potential role for itself as a facilitator among such diverse organizations. The event was designed to convey scientific information about complex ecosystem dynamics, across ecological scales and jurisdictional levels, to the various stakeholders. It was an explicit attempt to address sustainable development (i.e., the future of sport and commercial fisheries and their socio-economic as well as biophysical impacts). Most importantly, it allowed the biosphere reserve itself to play a central role as broker between different perspectives and knowledge. Again, as government agencies shrunk in size and resources through the 1990s, gaps in public consultation processes were created that fell to civil society NGOs ([Government of Ontario Environmental Commissioner of Ontario, 2007](#)).

The subsequent reversion to narrow conservation projects with fewer partners, such as forest restoration, is likely a result of low organizational capacity on the part of the

LPWBRF, the substantial corporate funding that the project received, and the willingness and administrative capacity of the Conservation Authority to carry out the work on the ground. As LPBR-8 notes: “it is a project that pretty much takes care of itself.” Although forest restoration is a clear example of biodiversity conservation – one third of the biosphere reserve’s mandate – it has also effectively engaged landowners, worked across both private and public property regimes, and educated the wider public about the ecological goods and services in their region.

In fact, subsidized tree planting, under the banner of the biosphere reserve, helps to support a social movement toward compensation for ecological services provision, such as those represented by the Alternative Land Use Services (ALUS) project. A study by Bailey and Greenslade (2006:6) in Norfolk County showed that there is “a large proportion [approximately 75%] of the population who either support the concept of paying farmers for environmental services, or who could perhaps be persuaded with proper marketing of the concept and education.” Ecological economics of these kinds represent a fundamental shift in cultural norms toward more integrated practices and forces attention to sustainability trade-offs (Gibson et al., 2005). The Long Point Biosphere Reserve – as a model for sustainability and as an organization – has – certainly played a role in fostering this type of shift.

One of the most striking aspects of the LPWBRF’s development is the way that its activities and identity were initially centred on the core area and related conservation priorities of other organizations (e.g., the Long Point Bird Observatory) but slowly

evolved to address issues outside the defined core and buffer. These included ecological monitoring, forest corridor restoration, sustainable agriculture, and tourism development. Aware of cross-scale influences on agriculture within Norfolk County, the biosphere reserve began to reflect on its possible response to a community in crisis. The fluid boundaries of the UNESCO biosphere reserve model, the mandate to work across and beyond zones, and the ability of the LPWBRF to respond to local issues generated at larger scales are indicative of the flexibility of the biosphere reserve concept as it has been employed in Long Point.

The first 20 years of the Long Point Biosphere Reserve suggest that an enormous amount of learning occurred – both on the part of the LPWBRF organization, and within related social networks of conservation, agriculture, and traditional economic development. As McCarthy (2006: 190-191) concluded:

The most recent Board has learned as a group, building on an understanding of the strong links between the environment and the economy and collectively coming to the realization that environmental problems are human ‘social’ problems. They also have built on the experience of previous Boards, emphasizing the importance of partnerships... The evolution of the LPWBRF’s mandate and especially its sustainability workshop series can be interpreted as a social learning process.

While it is tempting to decry the slow pace of the social learning process in Long Point, this case study documents significant progress for a small, volunteer organization. The concept of the biosphere reserve, while not always well understood, is certainly now a fixture on the organizational landscape (as evidenced by recognition in the Official Plan) and the biosphere reserve model or mandate commonly appears in discourses about sustainable development.

### 6.5.2 Collaborative Modes of Governance in Long Point

The conceptual framework for understanding the role of biosphere reserves in governance for sustainability helps to illuminate three dynamics of collaborative governance in Long Point: (1) self-organization and the formation of local governance arrangements; (2) the role of place-based governance for engaging citizens and public participation; and (3) defining specific characteristics of collaborative processes (as described in section 5.4.2).

Each UNESCO biosphere reserve is unique and develops its own local administrative organization and necessary governance arrangements to fulfill its mandate. Ultimately, the biosphere reserve concept cannot be advanced without some form of local leadership, organization, and network that fully endorses the three functions, and formally or informally coordinates those functions across its three zones.

In the case of Long Point, there have clearly been a number of organizational constraints including: historic conflict, Board attrition, lack of funds, lack of staff and local presence, inconsistent communications, lack of strategic plans, and an evolving identity. However, LPWBRF has persisted through several cycles of volunteer engagement and collapse, proving resilience under the most unlikely conditions. The Long Point Biosphere Reserve experienced long periods without significant involvement of the Board or influence in the community. Small projects and partnerships gave the organization a focus, but larger initiatives (across scales and stakeholders/sectors) were rare.

Indeed, the lack of collaboration, particularly among like-minded conservation organizations, is striking. Given the vast number of NGOs related to Long Point and Carolinian Canada (as shown in Appendix V), it is rather surprising that the biosphere reserve did not play a more significant role in brokering partnerships and in steering government to support its conservation and logistic functions. It is likely that inter-personal conflicts actually fuelled inter-organizational conflicts that persisted for decades. These have only been resolved as individuals leave those organizations or transfer leadership to others. The renewal of the LPWBRF Board at several points in its history reveals the significance of leadership for organizational development. Patterns of organizational maturity, collapse and renewal have been well documented by Westley et al. (2006) who use complex systems thinking and Holling's adaptive cycle [section 1.1.5] to point to the role of "social innovators" for anticipating change and aligning new opportunities. In the case of biosphere reserves, personal leadership within local organizations and organizational leadership for cross-scale collaborative governance appears to be required.

#### **6.5.2.1 Self-Organization**

The self-organization of the LPBR evolved significantly over its history. It emerged due to academic and then agency interest, centred on a desire to overcome institutional fragmentation of ecosystem management around Long Point. With no formal authority or jurisdiction, the biosphere reserve began as one rather small player within a complex organizational landscape. Although the biosphere reserve initially received strong support from government agencies that saw the value of international designation and NGO

involvement, the local biosphere reserve group took years to formalize and even longer to achieve some influence.

Yet, the deliberation, nomination, and designation related to establishing LPBR may have helped to institutionalize the principles of conservation biology of cores and buffers among a wide range of government agencies. Arguably, the creation of the LPBR in the 1980s contributed to governance for sustainability by forming a new domain (or social/political space) for inter-governmental collaboration on ecosystem management. The reluctance of some municipal and provincial government agencies to support an expanded geographic configuration for the biosphere reserve suggests that this particular domain was established during the “Lake Erie crisis” years and then failed to evolve along with the biosphere reserve board to address mainland issues, likely because of the narrow jurisdictional boundaries of government agencies and (with the exception of Remedial Action Plans in identified Areas of Concern in the Great Lakes) the lack of a coordinated inter-governmental response to the changes.

As a local governance body (see the types of local governance arrangements for biosphere reserves in Canada outlined in section 5.4.2), the LPWBRF combines a non-profit organizational structure with a membership-based one. The main strengths of this combined model are that it determines the composition of its Board (e.g., decides whether to have government representatives and in what capacity they should serve) and can plan and implement its own programs. Public membership provides potential for broad-based support in the community. However, as Francis (2006) notes, the main drawbacks of such

an organization are that it can become pre-occupied with constant fundraising, have weak or no government support, and risk burn-out among its most active volunteers. In addition, different community groups may pressure the organization to take sides in local disputes and/or the organization may be perceived as having been taken over by particular interests.

The LPWBRF has indeed faced most of these challenges, yet over time the biosphere reserve began to establish a presence in the region, engage a more diverse range of stakeholders, and support modest projects in the areas of conservation, monitoring, research and education. Through the late 1990s, the number of participants and partners of the LPWBRF grew (through general membership, Board members and elected Executive) to the point that some observers felt that the biosphere reserve had overcome its tortured past and negative perceptions. “Given the cross-affiliation of participants in the LPBR with some of the government agencies and other local NGOs in the area, the biosphere reserve has become firmly embedded and accepted in the local community” (Francis and Whitelaw, 2001: 9). One might expect that the LPWBRF might have collapsed but it has persisted despite many obstacles, including some of its own making.

Arguably, the overall lack of organizational capacity of the LPWBRF significantly hindered its development, its effectiveness, and its wider influence on governance for sustainability. It constantly struggled to maintain a volunteer base, raise funds, communicate its purpose, and find a place among the other players. Had the biosphere reserve been given operating funds by government and endorsed more widely by the

conservation community, it may have taken a leadership role in brokering lasting partnerships demonstrating practical sustainability initiatives.

Nevertheless, the Long Point World Biosphere Reserve Foundation made tentative steps toward multi-stakeholder collaboration in the 1990s. Over the past decade, the LPWBRF has sought to influence *governance* through community workshops and conferences, and *government* through participation in official planning processes, and has been rewarded with modest recognition by local governments and coalitions seeking other leaders in the field of sustainable development, both conceptually (rhetorically) and pragmatically. The evolution of the biosphere reserve's role is best captured by the change in the original mission statement of the LPWBRF as:

The Long Point World Biosphere Reserve Foundation promotes research, monitoring, education and appropriate projects that support the goals of conservation and sustainable use in the Long Point World Biosphere Reserve" (1996),

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 (2006).

Although perhaps a decade or more will be needed to assess to what extent this new vision is fulfilled, it is clear that the biosphere reserve designated in 1986 has undergone a major transformation in its ability to transcend geographic boundaries, its attempt to respond to cross-scale global pressures that result in local vulnerabilities, and its adaptation to new ways of thinking. The concept of the biosphere reserve has endured within the Long Point region in surprising ways. It is widely recognized, although not always understood, by other organizations within the conservation community. The

biosphere reserve has been formally endorsed by municipal-level government and includes councilors on its LPWBRF Board, which may increase its political influence. It has extended its focus to include the major economic base of the region and is trying to support a shift to sustainable agriculture.

Now with the renewal of the local biosphere reserve organization, both in terms of membership and mission, it may be able to undertake a much more significant role that contributes to sustainability in the region. Through the identification of community priorities (such as sustainable agriculture) and growing political support for the expansion of the biosphere reserve to include new core areas, the LPBR may help to broker much larger, cross-scale, cross-sector initiatives. This remains to be seen. The Causeway Improvement Project is one indication of its potential influence on regional governance and decisions that integrate conservation and sustainability concerns through collaboration.

#### **6.5.2.2 Place-Based Governance**

One approach to achieving sustainability is the concept of “place-based governance” that draws on a sense of place to engage civil society in decision-making processes in support of community development (Pollock, 2004). Bioregionalism is one place-based approach that recognizes the critical value of local and cross-scale ecosystems for human flourishing much more than have conventional municipalities, for example. Edge and McAllister (2006) suggest that local governments, with their traditional institutional structures, political barriers, and top-down governance structures do not readily lend themselves to the more integrated and participatory approaches that planning for

sustainability demands. Since established political jurisdictions fail to align with ecological boundaries in most cases, more fluid boundaries for governing “the environment” and encouraging sustainability are needed. Biosphere reserves thus provide an operating framework for fostering place-based governance.

Social values often reflect a sense of place that is important for citizen engagement in governance for sustainability. Social values are driving factors for participation, for environmental protection, and for creating sustainable norms and behaviour. The Regional Municipality of Haldimand-Norfolk’s Official Plan (1980) identified a set of values for the region (as cited in Francis et al., 1985: 14):

- Preserve agricultural, rural, and traditional ways of life;
- Protect environmentally sensitive areas;
- Maintain and rehabilitate hydrologic functions;
- Maintain and expand forest cover;
- Rehabilitate commercial and sport fisheries;
- Control private and improve public access to the lakeshore;
- Increase recreational opportunities; and,
- Conserve heritage features and foster public awareness of these.

While these values were fairly standard for southern Ontario at the time, the contents are strikingly similar to those identified a quarter century later. Norfolk County’s Official

Plan (2006) outlines the following Strategic Goals and Objectives:

- A strong and diversified economy;
- Protecting and enhancing the natural environment;
- Maintaining and enhancing the rural and small town character;
- Maintaining a high quality of life;
- Upgrading and expanding infrastructure; and,
- A well governed, well-planned and sustainable County.

Through the highly consultative municipal land use planning process and their own set of Sustainability Workshops, the Long Point World Biosphere Reserve Foundation is aware of these persistent concerns and articulates them as part of a new vision for sustainable community development in an effort to influence governance in Norfolk County. By participating in the Official Planning process, the biosphere reserve clarified its mandate of integrating conservation and sustainable development. It also publicly endorsed sustainability planning and provided a voice of moral authority. And it established credibility in the political process, to the point that County councilors have joined the board of directors. As a place-based model for sustainable development, it is responding to context-specific issues, such as those identified for ecotourism in the Tobacco Community Action Plan (Gowan, 2004).

As the historical account above shows, the focus of the LPBR evolved over two decades through three phases from one concerned with the aquatic ecosystems of Lake Erie and its fisheries, to one concerned with Carolinian forest restoration and terrestrial ecosystem monitoring on the adjacent mainland, and finally to one that now attempts to account for much broader regional land uses, such as agriculture and residential and industrial development. Just as the paradigm of ecosystem management gave way to one of sustainable development and the LPBR evolved with it, so too has the LPWBRF begun to find ways to respond to the values of their agricultural community. Whether the biosphere reserve can now embody and sustain its new mission of facilitating collaboration, in the hopes of influencing cross-scale decision-making processes that strengthen governance for sustainability overall, remains to be seen.

### **6.5.2.3 Defining Collaboration for the Causeway Improvement Project**

In order to assess the LPWBRF's modest attempts at multi-stakeholder collaboration, a specific assessment of the Causeway Improvement Project, following Donahue (2004) and Marcussen and Torfing (2003) can be made. For the Long Point case, the Causeway Improvement Project is reviewed because it is the clearest example of collaboration and is one of the most recent. Recalling the characteristics of the collaborative arrangements (as outlined in section 5.4.2), the eight dimensions are: the origin or initiation and degree of formality, their duration and membership, their number of linkages and relative stability, and their main focus, scope, and orientation to governance activities.

After years of research, the Canadian Wildlife Service and the Norfolk Stewardship Council initiated the Causeway Project in 2004. Following informal discussions among various organizations, the first formal meetings were held and the LPWBRF was selected to chair and administer the committee, as part of a long-term project. The Causeway Project brings together over 15 diverse organizations, including government, NGOs, and private citizens. Although some of these partnerships are new (e.g., linking conservation and public safety) and involve the County to a much greater degree, there is high "valence" or number of linkages between many of the other groups.

The committee has been fairly stable, meeting formally on a regular basis. Now that the final report and recommendations from their consultants at EcoPlans have been received, the committee now must decide what form it will take in the future. The committee used "Causeway Improvement" as their main focus but successfully involved a wider range of

stakeholders by moving away from the single-issue of wildlife protection to account for an array of other considerations. The committee's collaborative efforts are effectively cross-sectoral and cross-scale. Finally, the collaborative is both "defensive" by responding to a shared concern and "offensive" in turning the situation into an opportunity for practical and applied sustainability.

Most interview participants agreed that the biosphere reserve was playing a key role in bridging diverse interests and acting as an umbrella organization to raise the necessary funds. "It promotes true community involvement with leaders from quite a wide diversity of local organizations. In this case, there was no question about which was the proper organization to lead. It was a project that the community could get behind." (LPBR-2). "The biosphere reserve can take the lead because of its broad mandate and it is a neutral organization" (LPBR-3). "This is an ideal role for the biosphere reserve to play because it brings everyone together, around the same table, to tackle one common issue" (LPBR-5). Ultimately, "the LPBR should be the lead and the County should be more involved because the committee has no legal status. Ratepayers will ask: 'who will pay for it?' and it will likely be a combination of municipal, provincial, and federal funding, so we all will pay..." (LPBR-8).

The Causeway Project is perhaps an unlikely candidate for illustrating governance for sustainability. It might easily be interpreted as a community infrastructure problem or as a narrow conservation issue. However the many facets of the project reveal the integration of ecological integrity with social values and economic benefits. The

Causeway provides a tangible focal point for bridging discussions about how research and monitoring (of wildlife mortality) improves understanding of the function of biodiversity conservation that in turn underpins sustainable development (e.g. ecotourism in the forms of boating, birding, cottaging and beach visits) and livelihoods (e.g., quality of life, recreation, and safety). The LPWBRF thus integrates and actively demonstrates each of the three functions of the biosphere reserve model in its leadership in this initiative.

By facilitating the participation of all three levels of government related to the project and bringing groups together that have never collaborated before, the biosphere reserve does play a unique role – one that might not easily be played by any other organization.

Although this type of brokering role was attempted with the Fisheries Symposium, perhaps the biosphere reserve lacked the credibility at that time to sustain such a role or perhaps the history of inter-organizational conflict has finally been surmounted in a meaningful way.

Donahue (2004:3) cautions that collaborative governance networks “are often tangled and run athwart various administrative and regulatory levels.” However, the project has already engaged all levels of government and the participants hope to work even more closely with the County on the final implementation of the project. With its lack of formal authority to make decisions, the biosphere reserve has been granted credibility and an informal authority by others to facilitate collaborative governance. Experience with this role, both for the LPWBRF and for the other organizations involved, may provide a

template for collaboration that can be repeated in other settings and for other issues, such as the expansion of renewable energy (e.g., wind power, biofuels) or the transition from industrial agriculture to organic food systems.

### **6.5.3 Networks in the Long Point Biosphere Reserve**

The third and final dimension of the conceptual framework on biosphere reserves is structural, i.e., their role in creating governance networks and in managing those networks through “network governance.” Since the biosphere reserve model encourages the formation of governance networks, by building trust and social capital and by bridging multiple organizations under an umbrella of shared goals, resources, and knowledge, this section explores how the Long Point Biosphere Reserve initiates and influences governance networks, across different scales and using diverse approaches. It briefly reflects on whether LPBR constitutes a bridging or boundary organization (Hahn et al., 2006; Olsson et al., 2006) and then concludes with a specific discussion about the role of Long Point Biosphere Reserve in governance for sustainability.

There are at least two important perspectives on networks in the Long Point Biosphere Reserve. One is about the extent to which the LPWBRF initiates or participates in specific governance networks, such as the Causeway Improvement Project. The second perspective goes across scales, far beyond the local biosphere reserve organization itself, to account for a vast range of governance arrangements that overlay the landscape and the influence of the biosphere reserve designation.

These two perspectives are related because in the conceptual framework (section 5.4.3), the biosphere reserve model emphasizes the potential for local organizations to be central nodes in such networks (analogous to the hub of a wheel) *and* for them to track the larger system of metagovernance<sup>17</sup> for the full scope of sustainability considerations. In other words, local biosphere reserve groups are expected to facilitate various collaborative governance networks at the same time as they help to manage those networks by being aware of the full range of organizations that influence governance for sustainability.

As discussed in section 4.4.1 on networks, the task of managing complexity in governance for sustainability is daunting and possibly beyond the capacity of any single organization. Yet, before biosphere reserves can claim to have an influence in governance processes, it is fundamentally important for them to have a basic awareness of the relevant “layers” and “players” in sustainable development. As Francis (2004: 25) has already explained:

...a biosphere reserve organization has two major roles. One is to serve as facilitator and partner, providing both a forum and a helping hand for groups to join together to discuss and understand conservation and sustainability issues of mutual concern, and then deal with them as best they can. The other is to keep abreast of all that is happening in a biosphere reserve and report on this from time to time to all who live there and to anyone else that may be interested.... No one else does this. It is a special niche for a biosphere reserve group, and a demanding one.

Although the creation and management of networks does not emerge as a strong theme for the LPBR, it has recently proved to serve as a facilitator and forum for dialogue about

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<sup>17</sup> Metagovernance refers to the overall institutional system of rules that govern the distribution of power, authority, and responsibilities among the components of the three sectors. It “involves managing the complexity, plurality, and tangled hierarchies found in prevailing modes of coordination” (Jessop, 2002: 6).

sustainability. The capacity to understand and analyze “metagovernance” is much more of a challenge for the LPWBRF. Government funding to support staff positions, a clear organizational purpose and objectives, might help the LPBR undertake this type of networking and knowledge management role. Biosphere reserves thus have the potential to facilitate collective decision-making processes and nurture innovative structures for communication and collaboration.

A major challenge for organizations working across multiple levels, timeframes or domains is to more effectively create knowledge that is salient, credible and legitimate across disciplinary and sectoral boundaries. Guston (2001) refers to organizations that explicitly focus on this intermediary function as “boundary organizations.” The Long Point Biosphere Reserve has only rarely, and then only recently, played a convening, bridging, or open forum role for stakeholders to address challenging inter-jurisdictional issues.

A review of the Canadian experience suggests that although some biosphere reserves evolve from small local non-profit groups to broker much broader networks of stakeholders involved in sustainable development, many do not. Their internal governance capacity is constrained by factors such as limitations in social capital (Millard, 2004), institutional effectiveness (Reed, 2006), and degree of local participation (Stoll-Kleemann et al., 2006). Edge and Buck (2006) found that the main difficulty facing the LPWBRF is a lack of secure core funding to support the efforts of its community volunteers and related initiatives. The LPWBRF could greatly benefit from developing a

longer-term strategic and/or business plan that would set some directions and priorities around which fundraising efforts could be concentrated (Francis and Whitelaw, 2001).

Within this process, the biosphere reserve could also articulate its role as a facilitator or bridging and boundary organization and then identify specific, immediate, and long-term involvements in that capacity.

## 6.6 Conclusions

This research explores the contributions of the UNESCO biosphere reserve model and uses select biosphere reserves in Canada to illustrate their role in the complex dynamics of governance for sustainability. The Long Point Biosphere Reserve (LPBR) case illuminates several elements identified in the conceptual framework. The extent to which LPBR provides a model of integration for sustainability, uses collaborative multi-stakeholder modes of governance, and creates or manages governance networks is summarized below. Long Point is an especially useful case because it is one of the older biosphere reserves in Canada – it was born early in the UNESCO/MAB program, has adapted to a number of changing conditions, and has evolved to respond to threats to regional sustainability. These concluding observations do two things: they begin to answer the research question about the roles that biosphere reserves play in governance, and they highlight some of the lessons that can be applied to other sites and situations, including the case studies that follow in Chapters 7 and 8.

First, the LPBR concept only recently appears to provide a model for integrating conservation with sustainable development. Initially, it was viewed as a potential

framework for overcoming institutional fragmentation related to ecosystem management with a biophysical conservation focus (Francis et al., 1985) but civil society organizations (i.e., NGOs and other stakeholder groups) failed to seize the integrative potential of the biosphere reserve due to internal conflicts and public perceptions. The LPWBRF, the local organization that formed to administer activities within the biosphere reserve informally, was initially focused on conservation efforts around the core and buffer areas and, with the exception of the Fisheries Symposium, appeared less concerned with the cross-scale dimensions of sustainability (i.e., across jurisdictions or the global-to-local impacts of external drivers on surrounding agricultural communities). The lack of a clearly defined transition zone inhibited integration in the early years, yet over time it permitted flexibility across fluid boundaries, as attention to the core/buffer waned, and an informal 'area of cooperation' was created through partnerships in conservation, monitoring and education.

Eventually, both scientific and cultural perspectives came to be recognized by the biosphere reserve organization as an important part of their mandate. The series of place-based stakeholder workshops identified local vulnerabilities created or exacerbated by global change and uncertainty. Citizens used the biosphere reserve concept as a framework for integrating various principles of sustainability (e.g., ecological systems integrity, social and generational equity, economic and livelihood opportunities, precaution and adaptation, etc.) for their region. The biosphere reserve effectively fostered a process of social learning that helped to redefine the LPWBRF's role as a facilitator for knowledge exchange, collaborative initiatives, and cross-sector dialogue.

Second, the LPBR has struggled to foster collaboration and has only recently taken leadership in certain collaborative arrangements. The biosphere reserve was really created with the help of outside academics and government agencies. However, the LPWBRF did self-organize as a multi-stakeholder organization with open membership. Its organizational effectiveness was seriously challenged by conflict among its volunteers, a lack of awareness among the general public, a chronic lack of financial and human resources, and limited institutional support from government. Although each of these factors inhibited LPWBRF's ability to influence governance through collaboration and network creation, other organizations and agencies were actively involved in fulfilling the three functions of the biosphere reserve regardless.

Highly divisive internal governance within the LPWBRF and competition with similar organizations likely resulted in the lack of cooperation among stakeholders. The paradox of perceptions of the biosphere reserve (as either a conservation or as a development organization) along with the lack of trust and social networks more generally, left the local biosphere reserve organization without a meaningful role to play. Only as conflicts have faded and social capital has been added (through new volunteers) has the LPWBRF begun to facilitate place-based governance. Attention to sustainable agriculture and eco-tourism complement their conservation work and has positioned the biosphere reserve as more responsive to rural decline and more clearly committed to sustainability strategies. The LPWBRF's role in the Causeway Improvement Project seems to signal the emergence of the biosphere reserve as a potentially significant governance player in

bridging stakeholders, brokering partnerships, and facilitating collaborative decision-making.

Third, until recently the LPBR has not played a central role in fostering or managing governance networks due to its historically marginalized position among the many other conservation organizations active in the region. Despite the social networks generated by the LPWBRF (in the order of 50-200 people), its organizational presence is still undetected by many. However, municipal government and a host of other organizations now struggling with a sustainable development agenda recognize the biosphere reserve concept as a tool for integration. And although the LPWBRF lacks the capacity for much active leadership in regional sustainability initiatives, it is looked to as an important stakeholder and, in the Causeway case, a viable coordinator. The UNESCO designation is less a source of fear than of pride and it provides international prestige and moral authority for new proposals, particularly those related to tourism such as regional branding, product marketing and the like. These changes alone indicated that the biosphere reserve is potentially poised to participate to a greater degree in network governance.

As noted in earlier chapters, the local organizational arrangements of biosphere reserves (in Canada) typically involve networking processes to decide upon particular roles and priorities that the biosphere reserve group itself will take on. Once common goals are established, then network governance is often the resulting pattern of interaction. Governance networks create new inter-organizational domains (such as sustainable

agriculture and the ALUS project) and norms (such as paying for ecological goods and services). These new institutional frameworks evolve through negotiation and can more easily operate across multiple levels and scales than can single organizations. For biosphere reserves, building networks can be one of the most effective ways of enrolling others into the process of defining and achieving sustainable development for specific places. This was recognized in the Periodic Review for UNESCO. Francis and Whitelaw (2001: 67) saw that:

The potential for the LPBR to foster informal communication and cooperation through horizontal networks has been recognized, and is seen by some in the community to be the most important role for the biosphere reserve.

Although the LPBR has had difficulty becoming fully functional over the past 20 years, it has persisted – as one model for applied sustainability and as a tenacious local organization seeking to advance sustainability, both formally (with local government) and informally. Moreover, its application of the biosphere reserve model and its local organization have both evolved in response to the changing governance context of the social-ecological system around Long Point and across Norfolk County.

The normative power of the biosphere reserve model has helped to endorse particular planning and policy directions by government and other coalitions, and seems to have raised public awareness of the biosphere reserve concept. Taken together, the projects, public consultations, and facilitation by the LPWBRF have effectively engaged citizens and other stakeholders in a collaborative approach. It is possible that the consultation process required for a formal application to UNESCO for expansion and re-naming may indeed generate further support for the work of the LPWBRF. New federal funding for

local coordination in Canadian biosphere reserves may provide the LPBR with the necessary human resources to enhance the capacity of the organization quite substantially, leading to greater regional presence, promotion of an integrated sustainability agenda, pursuit of collaborative governance, and establishment of more effective governance networks.

## 7. Case Study: Frontenac Arch Biosphere Reserve

### 7.1 Introduction

The purpose of this chapter is to explore the ways in which the Frontenac Arch Biosphere Reserve contributes to governance for sustainability. First, the core, buffer, and transition zones are briefly described to set the general context for governance within the biosphere reserve. Second, the development of local organization is described, using specific examples of activities that illustrate the challenges, opportunities and roles that the biosphere reserve has played in governance for sustainability.

Designated in 2002 and expanded and renamed in 2007, the Frontenac Arch is Ontario's third UNESCO biosphere reserve (after Long Point and the Niagara Escarpment).

Although it is less than ten years old, the Frontenac Arch Biosphere Reserve (FABR) organization (also known as "the Biosphere Network") has become an effective facilitator for multi-stakeholder collaboration across the functions of conservation, sustainable development and education. Working through partnerships and brokering dialogue among disparate organizations, FABR has supported the development of eight distinct sub-networks that together make up a membership of over 80 partners for their "Biosphere Network." This innovative approach to sustainable development offers several lessons in terms of the structures and processes that can be developed for cross-scale governance.

The formal case study analysis, beginning in section 7.4, draws on these experiences in light of the conceptual framework to assess the degree to which the FABR provides a model for integrated sustainability, encourages collaborative modes of governance, and supports the formation of governance networks. Throughout the chapter, empirical data are presented from participant observation, personal communications, qualitative interviews, and grey literature, including the extensive background documents prepared for UNESCO (FABR, 2002; 2007a). Again, quotations from interview participants are coded (e.g., FABR-1, FABR-2) to preserve anonymity. The chapter then closes with some concluding observations.

## 7.2 Frontenac Arch Biosphere Reserve

The Frontenac Arch Biosphere Reserve (FABR) is located in southeastern Ontario, bordering the St. Lawrence River and spanning both sides of the Highway #401 corridor that links the metropolitan centres of Toronto, Ottawa and Montreal. It follows a rough triangle along road and water routes between the cities of Gananoque, Westport and Brockville. The FABR falls within all or part of nine municipalities in three counties (Frontenac, Leeds and Grenville) where economic activities include light manufacturing, the retail and wholesale sectors, tourism and agriculture. While there are no First Nations communities within the Biosphere Reserve, the area was influenced historically by both Haudenosaunee (Iroquoian) and Anishinaabeg (Ojibwa including Algonquin and Mississauga) peoples.

The Frontenac Arch is a continental scale geological and biogeographic feature that also enables the movement of flora and fauna through the natural barrier created by the Great Lakes- St Lawrence River. The Frontenac Arch is an exposed ridge of granitic and metamorphic rocks, a linear landform that connects two much larger Precambrian landforms, the Algonquin Highlands to the north and the Adirondack Mountains to the south. This land bridge is known as Frontenac Arch [Figure 7.1] and within it, the islands and islets of the Saint Lawrence River known as the “Thousand Islands” provide important stepping stones for the migration of plants and animals (FABR, 2007a).



Figure 7.1. Map of the Precambrian landform known as the Frontenac Arch

Frontenac Arch represents a unique blend of Atlantic coastal forest, Appalachian forest, northern Boreal forest, southern Deciduous or Carolinian forest and Great Lakes-St.

Lawrence Lowlands forest regions. These forested regions, intermixed and at their range limits, support a significant diversity of plant and animal species. “The same rugged topography that has established the ecological character of the region has worked to keep development and its impact to a relatively minimal level. This has meant that a rich biodiversity can exist in a part of North America that has otherwise become heavily populated” (FABR, 2007a: 88). Since marginal farmland has been abandoned and allowed to regenerate, the area is now approximately 50% forested, and about half of the original wetlands are still intact (FABR, 2007a).

The FABR encompasses protected natural areas (St. Lawrence Islands National Park, Charleston Lake Provincial Park, Frontenac Provincial Park), recreation areas and historic sites (St. Lawrence Parks Commission lands, Rideau Canal), land trust holdings, regional Conservation Authority lands,<sup>18</sup> provincially-designated Areas of Natural and Scientific Interest (ANSIs) and the Queen’s University Biological Station, as well as urban and rural zones of cooperation for conservation and development.

In 2000, the Canadian Thousand Islands Heritage Conservancy, a local land trust, spearheaded community efforts toward the Biosphere Reserve designation with work being directed by a broad-based Steering Committee representative of the community, stakeholders and partners (section 7.4). The nomination of Thousand Islands – Frontenac Arch as Canada’s 12<sup>th</sup> biosphere reserve received official designation from UNESCO in

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<sup>18</sup> There are 38 Conservation Authorities in Ontario that are provincially appointed agencies – corporate bodies which function under the Conservation Authorities Act of Ontario (Government of Ontario, 1990). They are mandated to ensure the conservation, restoration, and responsible management of water, land and natural habitats and their jurisdiction is based on hydrological basins or ‘watersheds’, rather than political boundaries.

2002. In 2005, Ontario Parks inquired as to whether a boundary change to the biosphere reserve might be effected so that Frontenac Provincial Park might be included as an additional core area. At the same time, the Township of South Frontenac, entirely contiguous in ecological and cultural terms with other areas of the biosphere reserve, supported the inclusion of their township within the boundaries of the biosphere reserve. A revised nomination form regarding the proposed 33% expansion and name change was prepared in 2006 and submitted to UNESCO, resulting in the successful re-designation as the Frontenac Arch Biosphere Reserve in April 2007.

### 7.2.1 Core Areas

The core areas are located within the boundaries of St. Lawrence Islands National Park, Frontenac Provincial Park, and Charleston Lake Provincial Park. While the core protected areas, by comparison with some biosphere reserves, are relatively modest at approximately 9,000 hectares or 4% of the total Biosphere Reserve, the roles played by these core areas and their national and provincial park authorities in support of conservation of biodiversity are substantial.

**St. Lawrence Islands National Park** is one of the smallest in Canada and was the first to be created east of the Rocky Mountains. In 1904, the first nine islands of St. Lawrence Islands National Park were set aside. The Park now holds 25 islands and islets, of which 21 properties are considered core areas for the Frontenac Arch Biosphere Reserve. The main focus of St. Lawrence Islands National Park is the National Parks Act (2000): “to

maintain or restore the ecological integrity<sup>19</sup> and to manage visitor use and tourism to ensure both the maintenance of ecological and commemorative integrity and a quality experience...for this and future generations.” The Park’s conservation focus is prevention and minimization of habitat loss, habitat fragmentation and invasive, non-native species (St. Lawrence Islands National Park, 2001).

It is important to note from a conservation perspective that since the biosphere reserve designation in 2002, the St. Lawrence Islands National Park has more than doubled in size. This was the result of the biosphere reserve brokering an agreement in collaboration with the Nature Conservancy of Canada and the Canadian Thousand Islands Heritage Conservancy for the purchase of lands from the St. Lawrence Parks Commission for St. Lawrence Islands National Park. Additional donations of land to the national park have increased the core protected area there by about 125 hectares. Further additions to the national park are anticipated in the future (FABR, 2007a).

**Charleston Lake Provincial Park** was established in 1974 to protect an array of habitats and geological features including rock barrens, wetland, aquatic marsh, submerged aquatics, emergent aquatic marsh complexes and a range of forest communities. The Park’s research is mainly on species at risk, including a monitoring and tagging program for the threatened black rat snake. The Park’s 2,400 hectares support the logistic function of biosphere reserves through its educational and interpretive programs that emphasize protection and stewardship of the park’s natural and cultural heritage.

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<sup>19</sup> According to Parks Canada, the definition of ecological integrity is “ ecosystems have integrity when they have their native components (plants, animals and other organisms) and processes (such as growth and reproduction) intact.”

**Frontenac Provincial Park** was also established in 1974 and is located about 40 km north of the city of Kingston. It is 5,214 hectares in area and qualifies as a “natural area” park so consequently there are no motorized boats or hunting allowed. The geology of the park is complex, with rugged terrain and the park is home to many unusual species of birds and supports both small and large mammals. In 2005, by request of park managers and Ontario Parks, this area was included as a new core area for the Frontenac Arch Biosphere Reserve in the expansion that was approved by UNESCO in 2007.

### 7.2.2 Buffer Zones

Twelve protected areas (or portions thereof) contribute to the buffer zone of FABR [Table 7.1]. Both the St. Lawrence Islands National Park and Charleston Lake Provincial Park contain areas that are recognized as buffer zones. In each park are areas managed for recreation or development (e.g., visitor use facilities, offices, trails, and campgrounds). Additional buffer lands are spread across the region, in some cases adjacent to or adjoining the two provincial parks and creating a much larger scale conservation mosaic across eastern Ontario, Lake Ontario, and New York State, as indicated in Table 7.2.

As described below in section 7.3, the core and buffer areas are each governed by separate authorities (e.g., provincial Conservation Authorities, private land trusts, Crown Lands, Areas of Natural and Scientific Interest, national historic sites, Model Forest parcels, and wetland complexes), yet each one contributes to the biosphere reserve’s overall conservation function.

<b>Core and Buffer Areas within the Biosphere Reserve (Combined Total = 220,000 ha)</b>	<b>Core (ha)</b>	<b>Buffer (ha)</b>
St. Lawrence Islands National Park	2,000	100
Charleston Lake Provincial Park	2,000	887
Frontenac Provincial Park	5,000	214
Rideau Canal National Historic Site		6,245
St. Lawrence Parks Commission		100
Cataraqui Region Conservation Authority		1,540
Rideau Valley Conservation Authority		325
Queen's University Biological Station/ANSI		2,024
Canadian Thousand Islands Heritage Conservancy		77
Canadian Wildlife Service/La Rue Mills Watershed		6.5
Ontario Heritage Foundation/Stave Island		32
Rideau Waterway Land Trust/Lake properties		13.3
Estimated Totals	9,000	11,500
Percentage of total biosphere reserve area (220,000 ha)	4.1%	5.2%

Table 7.1. Core and Buffer Areas within the Frontenac Arch Biosphere Reserve

<b>Areas outside the Biosphere Reserve</b>	<b>Size (ha)</b>
Dupont Nature Reserve Provincial Park	226
Rideau Migratory Bird Sanctuary	800
Upper Canada Bird Sanctuary	2,663
Sharbot Lake Provincial Park	69
Silver Lake Provincial Park	43
Bon Echo Provincial Park	6,600
Algonquin Provincial Park	765,345
Murphy's Point Provincial Park	1,240
Limerick Forest (Leeds-Grenville)	5,600
Eastern Ontario Model Forest	1,530,000
Eastern Lake Ontario Marine Conservation Area (proposed)	?
Niagara Escarpment to Oak Ridges Moraine to the Algonquin Park/ Adirondack Park axis Heritage System (NOAH)	24 State Parks
New York State Thousand Island Park Region	81
International Rift Wildlife Refuge	2,000
U.S. Thousand Islands Land Trust	3,990,000
Champlain-Adirondack Biosphere Reserve (1989)	2,430,000
Adirondack State Park	

Table 7.2. Areas outside the Frontenac Arch Biosphere Reserve that contribute to a larger scale conservation mosaic

### 7.2.3 Transition Area

As illustrated in Figure 7.2 below, the biosphere reserve starts in the western “urban anchor” of Gananoque and follows the boundary line between Leeds and Frontenac

Counties, going north. The boundary excludes all of the city of Kingston and Pittsburgh Township. “It doesn’t make sense that the western end of the Thousand Islands, such as Powell and Wolfe Islands, aren’t included in the biosphere reserve. Also, that strange looking wedge up in the bottom part of the biosphere reserve is a political boundary, the former Township of Pittsburgh that was amalgamated into the greater Kingston region. That whole township, which includes the bottom half of the Rideau Canal, and Fort Henry, both UNESCO World Heritage Sites, could meld with the biosphere reserve” (FABR-1).

As of FABR’s expansion in 2007, the biosphere reserve incorporates all of South Frontenac Township and Frontenac Provincial Park. The Biosphere Reserve includes the Queen’s University Biological Station on Lake Opinicon near Chaffeys Locks, the Station’s land tracts in South Frontenac and Rideau Lakes Townships, the navigable channel of the Rideau Canal through historic Jones Falls and Chaffeys Locks, and the Canal’s summit at Newboro Locks. The biosphere reserve includes the Foley Mountain Conservation Area (part of the Rideau Valley Conservation Authority) and the Village of Westport. The biosphere reserve boundary follows County Roads 42 and 29 to the city of Brockville, the eastern “urban anchor” for the biosphere reserve. Between Brockville and Gananoque, the Biosphere Reserve boundary coincides with the international boundary with the United States through the Thousand Islands on the St. Lawrence River.

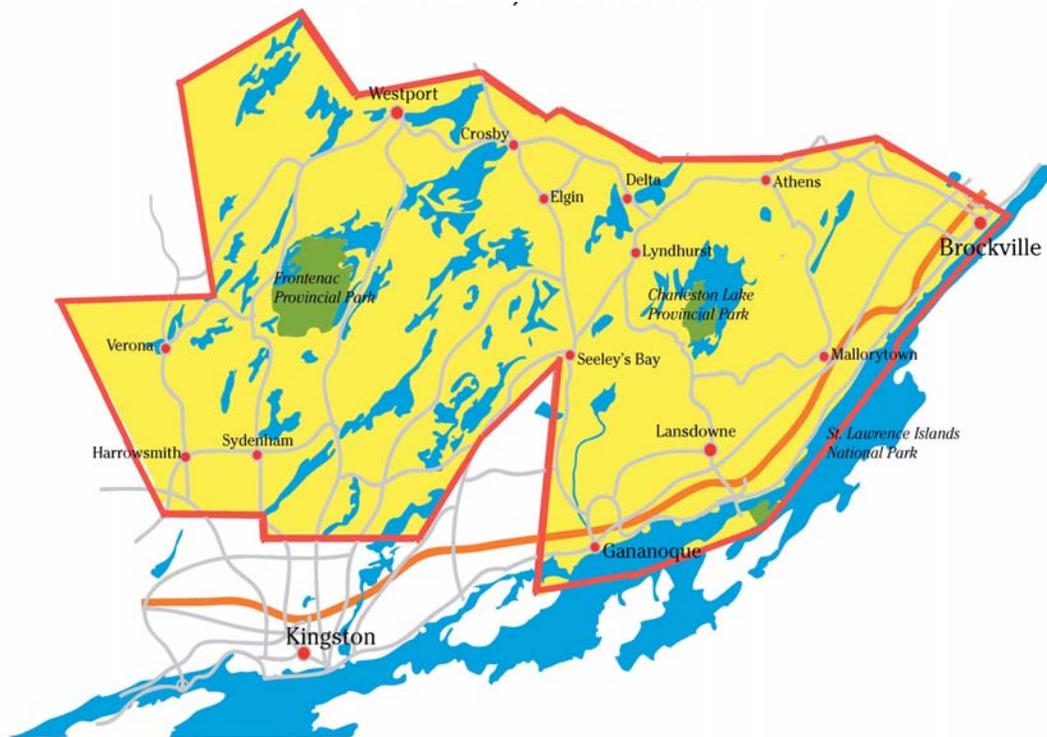


Figure 7.2. Map of communities within the Frontenac Arch Biosphere Reserve (FABR, 2007c)

The expansion in 2007 was largely a political move that allowed South Frontenac Township and Frontenac Provincial Park to join FABR. Each of these inclusions had been proposed prior to the 2002 nomination to UNESCO but was delayed in the nomination process and so FABR was poised for early expansion. Most interview participants felt that there would be future pressure to expand to the north, along the Rideau, and possibly to the western islands. As one person commented: the biosphere reserve's boundaries are "both landscape-driven and community-driven. To the north, the boundary concept needs massaging because it cuts Rideau Lake Township in half. The more we chat up in that area, the more they become interested in working [with us] down here" (FABR-1). Another person predicted that: "Once communities see the benefits [of

biosphere reserve designation] to tourism, they will be desperate to be involved” (FABR-3).

Although the current boundaries are based largely on municipal boundaries, they are thought to be an approximate fit for ecological, socio-cultural and economic considerations (FABR-1). The transition area acts as an “Area of Cooperation” extending throughout most of the 220,000 hectare biosphere reserve and the networks and partnerships that have developed in the Frontenac Arch Biosphere Reserve extend beyond the biosphere reserve’s boundaries. As noted in the documents prepared for UNESCO by FABR (2007:4), “biosphere reserve boundaries are conceptual and respond to local expectations.”

At the same time that boundaries are flexible and adaptive to different situations, the UNESCO criteria includes the notion that biosphere reserves “Encompass a mosaic of ecological systems representative of major biogeographic regions, including a gradation of human intervention.” Zonation within the biosphere reserve is determined by the topography of both the Frontenac Arch and the St. Lawrence River, by the boundaries of existing national and provincial parks, and “...by the checkerboard pattern of public land/private land ownership. The region’s dispersed pockets of vegetation separated by rocky ridges and outcrops, its wetlands, lakes and rivers, as well as its island archipelago preclude a ‘concentric circle zonation model’ for the Biosphere Reserve” (FABR, 2007a: 29).

Rather, respect for a complex mix of ecological and jurisdictional diversity reinforces the experience of the MAB program that "...zones are usually implemented in many different ways to accommodate local geographic conditions and constraints. This flexibility allows for creativity and adaptability, and is one of the greatest strengths of the concept" (UNESCO, 2004). Zonation of biosphere reserves with fluid or conceptual boundaries creates the possibility of responding to sustainability issues that cross scales (e.g., jurisdictional, geographic). Few organizations have the explicit flexibility in their mandates to coordinate sustainable development activities across multiple scales, as illustrated by FABR's networking activities described in section 7.4.

### **7.3 Governance Profile of Frontenac Arch**

As the following description of governance within the Frontenac Arch Biosphere Reserve shows, there is a vast range of governmental and non-governmental organizations involved with regional conservation and sustainable development and FABR's non-governmental organization must navigate these tangled jurisdictions and familiarize itself with the many players in order to identify the best collaborative arrangements to fulfill the three functions of the UNESCO model within, across, and often beyond its three defined zones.

This section first describes the basic jurisdictional arrangements over core and buffer zones that primarily fulfill the conservation and logistic functions of biosphere reserves. Relevant regulatory regimes for the transition area are then presented for a somewhat broader scope of sustainability (e.g., other federal agencies, provincial legislation, and

municipal planning tools) to provide the complex and cross-scale governance context for the biosphere reserve's work.

As described in section 3.3.4, it would be impossible to capture all of the agencies and organizations across multiple scales that influence sustainable development within an area the size of Frontenac Arch. However, to illustrate one component of the complex and cross-scale governance arrangements that are in place for the Frontenac region, a governance profile of conservation is elaborated, through a listing of agencies and organizations involved with conservation activities [Appendix VI]. Such a list is never exhaustive, only illustrative; and for the purposes of this research it is roughly comparable to the other two case studies. A narrow governance profile of this kind identifies the range of players with which the biosphere reserve interacts and helps to assess the particular role(s) played by Frontenac Arch Biosphere Reserve in advancing the principle of ecological integrity – one that is embedded in various versions of governance for sustainability (Gibson et al., 2005; Meadowcroft et al., 2005).

In terms of governance of the three core zones, a number of legislative and regulatory instruments operate at the national and provincial levels; these supply an overarching governance framework for the conservation and logistics functions of the Frontenac Arch Biosphere Reserve. The two major agencies involved, Parks Canada and Ontario Parks, are subject to well-established national and Provincial Parks Acts and have their own management plans in place. For example:

- National Parks Act (2000)
- St. Lawrence Islands National Park Management Plan (1998)

- Ontario Provincial Parks Act (2006)
- Charleston Lake Provincial Park Management Plan (Government of Ontario 2007a)
- Frontenac Provincial Park Management Plan (2008).

The buffer zones in FABR are comprised of lands across various administrative jurisdictions and organizations, primarily public, but also private. “Some are contiguous with core areas and share the same legislation and conservation objectives. Others enjoy their own protective legislation and are scattered through the Reserve” (FABR, 2007a: 31). These include those areas administered by the following authorities: St. Lawrence Islands National Park, Rideau Canal National Historic Site, Charleston Lake Provincial Park, St. Lawrence Parks Commission, Cataraqui Region Conservation Authority, and Rideau Valley Conservation Authority (Foley Mountain Conservation Area), Queen’s University Biological Station, and conservation easements on private lands managed by the Canadian Thousand Islands Heritage Conservancy.

Other buffers include Crown lands and Provincially designated Areas of Natural and Scientific Interest (ANSIs) managed by the Ontario Ministry of Natural Resources. Specific legislation pertains to almost all of these areas, with the exception of private bodies, such as the University or land trusts, that have their own policies and management plans in place. Examples include:

- Conservation Authorities Act (Government of Ontario,1990a)
- St. Lawrence Parks Commission (1990)
- Navigable Waters Protection Act (1985)
- Ontario Crown Forest Sustainability Act (Government of Ontario,1994).

Where privately owned lands are considered buffers, activities and development are regulated by provincial policies, municipal official plans, municipal zoning bylaws and agreements with the landowners through mechanisms such as conservation easements facilitated by land trusts.

Indeed, as shown below in Figure 7.3, the transition area is largely private property and this constitutes the majority (90%) of the biosphere reserve. Land use and planning mechanisms are dictated primarily through local municipal official plans and zoning bylaws. The Province of Ontario's Planning Act (Government of Ontario, 1990b) guides the adoption of Official Plans by municipalities. Although land development bylaws are very specific about lot sizes, set back distances from water, site plan controls and regulations for land and water use within each municipality, regulation is an ongoing challenge.

However, where municipal regulations are strictly set and enforced, private lands may well contribute to the buffering function within the biosphere reserve's transition area. For example, Official Municipal Plans within the United Counties of Leeds & Grenville recognize the importance of preserving the area's environmental quality. Municipal zoning by-laws often reflect the community's concern for environmental protection; for example, Leeds County bylaws provide for an "Environmental Protection Zone" where development is governed by setbacks of 15 m for any buildings near water bodies and increased to 30 m for any new development on Charleston Lake. Minimum required building lot size is based on a concern for aesthetics and the environment. Any proposed

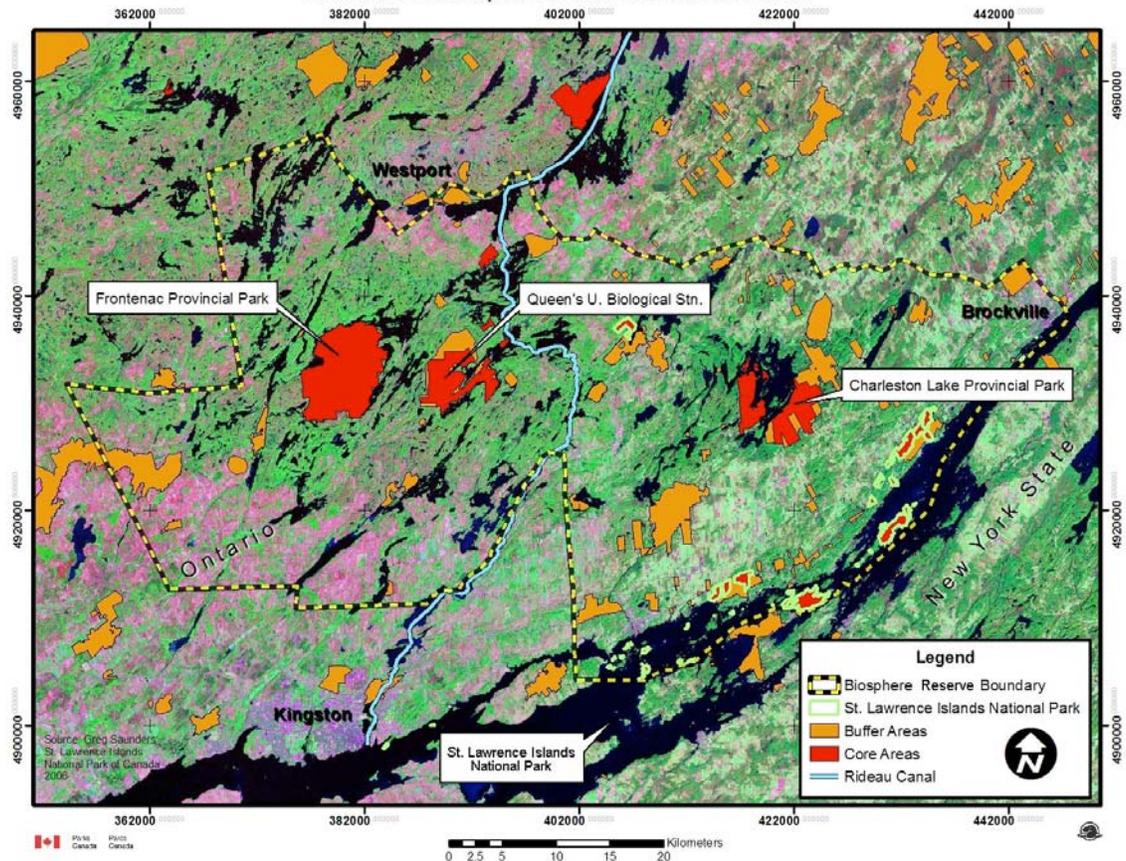


Figure 7.3. Core and Buffer areas in the Frontenac Arch Biosphere Reserve (FABR, 2007a)

development requiring amendment to zoning by-laws is subject to municipal site plan control.

Beyond the transition area are Aboriginal communities, some of which have had involvement with FABR. The Mohawks of Akwesasne are located about 100 km away from Brockville near Cornwall, Ontario. Their students were invited to perform traditional dances as part of the Biosphere Reserve's Environmental Education Network celebration at Landon's Bay outdoor centre (Pollock field notes, 2007). The Mississaugas of Alderville First Nation who once lived in the Thousand Islands ceded all claims in the

area in 1856 and moved about 255 km away to the Peterborough area. The Mohawks of the Bay of Quinte live 80.5 km west of Kingston or ~160 km from the Biosphere Reserve near Belleville. They are involved with the Great Lakes Remedial Action Plan for the Bay. The Algonquins of Pikwakanagan live near Golden Lake about 330 km northwest from the city of Brockville, the eastern urban anchor of the biosphere reserve. Both the Haudenosaunee (Iroquois) and Anishinaabeg (Ojibwa including Algonquin and Mississauga) claim the Thousand Islands region as part of their Traditional Territories.

According to the nomination document, developing the biosphere reserve entailed reaching out to First Nations and First Nations/Native Studies scholars. For example:

1. Invited Participants List for Biosphere Reserve Steering Committee and/or Invited Peer Reviewers List for the Nominations *Exposure Draft* included representatives from the federal Department of Environment (Environment Canada), Mohawks of Akwesasne, Mississaugas of Alderville, the Geography Department at Queen's University, and the Indigenous Environmental Studies Department at Trent University.
2. Briefing materials and invitation for commentary/involvement were shared with Algonquins of Golden Lake and Mohawks of the Bay of Quinte, and the National Aboriginal Health Organization, Ottawa.
3. Terms of Reference and Biosphere Reserve Plan provide for First Nations governance role/representation on Biosphere Reserve Management Committee.
4. Options for First Nations research themes are included in the Biosphere Reserve Research agenda (FABR, 2007a: 54).

From a systems perspective, the biosphere reserve is open to potential adverse effects from transportation, residential development, land cultivation and harvesting, recreation, and so on. It is felt that the greatest impact comes from habitat fragmentation, but FABR's involvement in coordinating input from 20 regional organizations into four

Official Plans at the municipal level have established criteria more attuned to sustainable development. The biosphere reserve continues to work at the municipal level for adoption of best practices in land use planning through collaboration and cooperative discussions with FABR partners.

In terms of governance, a “Legislative and Regulatory Framework” of the major statutes that formally influence and guide the biosphere reserve was included in the original application to UNESCO in 2002. This list includes eight international agreements or conventions, 18 pieces of federal legislation and six federal policies, 28 pieces of provincial legislation and seven related provincial policies. They range from the international RAMSAR convention on wetlands (1971) to the federal Species at Risk Act (2002) and the provincial Environmental Protection Act (Government of Ontario, 1990c).

This type of governance profile, undertaken by the UNESCO nomination drafting subcommittee for FABR, suggests an attempt at understanding “metagovernance” for the region, where the biosphere reserve undertakes an assessment of the overall institutional system of rules that govern the distribution of power, authority, and responsibilities among government and civil society. Although it accounts less for economic drivers and the private sector, FABR is acutely aware of the broader economic context of the region (in terms of the agricultural and tourism industries, for example) and recognizes that these are both in transition.

Although it could be argued that no biosphere reserve plays a formal metagovernance role – in the sense of having the authority or structures to manage “...the complexity, plurality, and tangled hierarchies found in prevailing modes of coordination” (Jessop, 2002: 6), the biosphere reserve model does suggest that local organizations be aware of the complex governance system around them that influence the full scope of sustainability considerations in order to identify, communicate and coordinate the types of gaps that could be filled (in terms of the three functions and across the whole landscape). As explored below for Frontenac Arch, local biosphere reserve groups have the potential to facilitate various collaborative governance networks at the same time as they help to manage those networks by being aware of the larger governance structures and processes that influence sustainability.

To illustrate one component of the complex and cross-scale governance arrangements in the Frontenac region, a governance profile of FABR’s conservation function is elaborated through a listing of agencies and organizations that are primarily involved with conservation activities. Appendix VI presents a sample of the governance ‘layers’ and ‘players’ involved in fulfilling the conservation function of biosphere reserves, including: international organizations and agreements, federal and provincial agencies and agreements, quangos and partnerships, and municipal conservation initiatives. This type of governance profile only begins to suggest the tangled jurisdictions that overlay any geographic landscape, and the complexity within which the biosphere reserve is nested and must navigate. In order to critically assess the role of the biosphere reserve in terms of integration, collaboration and network formation, it explores the history of FABR’s

organizational development and specific activities undertaken that have influenced governance for sustainability.

#### **7.4 Organizational Development of FABR**

The UNESCO designation of Frontenac Arch Biosphere Reserve in 2002 was predated by 20 years of intermittent deliberations and consultations about an integrated approach to regional conservation and development. Three distinct efforts that could be related to the eventual creation of a biosphere reserve were: (1) the St. Lawrence Islands National Park expansion process throughout the 1980s and early 1990s; (2) the bi-national biosphere reserve exploratory committee led by the Chair of the St. Lawrence Parks Commission in 1995; (3) and the NGO-led research, nomination draft and public consultation process of the Canadian Thousand Islands Heritage Conservancy with the support of Parks Canada in 2000.

Rather than a seamless progression toward UNESCO designation, however, each process emerged somewhat spontaneously under different leadership, and the first two efforts appear to have lost momentum due to changing circumstances or political barriers. Each of these phases in the life of the biosphere reserve, and the eventual organizational development of FABR, are sketched out below as exercises in collaborative and cross-scale governance for sustainability. This section then ends with a detailed exploration of the network structure of the biosphere reserve before moving into the application of the conceptual framework and analysis of integration, collaboration, and networks as potential roles for UNESCO biosphere reserves.

According to the original nomination documents prepared for UNESCO, the Frontenac region has benefited from a long history of local conservation efforts and has attempted to function along the lines of a biosphere reserve since 1981 when an Advisory Committee, with support from local Parks Canada and St. Lawrence Parks Commission staff formulated the “Thousand Islands Heritage Area Concept” (St. Lawrence Parks Commission, 1981) as part of a park expansion process (FABR, 2002). This approach was founded on participation and coordination across public and private sectors:

Discussion around the need for collaboration among environmental, development and tourism interests in the area began in the 1980s. Driving and supporting this discussion was a great deal of cooperative action in natural resource conservation between federal, provincial and municipal governments and agencies, and non-governmental organizations, including cooperation with American agencies and officials. This was facilitated through the Frontenac Axis St. Lawrence Information Network on the Environment (FASTLINE) online (see: <http://www.fastline.gc.ca>).

The Heritage Area Concept “...captured the essence of a biosphere reserve [in terms of core-buffer zonation for a greater park ecosystem and a cooperative multi-stakeholder approach] but under the Park’s watch” (FABR-1). As part of this process, a local land trust also proposed a type of ‘ecological reserve’ around the National Park to involve landowners in stewardship of core riverfront areas. Although the concept gained fairly wide support, once the long-standing National Park superintendent left the park, and park expansion was well underway, efforts on this waned.

In the mid-1990s, the Chair of the St. Lawrence Parks Commission introduced the concept of UNESCO biosphere reserves. “A small group discussed the model and agreed there was merit in doing something like a biosphere reserve in the region. They started

with a small conference that brought together government, tourism, and local community members interested in the biosphere reserve concept” (FABR-3). At this time, a transboundary biosphere reserve between the Canada and U.S. was envisioned and so the meetings brought government together from both sides of the border. Yet, “the idea went dormant for a couple of years because it didn’t seem possible for governments to get it together [to support a bi-national nomination] (FABR-1). “Unfortunately, somehow that momentum was lost and the concept sort of died or went underground. It was re-born when the Thousand Islands Land Trust Conservancy began re-organizing around a nomination document and long consultation process” (FABR-3).

Indeed, in 1999-2000 the Thousand Islands-Frontenac Arch “Biosphere Reserve Plan” emerged from the work of a broad-based group of conservation organizations and individuals that called themselves the “Watershed” network. This coalition of NGOs – the Watershed – established a storefront and office for environmental products and programs, supported by the Town of Gananoque. The group involved leadership from a variety of primarily conservation-focused organizations, including a former National Park superintendent and members of the St. Lawrence Parks Commission. A local land trust, the Canadian Thousand Islands Heritage Conservancy, spearheaded the necessary background research and supported the deliberations of the Steering Committee. Only some participants were aware of the earlier “heritage area” and “ecological reserve” discussions of the 1980s-90s while others were inspired by a graduate thesis feasibility study concerning regional capacity for a biosphere reserve in the Thousand Islands

(Helmer, 2000). “This same cast of characters became involved in the formal nomination process” (FABR-3).

Briefing notes and answers to “Frequently Asked Questions” prepared by the Steering Committee supported an intensive two-year process of public consultation, presentations to municipal councils, and media coverage. A five-member drafting subcommittee met to complete the nomination documents for UNESCO, whereupon approximately 50 content specialists were invited to review an “Exposure Draft” of the package, with their revisions reflected in the final nomination. Over 30 letters of support were ultimately received from government and non-government agencies. The Watershed had established community support and presence, organizational infrastructure and governance, and was ideally suited to advance the UNESCO designation. Once the biosphere reserve was approved, membership expanded, and the “Biosphere Network” emerged. The St. Lawrence Parks Commission donated a small stone building, centrally located on the parkway, and charges FABR only modest rent.

When FABR’s constitution was originally set up, there were six permanent members: Parks Canada, Ontario Parks, Leeds Stewardship Council (on behalf of the Ontario Ministry of Natural Resources), Queen’s University Biological Station, the St. Lawrence Parks Commission, and the regional Conservation Authority. Established in 2003, administration and governance of FABR is now provided by a 15-member Board of Directors with six representing major organizations or government agencies and nine representing general members, appointed for their diverse experience and willingness to

work [Table 7.3]. The National Park has moved into a permanent advisory role to avoid a conflict of interest under various project grants and funding arrangements. The executive director and senior administrator are both non-voting members.

<b>FABR Board of Directors</b>	<b>Affiliation</b>
Aquilon Management Ltd.	Private sector
Athens District Chamber of Commerce	Private sector
Barbara Heck Foundation	Civil society – NGO
Canadian Recreational Canoeing Association	Civil society – NGO
Canadian Thousand Islands Heritage Conservancy	Civil society – NGO
Charleston Lake Provincial Park	Government – provincial
FABR	Staff (non-voting)
Friends of Charleston Lake Park	Civil society – NGO
Frontenac County Stewardship Council	Quango
Frontenac Provincial Park	Government – provincial
Leeds County Stewardship Council	Quango
Lower Beverley Lake Association	Civil society – NGO
South Frontenac Township Resident	Civil society – resident
St. Lawrence Islands National Park	Government – federal
St. Lawrence Parks Commission	Government – federal
Thousand Islands-Leeds Township Resident	Civil society - resident

Table 7.3. Board members for FABR and their broad affiliations in 2007

One interview participant recalls that following successful designation in 2002, “the organization had the appearance of being driven by environmental interests. But there was no point in being perceived as just another environmental group. So moving away from preservation and protection advocacy to a more balanced approach was of key importance. Their mandate tried to reinforce sustainability as social, economic, environmental and cultural. Sustainable economic development was defined as a key aspect of their work, and as they went through the various processes of business planning, they were able to confirm that role.” The same person noted that: “the board has changed fully over the years and there are no longer the same ‘preserve and protect’ attitudes. The

actual board members, regardless of their organizational affiliation, have evolved their own views and now both bring and understand multiple perspectives” (FABR-3).

FABR functions as a partnership of organizations or as a coordinating node in a network of networks. Membership is open for any individual or organization wishing to join and there are currently 70 organizational members that provide a wide base of support, including 45 partner agencies involved in FABR’s “Biosphere Network,” both government and NGO, that collaborate on programs and projects that fulfill the functions of conservation and sustainable development. From FABR’s perspective: “Through the Biosphere Network – a coalition of some 70 organizations – individual work is integrated and made more efficient by partnerships. We strive to eliminate the walls within our community, and between government departments, non-governmental organizations and individual citizens” (FABR, 2002).

Specifically, FABR acts as a facilitator for eight different sub-networks that are in various stages of development and formality: Conservation, Education, Local Flavours, Culture, Sustainable Tourism, Trails, History, and Waterfront Residents (of which there are over 30 associations). Beyond these individual networks, there is an overarching database and mapping project underway that came from the conservation network that is referred to as the “Community Atlas.” The proposed Atlas will essentially draw all of these networks into an electronic and visual compendium of regional information, to identify natural and cultural heritage values for local residents, organizations, municipal planners and decision makers, and other government bodies. It will be an interactive map

and electronic resource for education, science, land use planning, economic and cultural development, and many other applications (FABR, 2006a: 2).

To clarify the operating structure of FABR, the Board of Directors identified five program areas [Table 7.4] along with their associated programs, projects, and sub-networks (indicated with an asterix). FABR Base Development refers to activities designed to research, educate and exchange information on issues of conservation and

<b>1. FABR Base Development</b>	<b>2. Healthy Environments</b>	<b>3. Social &amp; Cultural Development</b>	<b>4. Integrated Economic Development</b>	<b>5. FABR Network Infrastructure</b>
Community Atlas	Ecological studies	Culture* and the Arts	Ecotours	Business plan
Green Accreditation	Conservation* Education*	Trails*	Sustainable Tourism*	Board structure
Communications	Biosphere Camp	Signage and Routes	Local Flavours*	Policies
Corridor Studies	Shoreline Reviews	History*		Communications
Workshops		Waterfront Residents*		Fundraising
Integration Initiatives				Publishing
				Membership
				CBRA

Table 7.4. Frontenac Arch Board and Operating Structure (Adapted from FABR 2007b)

development and build a base of knowledge within the biosphere reserve. Healthy Environments includes activities designed to protect natural heritage in order to sustain biodiversity. Social and Cultural Development aims to protect cultural assets, history and the arts and build a stronger social and cultural base within the biosphere reserve.

Integrated Economic Development is designed to demonstrate a more integrated approach to community economic development and to foster sustainable growth in agriculture, tourism, and business. Finally, the Network Infrastructure function supports a sustainable financial and human resource base for FABR and the Biosphere Network and aims to refine and expand that network of members and partners. Funding sources vary but are a combination of membership, consultancy and summer camp fees; multi-party or joint initiatives; and short-term government grants [Table 7.5]. Like other biosphere reserves in Canada, FABR is chronically under-funded for the scope of its activities and relies on the creative fundraising talents of its volunteers.

<b>Year</b>	<b>Funding Source</b>	<b>Purpose</b>	<b>Amount</b>
2006	Memberships	General expenses	\$17,600
2006	Consulting services	Lake plans	\$7,100
2006	Multi-party	Parkway study	\$15,760
2006	Nature Camp Fees	Nature Camp	\$21,864
2006	Local Flavours	Network expenses	\$12,585
2006	Parks Canada	Bald Eagle project	\$18,620
2006	Community Business Corporation	Sustainable Tourism	\$18,300
2006	Parks Canada via CBRA	Ecological integrity	\$5237
<b>Total</b>			<b>\$117,066</b>

Table 7.5. Funding sources for FABR activities in 2006

As explained in a recent conservation partnership funding proposal:

Since its designation in 2002, the Frontenac Arch Biosphere has become a unifying focus of interest for the broad community of interests of the region.... The Biosphere Reserve has not become another organization, but rather a network of the diversity of agencies and organizations already in existence. It strives to build on individual strengths to create a broadened and shared capacity, far more capable than any individual organization in isolation. It is a network of trust, understanding, partnership and respect. The Biosphere Reserve and its network of partners is relatively new and formulating, and learning of its strengths and potential (FABR, 2005c).

Within three years of biosphere reserve designation, the Board of Directors developed a Charter (FABR, 2005a) and a three-year Business Plan (FABR, 2005b). In both documents the role of facilitation, partnerships and networks are prominent because of their initial success with these types of informal governance structures and processes. Box 7.1 outlines the mission, vision, objectives and guiding principles of the organization.

**Box 7.1. Frontenac Arch Biosphere Reserve Charter (2005a)**

**Mission:** To facilitate co-operative action towards a more sustainable way of life.

**Vision:** A healthy and prosperous community celebrating a rich heritage while developing and using knowledge for conservation and sustainable development.

**Objectives:**

- a. The creation of a broad network of partners;
- b. The protection and preservation of the natural and cultural heritage of the region;
- c. A more integrated approach to human and economic development, melding concepts of society, ecology, and economy;
- d. Research, education, and information exchange in issues of conservation and sustainable development; and
- e. A community known throughout North America and the world as a model for a more sustainable way of living.

**Guiding Principles:**

- a. Maintain and foster a respect for people and nature;
- b. Respect the rights, interests and responsibilities of local individuals, communities and organizations;
- c. Encourage processes whereby community decisions are heavily influenced by the communities they affect;
- d. Stimulate land management practices designed to maintain the integrity of the landscape as a whole;
- e. Foster partnerships and consensus building; and
- f. Encourage an integrated approach to the economy, ecology, and society.

Projects that have been undertaken in FABR's first five years as a biosphere reserve number in the dozens. They have ranged across all program areas listed above and have

been initiated by member or partner organizations and supported by FABR's executive director and by part-time staff. As the business plan (FABR, 2005b: 6) notes: "The first three years have been ones of sorting out roles and setting goals for the needs of the Biosphere Reserve and the Biosphere Network. As such there have been a great number of activities under the umbrella of the Biosphere Network." Examples from 2002-2004 include:

- Educational signage and interpretive panels along the 1,000 Islands Parkway
- Healthy Shoreline Reviews for 900 property owners in the region
- Consultations with conservation partners to assist area municipalities with Official Plans
- Wildlife corridor studies for Algonquin to Adirondacks along ~~major~~ Highway #401
- Website hosting for partner organizations
- The Biosphere Nature Camp at Landon Bay
- A learning exchange with 17 managers from Chinese biosphere reserves.

In 2005, FABR hosted the Canadian Biosphere Reserves Association (CBRA) annual meeting. At the following CBRA meeting in Redberry Lake Biosphere Reserve, Saskatchewan, FABR's representative reported the following accomplishments (FABR, 2006b):

- Completed a new total of 1,400 Healthy Shoreline Reviews for property owners
- Developed an 85-page stewardship manual for waterfront landowners
- Developed the Lake Plan for the Charleston Lake Association
- Developed a network of outdoor educators, including agreements with 3 school boards
- Developed a program for schools visiting the region with tour operators
- Expanded the information on paddle routes through the region at [www.paddle1000.com](http://www.paddle1000.com)
- Begun a study of land use planning and economic development with Queen's University
- Prepared for formal twinning with the Boatianman Biosphere Reserve of China
- Networked over 25 conservation partners and resident groups for the Community Atlas
- Expanded the Local Flavours program and network of local food producers
- Negotiated funds to develop over 3-years a national model of sustainable tourism.

The following sections explore the latter three of FABR's sub-networks in more detail – Conservation, Local Flavours and Sustainable Tourism – to explore how the UNESCO model has been applied in Frontenac Arch, what the role of the biosphere reserve has been in conservation and sustainable development activities, and how the “Biosphere Network” as a whole contributes to governance for sustainability.

#### **7.4.1 Conservation Network**

Clearly, conservation and ecological protection are major activities in the Frontenac region, as evidenced by the success of the Watershed network in the late 1990s and the high number of conservation agencies, organizations, and initiatives currently underway. The variety of core and buffer areas designated within the biosphere reserve along with other areas that contribute to a much larger “conservation mosaic” that is globally significant. At a continental scale, studies have identified the wildlife habitat corridor between Algonquin Park in Ontario and Adirondack Park in New York State as a priority conservation corridor, where the Thousand Islands-Frontenac Arch link is a strategically situated and ecologically valuable opportunity for re-establishing wildlife connectivity (Quinby et al., 2000).

In 2005, FABR actively brokered a collaboration known as the “Habitat Availability Partnership” based on multi-stakeholder participation and their identified needs (FABR 2005c). Specifically, the National Park had Species at Risk work to do within their “greater park ecosystem” that overlaps the biosphere reserve fairly closely. At the same time, the Ontario Ministry of Natural Resources was struggling with geospatial

information mapping (SOLARIS) work for their 6-E-10 region and the Eastern Model Forest was working on an inventory of forest cover and exploration of Forest Stewardship Council certification under their mandate from Natural Resources Canada.

By invitation of the biosphere reserve, these organizations met together at Queen's University, along with representatives from the Mohawks of Akwesasne, Ontario Parks, the Thousand Islands Watershed Land Trust, the Leeds County Stewardship Council, Cataraqui Region Conservation Authority, University of Ottawa, residents' associations, and the Algonquin to Adirondacks Association. The project was described as follows:

An occasion has arisen to test the premise and potential of partnerships. At this time, one of the most comprehensive landscape mapping and habitat for species at risk availability studies ever to be conducted in eastern Canada is being launched in eastern Ontario. Through the initiative of St. Lawrence Islands National Park, what could have been a series of isolated studies and efforts has been drawn into a collaborative effort (FABR, 2005c: 1).

As FABR-1 explains: "The biosphere reserve boundaries encompass all these organizations and overlapping jurisdictions and provide good justification for collaboration within a common natural heritage area. The biosphere reserve is the community platform for all this. So the National Park increased their study area, the MNR diminished theirs and crossed over County lines, the Model Forest went further west, the land trusts and resident groups got together and the result was that a whole bunch of projects combined into a \$1.5 million, 3-year field study on 2000 different plots of land." The meetings also confirmed that the Biosphere Network would become the body to interlink jurisdictional bodies [Box 7.2].

**Box 7.2. Relationship Model for the Habitat Availability Partnership**

Jurisdictional: First Nations – Municipalities – Federal agencies (Parks Canada, Fisheries and Oceans) – Provincial (Ministry of Natural Resources, Ontario Parks)

Facilitation: Frontenac Arch Biosphere Reserve – The Biosphere Network

Oversight & Design: FABR science/species at risk committees

Action & Tasks: NGO's, landowners, study teams

(FABR, 2005c: 3)

As described in the Partnership Proposal (FABR, 2005c: 2), the biosphere reserve “...would be an operations interface in the work, facilitating coordination and communication without implying a formal structure between the individuality of the mandates and roles of jurisdictional bodies, and those several agencies and organizations completing the realm of work in the collaborative project.” In this case, FABR received some modest funding for facilitation and communication, especially with landowners who were interested in the results of field studies or in stewardship workshops. The biosphere reserve’s role “was to be the public face for all these government organizations, to provide a one-window policy, and to avoid formal MOUs [Memoranda of Understanding] by collaborating informally through lateral types of relationships” (FABR-1). Specifically, it was noted that: “this mechanism provides a vehicle to ensure that the guiding principles are observed, that the qualities and values of the work can be to the highest standards and that the maximum benefit of the results of the work can be

extended to all partners and the community. It allows the collectivity of the wealth of both scientific and traditional knowledge to be shared, embraced and expressed” (FABR, 2005c: 2).

It was also noted that the relationships in Box 7.2 do not imply a hierarchy of responsibility or reporting; that those in the Jurisdictional group have the authority to regulate land use, resources, and policies; that those in the Oversight & Design group can be delegated by others to enable strategies or gather information and science; and the Action & Task group are individuals actively engaged in conducting the field studies and assembling information. Finally, the Facilitation group (i.e., the biosphere reserve) “...is a network partnership of all parties of the focus area, working to facilitate all aspects of the collaboration, to share, communicate, integrate, respect and develop linkages for the aspects of the project” (FABR, 2005c: 3).

The Frontenac Arch Biosphere Reserve now actively facilitates a collaboration of agencies and organizations to map habitat for species at risk and define ecological land classification from interpretation of ground-truthed data assembled from study plots throughout the biosphere reserve. Data from study plots is related to satellite imagery for mapping of the biosphere reserve. FABR coordinates input and information flow to and from their many partner organizations. Funding in 2008 from the federal GeoConnections program will extend this work and support the Community Atlas project to overlay a wide variety of landscape data beyond the information gathered on species habitat

availability (including trails, municipal planning and zoning, agricultural crops, aggregate pits and quarries, economic development data, tourist attractions, and so forth).

In terms of the conservation function of UNESCO biosphere reserves, individual members of the network contribute to the overall goal of biodiversity conservation.

Shared goals for linking core and buffer areas into a more ecologically coherent landscape-scale mosaic have begun to be addressed through the practical experience of inter-agency cooperation and multi-stakeholder collaboration. It is widely recognized that the biosphere reserve plays a critical role in the network "...because it is the only unifying framework that is sufficiently practical, welcomed by stakeholders and the public, economical and conceptually robust to create the linkages, enable and strengthen the collaboration and partnerships that will 'make or break' the region's ecological integrity" (FABR, 2007a: 12). In this sense, the biosphere reserve acts as an important network broker and facilitator for cross-scale sustainability and, unlike other organizations, has the mandate and support to do so.

#### **7.4.2 Local Flavours Network**

In 2005, farm producers met around a kitchen table and proposed that FABR create a network between food producers, retailers, and consumers to build a stronger local farm economy and promote the "buy local" concept among local residents and tourists. As part of a wider sustainable food production and consumption movement in North America, FABR (2006) recognizes that there are numerous small producers and other businesses in a region with a low population density and limited economic base that could benefit from a support network. With start-up funding from the Laidlaw Foundation, the organizers initially involved over 60 producers in a network called "Local Flavours." For a fee of

\$59 (or \$25 for renewal), members receive a large sign for their property or business, are included in an information pamphlet and map, and are listed on the searchable website, [www.localflavours.org](http://www.localflavours.org).

According to the website, “The long term goal of the Local Flavours Project is to build on the strengths of the region by increasing the sustainability of our local food supply and the farmers who produce it. ...In creating Local Flavours we have been as inclusive as possible... [for] conventional, transitional, natural and non-certified organic to certified organic approaches” (FABR, 2008). A municipal newsletter enthusiastically endorses the Local Flavours program by emphasizing the “new economic activities and opportunities for our food producers and related businesses. We are helping to build a more sustainable community. You can be part of this exciting venture by supporting our members, who are your friends and neighbours” (Township of Leeds and the Thousand Islands, 2007).

The Local Flavours network continues to grow and expand, and is developing stronger links to other regional food and farm related programs (FABR, 2005b: 8). Just west of the biosphere reserve is another organization called “Food Down the Road” based in Kingston and surrounding area. Food Down the Road is a National Farmers Union (NFU) Local 316 initiative that formed as a food advocate group rather than as a food producers group. In the autumn of 2007, Local Flavours organized a “100-mile Dinner” at Sam Jakes Inn, while Food Down the Road sponsored a “Local Food Summit” in Kingston, featuring keynote speaker Thomas Homer-Dixon on the theme of local food systems and social resilience. “It is generally agreed that these two networks should find a way to

work together. The problem is the biosphere reserve is being looked at as a coordinator of [the Local Flavours] network and in reality there needs to be more leadership among the farmers involved in order to make it truly sustainable” (FABR-4).

After the first four years, both the Local Flavours and Food Down the Road networks “went quiet” which moved the leadership back into the FABR office to keep it together (FABR-1). A grant from the Thousand Islands Community Development Corporation allowed Local Flavours to hire an intern in early 2007 – an essential network component for recruiting new members and maintaining communications within the network. The biosphere reserve is now “doing what it can to strengthen the network. We just finished a series of workshops – like a dating service to match food producers with restaurants, B&Bs, farmers markets. It was designed as a ‘meet and greet’ so that people could make their own connections” (FABR-1). Membership in the network has since expanded from 60 to 83, with a number of Food Down the Road members joining Local Flavours.

The challenge is to find a way to market local foods across the region more broadly and to engage distributors who will physically connect food producers to consumers. Only recently has one member gone into distribution and “she’s become the bridge between farmers, retailers, and consumers” (FABR-1). Not only will the partnerships developed for Local Flavours provide a layer of information for the Community Atlas, the network itself provides a model for similar regional initiatives. An artisans network that links artists, studio tours, and galleries, for example, as well as one for woodlots, carpenters, and sustainable forest products are currently in development.

### 7.4.3 Sustainable Tourism Network

In partnership with the Tourism Industry Association of Canada, Parks Canada, the Ontario Ministry of Tourism, municipalities and regional Chambers of Commerce, the FABR began a three-year project in the fall of 2006 to complete a “tourism and heritage asset inventory” of businesses, natural environment sites, historical sites, cultural attractions, artisans and farm producers. “Rather than treating these assets in isolation, the Sustainable Tourism Project will integrate them into the fabric and community of the region, communicating their values and their programmes to the tourist industry, residents and visitors alike” (FABR, 2006: 5).

The project aims to fulfill the sustainable development function of UNESCO biosphere reserves, and respond to current and projected economic conditions. It is widely recognized that in Frontenac: “Ours is an economy in transition. Agricultural prices and manufacturing are changing and bringing pressure to bear on our communities” (FABR, 2006). Economic drivers such as agriculture, tourism, and culture demand a highly supportive transition strategy that takes into account both economic and environmental sustainability (FABR, 2005b: 8). The Frontenac Arch Biosphere Reserve proposes to facilitate such a transition.

One interview participant spoke passionately about his observations of the Thousand Islands corridor (from Cornwall to Brockville) along the St. Lawrence Seaway. He said: “dreams of economic prosperity were never realized. It’s actually a land of broken

dreams, with closed factories and retail locations. The great dream of the St. Lawrence Seaway never seriously materialized but it has recently been re-envisioned as a 'greenway economy.' The industrial age has turned over into the information age, and the potential exists for this corridor to become much more sustainable" (FABR-3).

As another participant points out: "It's hard to communicate to people that a sustainable tourism project is really a thinly disguised conservation project. Whether it's cultural or ecological heritage, conservation is really where we are going with it, similar to the goose and the golden egg" (FABR-1). The term "heritage" in this context refers to both natural (e.g., wildlife, trails, or landscapes) and cultural (e.g., artisans, festivals, museums, galleries and historic sites) features in the Frontenac region. Proponents worry that the heritage infrastructure upon which the tourism industry is built will degrade. "Capital and operating funds will continue to be spent haphazardly on ...initiatives that do not sustain the fundamentals of either the resource or the region, or best serve the needs of the community, industry and economy" (FABR, 2006). Thus, FABR's overall approach targets the tourism industry "...to educate and enlist that industry in protecting and nourishing the environmental and historical heritage resources on which the industry here originated, and on which it continues to be based" (FABR, 2006: 3). Organizers of the project make this link explicit and seek to support conservation efforts with what they call "integrated sustainable development."

To this end, FABR seeks to help existing retail and non-profit organizations (e.g., parks, museums, galleries, restaurants, festivals, etc.) that are "...eager to move into the tourism

industry but require assistance with training, product development and knowledge of the region's assets in order to do so. Private and public sector funds are being utilized for improved product marketing and training, but not necessarily in the most logical and measurable means and not in the context of sustainability" (FABR, 2006). As one interview participant explained: "Government organizations, such as the Ontario Tourism Marketing Project (OTMP) don't use or understand [the concept of] sustainable tourism. They are so focused on geographic tourism, such as destination marketing, that they overlook niche tourism, such as local flavours and wine-country.... So it's possible that biosphere reserves will work to try to define sustainable tourism so that governments can understand it and support it" (FABR-3).

From the outset, the Sustainable Tourism project aimed to engage all levels of government (e.g., local municipalities, area townships, provincial and federal agencies) and overcome institutional fragmentation in their development of a national tourism model. Specifically, the provincial program for identifying "Premier Ranked Tourism Destinations" was used as a framework for assessment. Organizers also sought to work with U.S. partners (e.g., the Thousand Islands International Tourism Council) to create strong cross-scale linkages and leverage additional support and resources. According to project staff, these potential partners can be "networked" and a communication mechanism can be developed. "As the network becomes operational, and as scenarios for sustainability and resource protection and enhancement unfold, the project will transition into an ongoing programme" (FABR, 2006: 3).

The first step in creating such a network was adoption of a definition of sustainable tourism, in this case one developed by the Tourism Industry Association of Canada (TIAC) and Parks Canada in 2005:

Sustainable tourism actively fosters appreciation and stewardship of the natural, cultural and historic resources and special places by local residents, the tourism industry, governments and visitors. It is tourism which is viable over the long term because it results in a net benefit for the social, economic, natural and cultural environments of the area in which it takes place.

After TIAC and Parks Canada were confirmed as initial partners, FABR developed a fuller project proposal to secure one-year project funding from Service Canada's employment program for three contract staff – a coordinator, a database manager, and a tourism product researcher. Their main tasks were to: identify existing tourism databases and build upon them by adding ecological, cultural and historical resources; collect and analyze data from a mail-out and on-line survey for all sectors; establish an Advisory Committee of stakeholders to provide overall guidance; communicate findings to stakeholders and participants through workshops and newsletters; and finally, to develop a network mechanism to support sustainable tourism and future initiatives.

Several elements of FABR's approach are of note for this study of network governance. First, the sustainable tourism project is totally reliant on community engagement and stakeholder participation. Knowing that a database is only as good as its contributors and its users, FABR conducted an impressive survey to encourage participation. Over 700 postcards were sent out to tourism operators to seek their participation in an on-line survey (available at [www.mybiosphere.ca](http://www.mybiosphere.ca)). Of the 70 individual respondents, over 40 of them accepted an invitation to join the project's Advisory Committee. As of March 2007,

this team has grown to over 50 members, ranging from small business owners to professional Destination Marketing Organizations, and municipal, provincial and federal government representatives.

Second, it was emphasized to potential survey respondents that: “Because this is a grass-roots community project, your help is not only appreciated, it is essential. The Biosphere Reserve works by a community participation model. If you own a business or location that is part of the tourism industry, or operate a cultural, historical, or natural site, we’d like to know...” (FABR, 2007b). The initial postcard that was sent underscored the potential economic benefits of the project and the value of a tourism operators network. Perhaps because the existing tourism base in the region is so extensive, and the need for identifying and filling gaps in the industry so great, FABR was able to quickly and effectively become the node for a much larger network than initially anticipated.

From the outset, the biosphere reserve’s vision for the project was inclusive and highly integrative. Most importantly, members on the Advisory Committee confirmed and enhanced it:

The Frontenac Arch Biosphere Reserve will become a world class destination for sustainable tourism where our culture, heritage and healthy natural environment are the foundation of a vibrant community and a robust economy (FABR, 2007b).

Quite unexpectedly, the project expanded beyond its initial partners to attract interest from the United Nations World Tourism Organization and the National Geographic’s Centres for Sustainable Destinations in both Canada and the U.S. that led to an affiliation with George Washington University’s Geotourism program. Together these partners were

interested in exploring the ethics of sustainable tourism and developing measurable criteria for sustainable tourism as a “Gateway Community” in Frontenac Arch Biosphere Reserve. International associations of these kinds, particularly the endorsement from National Geographic, “was a good lever locally that marked a tipping point in receiving larger grants from [the federally created] Community Business Development Corporation and Transat [A.T. tourism company]” (FABR-1). These funds transformed the project from a one- to three-year project and enabled FABR to host a series of 6 workshops initially, including:

- Economic Strategies of Sustainable Tourism
- Planning Strategies for Sustainable Community Development
- Make it! Show it! Sell it! Marketing Strategies for Artisans
- Romancing the Brand: Our Sense of Place
- Marketing Strategies: Three Perfect Days: for tourism packages and bus tours
- Trends in Sustainable Tourism.

These workshops were attended by regional stakeholders, members of other biosphere reserves in Ontario and interested parties from elsewhere in Canada.

The Transat funding is going toward the “Green Accreditation” process, where a series of eight new workshops will encourage stakeholders in various sectors (e.g., golf courses, marinas, accommodations, forestry, eco-schools) to obtain industry accreditation. Like ISO standards, these programs are administered by independent organizations, valid for specific periods, and aimed at voluntary actions to reduce environmental impacts. “We’re staying as far as possible from any sort of sanctioning [or development of a FABR brand]. We’re not putting our stamp on anything.... Those certifications already exist and the industries are already regulated, so it’s not up to us to sanction something outside

those industries or practices. We're going to use them to encourage greener practices.

The two things we're going to do are develop a benchmark of where [tourism partners] are now and see if they'd like to take it further. We'll see if it's possible to take a regional approach to becoming a little bit greener" (FABR-1).

As with the other sub-networks, information about sustainable tourism will be included in the Community Atlas as a common resource that builds community and governance capacity for sustainable development. As one person explains: "Part of our success is being in the right place at the right time. The sustainable tourism initiative was an aligning of the stars. It links a local point of view and a broader vision to a local place, which creates a national model" (FABR-4).

## **7.5 Case Study Analysis**

This section draws on the experiences of the Frontenac Arch Biosphere Reserve to reflect on each of the three dimensions of the conceptual framework about environmental governance and the role of biosphere reserves in sustainable development. To what degree the FABR provides a model for integrated sustainability, uses collaborative modes of governance, and supports governance networks are each explored in the following discussion.

### **7.5.1 Frontenac Arch as a Model for Sustainability**

As outlined in the conceptual framework for this research (section 5.4.1), the UNESCO model of biosphere reserves provides a framework for integrated sustainability in at least

five respects: (1) the model integrates the functions of conservation with sustainable development and is explicitly cross-scale and multi-level in its design; (2) it uses principles from conservation biology to integrate the three zones of core-buffer-transition; (3) the model recognizes the significance of both scientific and cultural interpretations of landscape; (4) the model integrates the principles for sustainability and aims to work across economic spheres, social groups, and ecological and temporal scales; and (5) it strongly supports social learning and adaptation by treating biosphere reserves as “demonstration sites,” “learning laboratories” or “learning platforms” for experiments in sustainable development.

First, Frontenac Arch Biosphere Reserve has taken an affirmative, almost aggressive, stance on the integration of conservation and sustainable development. As explained repeatedly by interview participants: FABR promotes “integrated sustainable development” *not* “sustainable economic development.” Conservation initiatives, for example, are given strong economic rationales and sustainable livelihoods are an equally important focus. For FABR, sustainable development is explicitly founded on four pillars of environment, culture, society and economy; “if you pull one of those things out, it all falls over” (FABR-1). “Biosphere reserves embrace sustainability, by mandate and actions, but the government organizations aren't under the same obligation and even though some may profess to adopting the new stance, their pillars may not be equal in length. ... as we see here in so many projects, biospheres can help grow the four pillars to more equal lengths, especially by bringing in the other parties to balance [the overall]

approach to sustainable community development. Good conservation is a component of sustainable community development” (FABR-1).

Likewise, economic development initiatives are underpinned by environmental ethics that seek to maintain ecological integrity and cultural values within the landscape. One participant said: “The tourism project is very big and the integration of sustainable economic development is a very fuzzy notion. One of the big roles I see for the biosphere reserve is to de-fuzzify these concepts in our work” (FABR-4).

Given the tensions embedded in “sustainable tourism” in terms of the unsustainable consumption involved, any development strategy of this kind requires critical reflection, careful design, and viable alternatives. “Biosphere reserves can be used not just to market tourism, but to change it. Tourism is discussed as something that exists not only to meet the status quo but also to raise the bar in terms of sustainability. Our role is to re-wire society to think differently about sustainability” (FABR-4). Sustainable tourism is a theme shared by the case studies, among most Canadian biosphere reserves and many in the world network. The “quality economies” movement in Europe, for example, speaks to community economic development in terms of local businesses and livelihoods, regional product marketing, and industry criteria and standards.

Second, zonation in Frontenac Arch shows how the biosphere reserve is a “unifying framework” for integrating cores and buffers into a whole landscape. From an ecological perspective, many of these areas are fragmented “stepping stones” in a larger regional

and continental scale landscape mosaic. From the list of conservation agencies and organizations in Appendix VI in the Biosphere Network, it appears that landowners and protected area land managers recognize that the biosphere reserve concept and collaborative projects, such as the Habitat Availability Partnership and subsequent Community Atlas are key to enhancing and maintaining the ecological integrity of the region. The Biosphere Reserve is seen as an incentive and a facilitator for collaboration that is greater than the contributions of individual organizations working within their individualized mandates.

Third, for biosphere reserves to be designated and then to become fully functional, the scientific justifications for biosphere reserve designation must be matched by a set of social values that will embrace the three functions as a “social contract” for sustainability (Francis, 2004). In the case of Frontenac Arch, the Thousand Islands Heritage Conservancy was seeking a special designation to recognize and celebrate the region, so as to support their work with conservation and stewardship. They combined arguments for biodiversity conservation with conviction about the capacity of local communities to engage in sustainable development. As the original nomination to UNESCO noted: “Local cultural identity and confidence in the future have a lot to do with a well-established understanding of the interdependence of our quality of life with conservation of a healthy environment. The Biosphere Reserve designation is a significant development that addresses a far-reaching dimension in the region: the opportunities we share for mutually supportive conservation and sustainable economic development” (FABR, 2007a:7).

Fourth, the guiding philosophy of integrating conservation and sustainable development provides the foundation for trying to achieve an integrated package of principles for sustainability. Compare, in Table 7.6 for example, Gibson et al.'s (2005) criteria for sustainability with how the Frontenac Arch Biosphere Reserve defines sustainable communities:

Sustainable Communities (FABR, 2007c)	Sustainability Criteria (Gibson et al., 2005)
<p>“...a stronger economy partly based on the globally significant natural and cultural resources found within our Biosphere Reserve; enhanced ecological integrity; a community better able to take advantage of and use our conserved natural and cultural resources and to minimize the waste of energy and resources; a more integrated approach to development, melding culture, society, economy and conservation; a community known throughout North America and the world as a model for a more sustainable way of living.”</p>	<ol style="list-style-type: none"> <li>1. Socio-ecological system integrity</li> <li>2. Livelihood sufficiency and opportunity</li> <li>3. Intra-generational equity</li> <li>4. Inter-generational equity</li> <li>5. Resource maintenance and efficiency</li> <li>6. Civility and democratic governance</li> <li>7. Precaution and adaptation</li> <li>8. Immediate and long-term integration</li> </ol>

Table 7.6. FABR's "Sustainable Communities" compared with Gibson et al.'s (2005) criteria for sustainability

The Business Plan states: “Above all, the Biosphere Network focus is on *integration* around a vision for the future of the Biosphere Reserve...The focus of the Biosphere Reserve Network is on: environmental sustainability; integrated economic community development; growth and enrichment of the Biosphere Reserve in arts, recreation and culture; ... and understanding the role of the Biosphere Reserve in people's lives and decisions” (FABR, 2005b: 2, original emphasis). Here it is recognized that the biosphere

reserve may have a unique role to play in governance by engaging citizens in sustainability and in changing norms and behaviours at the level of both individual and institutional decision-makers.

In terms of broader governance processes, the Frontenac Arch Biosphere Reserve consistently aims to work across political jurisdictions, economic sectors, social groups, and temporal scales. Experience “has shown the willingness of various stakeholders in the community to embrace the concept of the Biosphere Reserve and the goal of overall sustainability. The stakeholders have also embraced the concept of networking as a new way to work together, with a focus on horizontal integration and a reduction in sectoral conflict that so often comes into play” when development and environmental values are at stake (FABR, 2005b: 7).

Finally, it could be argued that the horizontal integration resulting from the Biosphere Network structure is strongly supportive of social learning. Cooperative efforts are well established and involve an exchange of perspectives that result in social networks for continued learning. “FABR seeks to become ‘an incubator of ideas’ and having the organizational capacity to build relationships and circulate information and ideas that encourages broader thinking on short-term issues, thinking related to the vision of the Biosphere Reserve...” (FABR, 2005b: 11). FABR organizers are aware of the biosphere reserve as a site for experimentation and innovation and attempt to provide a “learning platform” in many of the initiatives that they undertake, most notably in the development of a national model for Sustainable Tourism. Education and training workshops are

actively promoted across the region, including the U.S. side of the Thousand Islands, across the province of Ontario and for other Canadian biosphere reserves.

### **7.5.2 Collaborative Modes of Governance in Frontenac Arch**

Collaboration is seen as a mode of governance that is especially needed for fostering alternative development paths and implementing practical sustainability initiatives. In this respect, the key lessons from the governance literature explored in each case study are: (1) that governance requires some degree of civic participation for legitimacy and effectiveness; (2) that more complex problems appear to require more sophisticated forms of cooperation and sharing of power and knowledge; and (3) that governance is constituted both through processes (e.g., multi-stakeholder collaboration) and structures (e.g., networks), and a mix of formal and informal institutions.

The Frontenac Arch case confirms that implementing the biosphere reserve model of sustainability requires a high level of community engagement; that sophisticated collaborative network structures can spontaneously evolve when they are properly nurtured and effectively facilitated; and that power-sharing is an essential approach to governance. Each of these dynamics are explored below and reflect elements of the conceptual framework in terms of self-organization, place-based governance, and the characteristics of collaborative processes.

#### **7.5.2.1 Self-Organization**

The Frontenac Arch biosphere reserve is the product of a 20-year process of community exploration, including an intensive three-year period of renewed leadership and

community engagement. Successful nomination required a massive consultation effort with various stakeholder groups (including government, conservation, and economic development) in the whole region. And this level of awareness of the concept of biosphere reserves, paired with an open membership structure (Francis, 2007b), generated a wide base of support that was reflected in the development of the local administrative organization (FABR) and the subsequent emergence of the Biosphere Network.

In the early days of the biosphere reserve, the organizing framework promoted by conservation stakeholders was a network initially called “the Watershed.” Around the same time, there was interest from other members in forming a “Chamber of Sustainable Development.” However, this concept was never really established and the structure of the biosphere reserve evolved into a series of sub-networks connected under a larger network of members. “One of the FABR champions at that time declared: ‘we [the biosphere reserve] don’t row, we steer.’ But that’s gone as a metaphor. We became ‘the Biosphere Network’ and some people simply refer to us as ‘the Biosphere.’ The network metaphor allowed us to evolve into an expression of connectivity” (FABR-1).

The Frontenac Arch Biosphere Reserve’s Board of Directors provides the overall vision and direction (through the five priority areas in Table 7.4), while the executive director and staff provide leadership and human capital with which to generate higher levels of social and financial capital. Essentially, FABR provides an integrated model of, and organizing framework for, sustainability by facilitating collaboration within the

Biosphere Network to fulfill the three functions of biosphere reserves. “The FABR Network ... encourages collaboration and discussion to increase the capacity of like-minded groups and organizations towards integrated, sustainable development” (FABR, 2006: 7). For example, the Network brings together over 30 waterway residents associations, each concerned with maintaining the quality of various lakes and rivers that face common pressures.

### **7.5.2.2 Place-Based Governance**

This research points to biosphere reserves as operating frameworks for place-based governance. In the Frontenac Arch, for example, there exists an acute awareness of how history and culture have defined life. The intersection of the St. Lawrence River and the Frontenac Arch “...creates a sense of place that inspires a profound respect for the land and waterscapes and is the basis for a deep, enduring sense of community pride” (FABR, 2007a: 7). “Residents have a strong sense of identity, aware of their roots, and sensitive to the rhythms of the landscape they inhabit. The various efforts to create National Historic Sites, to designate buildings for heritage conservation, to declare the Rideau a Heritage River, to establish cultural festivals, to found conservation land trusts - all of these endeavours have sprung from the efforts of local citizens and their fervent commitment to protect and share the unique cultural and natural resources of the region with future generations” (FABR, 2007a: 61).

Competing notions about the region and its identity fueled the debate about what the biosphere reserve should be called. “Original thoughts were to call it the Frontenac Arch Biosphere Reserve, but many believed that people didn’t know where that was, so they

thought the Thousand Islands should also be included. Some of the people involved from the north thought the Rideau should also be included...and some people were upset that the Thousand Islands wasn't included, but over the years it has become less of an issue" (FABR-1). The application to UNESCO for expansion was seen as an opportunity for education about the role of the Frontenac Arch in biodiversity conservation. The new name helped to create a new domain that would reveal interconnections in the complex social-ecological system represented by the biosphere reserve.

Experience in Frontenac Arch shows that place-based governance focused at a regional scale can be particularly effective for coordination and integration of conservation and sustainable development activities. From a jurisdictional perspective, regional initiatives "seek to create and sustain effective organizations that do not comfortably fit into the established framework of local, state, and federal governments" (McKinney et al., 2002: 2). Agencies with a regional scope, such as Conservation Authorities concerned with particular watersheds, illustrate this opportunity, although they may be weak in influence and resources compared with regional and municipal governments (Alexander, 1990). Frontenac Arch Biosphere Reserve has a similar regional and landscape focus and provides a model for thinking about strategic integration and place-based collaborative governance.

### **7.5.2.3 Defining Collaboration for the Biosphere Network**

Taken together, FABR's many activities and initiatives appear to exhibit the characteristics of collaboration following Donahue (2004) and Marcussen and Torfing (2003). Although the eight sub-networks have varying points of origin and leadership,

degrees of formality and duration, number of linkages and stability, as well as differences in their main focus, scope and orientation to governance, they clearly constitute collaborative approaches to collective decision-making. What is perhaps most striking about the Frontenac experience is not the rise of collaborative multi-stakeholder initiatives as the dominant mode of operation per se, but the ambiguous and waning role of governments against the biosphere reserve's emerging role as the facilitator for collaboration.

One of the intriguing paradoxes of the UNESCO biosphere reserve model is that it lacks formal authority, yet organizations come to imbue it with a high degree of moral authority. Indeed, the lack of any official jurisdiction or regulatory power (through international treaty or federal statute, for example) actually manifests itself as a form of power when the biosphere reserve concept and local organization are granted authority in terms of facilitating a shared vision, common goals, combined resources, and cooperative action. The international biosphere reserve brand lends a unique credibility to local and regional sustainability efforts.

One of the key messages about FABR is that: "A Biosphere Reserve designation confers no authority whatsoever. Governance of the area remains in the hands of the citizens of the country, province and municipality. The intent is to stimulate co-operation by a network of partners to understand concepts, to help individuals and organizations work together on activities in the Biosphere Reserve and to measure and celebrate progress towards a more sustainable way of life in our community" (FABR, 2007c). Information

materials from FABR continually remind readers: “We have no authority, and we can impose no restrictions: the designation simply acts as a rallying point for citizens to work towards a more sustainable community, compatible with the UNESCO ‘Man and the Biosphere’ program” (FABR, 2005b).

Several interview participants reflected on the role of the biosphere reserve in terms of advocacy. “The FABR is not an advocacy group; they avoid advocacy issues and because of this, credibility is much easier to maintain. They create networks, and the people in those networks are secure in their own identities. The biosphere reserve doesn’t impose an outside agenda; networks must preserve their own autonomy” (FABR-3). However, another person noted: “There is a limit to being non-advocacy because at a certain point the biosphere reserve must take a stand on some issues in order to maintain credibility. Biosphere reserves need to take an integrated approach and be guided by high-level values” (FABR-4). “The questions I ask myself are: when should the biosphere reserve act? When should it enable? And when should it get out of the way?” (FABR-4). These types of reflexive statements illustrate how people struggle to define the appropriate role for the biosphere reserve; it lacks formal governance authority yet it seeks to influence a variety of governance processes in order to achieve outcomes that are more sustainable.

Governments are not leading sustainable development in the Frontenac Arch, nor are they always willing to, or capable of, playing an enabling role for collaborative initiatives. However, some of them have joined the networks and witnessed the effectiveness of multi-stakeholder processes. It is clear to many that “The biosphere reserve concept

doesn't fit into the spectrum of the way governments think" (FABR-4). In terms of bridging jurisdictions, for example, this participant said that biosphere reserves "...can't solve the jurisdictional issues and you can't always transit them, but you can transit them from a functional perspective. Government allows this to happen, since the emergence of civil society and NGOs benefit governments in a number of ways" (FABR-4).

Indeed, it would be fair to say that the community widely sees the biosphere reserve as a non-regulatory facilitator and that is the main role that it has embraced (FABR, 2006a: 5). The biosphere reserve has become viewed as "...a conduit of sorts for discussions between governments, and between government and non-government organizations, because of the power of the designation as a biosphere reserve, and because there is no jurisdiction implicit in biosphere reserves" (FABR, 2007a: 123). FABR is viewed as a credible and neutral organization: it helped to broker expansion of the National Park, it has coordinated consensus-based community responses for municipal Official Plans, and it is increasingly recognized by governments and others as a valuable facilitator for regional-scale initiatives.

Regional or multi-level governance arrangements illustrate how social-ecological systems are open to external influences (from both local and global pressures) and how the institutional layers for managing them may be fragmented among separate, and sometimes, competing organizations (Pollock et al., 2008). As illustrated by the Biosphere Network, the biosphere reserve aims to address fragmentation and respond to – and to some extent attempt to reshape – external drivers. The Biosphere Network

constitutes a number of new institutional arrangements that have been created through the interaction of government agencies, management authorities, environmental movement organizations, industry, local interests, and a variety of other relationships.

Draper (2004: 229) explains that addressing the challenge of open systems and institutional fragmentation "...requires learning how to strengthen existing relationships, forge new partnerships, incorporate different kinds of knowledge, and institute new co-management (governance) processes. [It] also entails understanding and managing complex relationships among ecosystems and people." Thus, one of the most important benefits of the biosphere reserve is the stimulus it brings to coordinate existing and proposed efforts among different organizations and groups and across different scales. The structures that have emerged from such coordination are commonly in the form of social and governance networks, as described below.

### **7.5.3 Networks in the Frontenac Arch Biosphere Reserve**

Networks structure the process of governing through network creation and decentralized, collective decision-making. Features that characterize governance networks are their ability to link independent and autonomous actors (organizations) into some collective endeavour. As noted by members of FABR, networks are greater than the sum of their parts since they produce outcomes that could not normally be achieved by individual organizations acting independently. Within collaborative networks, responsibility and accountability is shared and networks both demand and generate trust to function effectively.

The literature suggests that once common goals are established, then network governance is often the resulting pattern of interaction. Governance networks create new inter-organizational domains (spheres) for legitimate, non-coercive, horizontal negotiation. In the case of this biosphere reserve, the “Frontenac Arch” has become a powerful and now familiar domain for collective action. As illustrated in the Conservation, Local Flavours and Sustainable Tourism networks outlined above, the institutional framework or the rules of engagement are not fixed but evolve through negotiation. These three governance networks operate across multiple levels and scales.

In Frontenac Arch, the local organizational arrangements for the biosphere reserve involve sophisticated and reflexive networking processes to decide upon particular roles and priorities that the biosphere reserve group itself will take on. This is an expression of governance in the sense that the networks reach beyond government to include business organizations and non-governmental groups (civil society) to make decisions and provide services not sufficiently covered by government or the market sector (Francis, 2004). Indeed, the case of FABR shows that building networks can be one of the most effective ways of enrolling others into the process of defining and achieving sustainable development for specific places.

The essential ingredient for FABR is that network members are encouraged to keep their autonomy yet to establish a common purpose. For networks to succeed, “it is critical that whatever drives ‘x’ organization must be preserved, otherwise they will withdraw and the network will wither and die” (FABR-1). “The most critical role is to preserve the

autonomy of our partners; these are lateral relationships and each region develops a picture of what networks will work toward sustainability” (FABR-3). It is widely recognized by FABR members that: “the key ingredient to the scope of each of these projects is sustainability for that project itself. Networks are crucial for project sustainability and success” (FABR-2).

To these ends, the major challenges for FABR are “keeping up” with the partners, programs and activities that are evolving in the region and finding the funding to do so. Tracking the relevant governance layers and players has been compared to tracking “beagles and rabbits” (FABR-1). “Money is partially the solution to keeping up, because if we had more administrative capacity, we could do more” (FABR-2). “By its very nature, a network is sustained by the act of bringing people together, keeping them informed, providing them with needed information, support and advice. This is not a costless exercise” (FABR, 2005b: 9). It is estimated that the annual cost of network operation is \$140,000 per year, which on the one hand, is remarkably efficient given the scope of activities undertaken, and on the other hand, is not readily available. There is no substantial long-term source of funding for operations; FABR is currently seeking support from government at all levels of jurisdiction.

In their strategic planning process (FABR, 2005b), the biosphere reserve identified a number of features of successful network organizations [Box 7.3]. Although these are quite specific to FABR and do not reflect some of the wider conclusions in the literature on network theory, they speak to the remarkable success of the Biosphere Network in a

period of less than 10 years. Not only do they capture the relationship among coordination capacity, collaborative processes, and resulting network structures, they imply that networking can have an influence on governance. “The biosphere reserve brings people together to examine the environment from a broad range of perspectives. This is exciting because people who have never talked before are finally having important conversations. The community mapping/atlas project, for example, has the potential to influence a large range of communities spanning from planning and policy to developers and community groups. It can inform decisions and have a significant role” (FABR-3).

**Box 7.3. What are the Key Features of a Successful Network Organization?**

- Staff-based organization to serve all partners but with low overhead and maximum efficiency
  - Not-for-profit charitable organization
  - Governed by a volunteer board
  - Continuing support to connectivity through web services, information sharing and communications
  - Continuing administration of permanent programs such as Local Flavours
  - Capacity to provide consultation, co-ordination and facilitation to partners
  - Funding through: grants, projects, services
  - Stability and continuity
- (FABR, 2005b: 11)

Although not stated explicitly, individual leadership has been extremely important for organizational capacity and effectiveness. Without good leadership, the establishment of the biosphere reserve in the region and its role as a network broker would be limited. Many people would agree “the executive director is an important organizer and energizer of the FABR. He is a full-time volunteer executive director who gives a lot of time and energy to the biosphere reserve; we have been blessed with good leadership” (FABR-4). In addition, individual board members use their connections with their own and other

organizations to widen the network and deepen the commitment of partners to longer-term projects.

A defining strength of the Frontenac Arch Biosphere Reserve has been to broker and facilitate partnerships and collaboration between many of the government and non-government entities of the region. The role of the biosphere reserve is to “help fill in the ‘cracks’ between partner programs, where there may be a gap...not filled by any one partner” (FABR-1). FABR coordinates and assists its partners to work together to increase efficiencies and effectiveness of sustainable development activities. As such, multi-stakeholder collaboration has led to integration of many otherwise disparate programs and projects in the areas of conservation and environmental protection, education and sustainable community development. “As a result, progress towards sustainability in this region has been accelerated and enhanced. This is a strong contribution by biosphere reserves both regionally and globally” (FABR, 2007a: 123). It appears that in a fairly short period of time, the FABR Biosphere Network has created a role for itself in governance for sustainability by promoting a more strategic and coordinated approach to sustainable development within the region and supporting substantive sustainability outcomes. Collaborative networks, in particular, have made better use of limited resources, including human and financial capital.

However, networking in this fashion has proved to be a labour-intensive effort and is unlikely to be sustained by volunteers alone, especially given the eight sub-networks that are currently active and the likely prospect of new ones self-organizing. To what extent

can biosphere reserve volunteers facilitate adequate communication and mutual learning within their networks is not clear. But the most limiting factor is the availability of financial capital to support institutionalization of the biosphere reserve in terms of a suite of staff, consultants and facilitators to enhance the work that has begun.

## 7.6 Conclusions

This research explores the dynamics of the UNESCO biosphere reserve model and uses select biosphere reserves in Canada to illustrate their role in the structures and processes of governance for sustainability. Although the Frontenac Arch Biosphere Reserve is less than a decade old, it effectively demonstrates the relationship between collaborative processes of governance and network structures. This particular biosphere reserve provides several lessons for application in other places and helps to refine the guiding conceptual framework about collaborative environmental governance.

In Frontenac Arch, the biosphere reserve plays a major role in promoting an integrated model of sustainability. The biosphere reserve "...add[s] considerable value to the existing mosaic of governments, organizations, individuals, businesses and groups within the biosphere reserve by offering a global perspective on questions of environmental and economic sustainability, challenging all participants to take into account the full picture on individual questions associated with the environment, economic development and growth; and providing an open environment of expertise, communication and information to make the whole [network] greater than its parts" (FABR, 2005b: 2). This type of model is promoted by the biosphere reserve and then implemented in various and powerful ways by members of the Biosphere Network. It is difficult to assess whether

this type of vision will lose its power or how it will be revised over time, however, the biosphere reserve has embodied integrated sustainability in many aspects of its work.

A shared vision for sustainability, facilitated by the biosphere reserve, has supported a highly collaborative approach to governance and has led to the self-organization of a variety of smaller networks that seek to contribute to the overall vision. For example, in municipal and county governance, the biosphere reserve promotes local landscape values and articulates the function of the Frontenac Arch as an ecological, cross-scale corridor from Algonquin Park to the Adirondacks. This strategic vision is an invaluable support for municipal authorities and a powerful driving force for appropriate land and water use decisions across the region (FABR, 2007a). Although municipalities have been hard to persuade at times, the biosphere reserve's role as a facilitator through the Official Planning process to achieve consensus across stakeholders has convinced a growing number of government officials of the value of the biosphere reserve.

From a conservation perspective, it is clear that integration is required for an ecologically coherent or functional system of core and buffer areas. Since some of these "stepping stones" are small, such as St. Lawrence Islands National Park, and the region is highly fragmented, "...landowners and protected area land managers of the Biosphere Reserve recognize that it is the key to enhancing and maintaining the ecological integrity of the region. The Biosphere Reserve is an *incentive and a facilitator* for integrating the landscape into a system of cores and buffers that will, by convergence of thought, commitment and action produce a sum of conservation 'results' that is greater than the

potential achievements of each of the individual Biosphere Reserve components working within their individualized mandates” (FABR, 2007a: 34, emphasis added).

Importantly though, the Biosphere Reserve has not become simply another organization, but rather a network of agencies and organizations that already exist. The Biosphere Network does not seek to replace any single governance player but to coordinate collective objectives, decisions and actions for more sustainable outcomes. Recall that in terms of fulfilling its conservation function, the biosphere reserve plays a critical role “...because it is the only *unifying framework* that is sufficiently practical, welcomed by stakeholders and the public, economical and conceptually robust to create the linkages, enable and strengthen the collaboration and partnerships that will ‘make or break’ the region’s ecological integrity” (FABR, 2007a: 12, emphasis added). The rapid expansion of the Sustainable Tourism project and the guiding promise of the Community Atlas are two other unifying frameworks for collaborative governance.

From an economic development perspective, the biosphere reserve recognizes the vulnerabilities and external drivers in the region and attempts to facilitate the transition to a more sustainable economy. In the traditional sectors of agriculture and tourism, for example, it is recognized that things must be done differently in order to ensure the continuity of those sectors and the viability of livelihoods. The Local Flavours network is an incremental approach to stimulate more sustainable economic growth within a regional context; it uses an inclusive philosophy along with education and green accreditation to improve the sustainability of agriculture. The Sustainable Tourism

network is also an attempt to enhance and re-define an existing regional economic base. By promoting both natural and cultural heritage and attempting to “raise the bar” across industry standards, it is recognized that the ecological character of the region is the foundation for more sustainable forms of economic development. Each of these sustainability initiatives reflects the perspective that human livelihoods are fundamentally dependent on ecological goods and services (Millennium Ecosystem Assessment, 2005).

The experience of Frontenac Arch Biosphere Reserve shows how a strong conceptual integration of sustainable development promotes a model for multi-stakeholder collaboration, across scales and jurisdictions. As suggested by the literature on networks, once common goals are established then network governance is often the resulting pattern of interaction. However, the emergence of collaborative process and network structures also requires active network “management” to ensure that network participants engage in collective, and mutually supportive action, that conflict is addressed, and that network resources are acquired and used efficiently and effectively. The experience in Frontenac Arch is that networks do not respond to managers as system controllers (as per Klijn et al., 1995). To be effective, the biosphere reserve plays a highly facilitative role, seeking to build the capacity of their partner organizations as their objective.

Arguably, what makes the Frontenac Arch Biosphere Reserve unique in Canada is its extensive network structure. However, governance networks dedicated to sustainability appear to require some integrated framework (such as that provided by the UNESCO biosphere reserve’s model of three integrated functions across three interrelated zones)

and active facilitation. The conceptual framework (in Chapter 5) would benefit from a discussion about the dynamics of how conceptual integration (or a shared vision) actually supports collaboration, and how collaborative governance processes that are well facilitated by a credible, non-regulatory authority, potentially result in the creation of new networks. These can be either self-governing or carefully facilitated by the biosphere reserve organization. Although further study is required here, it appears that the promotion of integrated sustainability combined with strategic facilitation of collaborative multi-stakeholder processes can result in sophisticated network structures that contribute to cross-scale governance for sustainability.

## 8. Case Study: Georgian Bay Littoral Biosphere Reserve

### 8.1 Introduction

The purpose of this chapter is to explore how the Georgian Bay Littoral Biosphere Reserve<sup>20</sup> contributes to governance for sustainability. First, the core, buffer, and transition zones are described to set the general context for governance within the biosphere reserve. Then four examples of governance from different domains and levels of jurisdiction (federal, provincial, Aboriginal, municipal) illustrate the extent to which governance within the biosphere reserve is collaborative and cross-scale in nature. The history, structure, and activities of the local organization, the Georgian Bay Biosphere Reserve Inc., are described to illustrate the challenges, opportunities and roles that the biosphere reserve has played in governance for sustainability.

Designated in 2004 by UNESCO, the Georgian Bay Biosphere Reserve (GBBR) is Ontario's fourth biosphere reserve. In anticipation of this designation, proponents from the GBA Foundation established GBBR Inc. in 1998 as a non-profit organization to administer biosphere reserve activities. The nomination consultation process sought to engage four distinct stakeholder groups – cottagers, boaters, Aboriginal communities, and permanent residents – each represented on the founding Board of Directors. The two main thrusts of the GBBR Inc. have been with respect to coordinating conservation activities and support for economic development in the form of sustainable tourism

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<sup>20</sup> The formal UNESCO designation includes the ecological term for shoreline, “littoral” – or where the water meets the land, to capture the freshwater island archipelago along the eastern coast of Georgian Bay. For common usage and consistency, the GBBR Inc. has shortened the name to simply, the Georgian Bay Biosphere Reserve (GBBR) and is therefore the term used throughout this chapter.

planning. Recently, an educational and cultural committee has emerged with the intent of creating an Educators' Network.

Case study analysis, beginning in section 8.4, assesses the degree to which the GBBR provides a model for integrated sustainability, encourages collaborative modes of governance, and supports the formation of governance networks. Throughout the chapter, empirical data are presented from participant observation, personal communications, qualitative interviews, and grey literature. Again, quotations from interview participants are coded (e.g., GBBR-1, GBBR-2) to preserve anonymity. The chapter then closes with some concluding observations.

## **8.2 Georgian Bay Biosphere Reserve**

The Georgian Bay Biosphere Reserve encompasses the world's largest freshwater archipelago. Georgian Bay itself appears to be an eastern arm of Lake Huron, however it is sufficiently large and has its own distinctive bathymetry to merit being called "the Sixth Great Lake" (Barry, 1995). Known locally as "the 30,000 Islands," the eastern shoreline of Georgian Bay is a complex association of bays, inlets, sounds, islands and shoals of Canadian Shield bedrock, which rises as low lying hills and ridges on the adjacent mainland. This topography supports a rich mosaic of forest, wetlands, and rocky habitat types with associated biodiversity (GBLBR, 2004).

The biosphere reserve stretches approximately 200 km in length, from the Severn River at the southern end of Georgian Bay, to the French River in the north. It follows the

provincial Highway #69/400 corridor to the east and extends to inland lakes, extensive shoreline and outer islands to the west. It covers a total area of 347,000 ha including 140,980 ha of open water. Seasonal cottages and resorts have long supported a tourism-based economy. And while the biosphere reserve's southern end is located only 165 km from the Greater Toronto Area, it has very little road access in comparison to surrounding areas, which acts to support its buffering and conservation functions. There is an unusually high level of Crown Land (as reflected in the core area and buffer zones) and the transition area includes all or some of six municipalities and seven Aboriginal communities.

### 8.2.1 Core Areas

There are six core areas within the Georgian Bay Biosphere Reserve, including one national park, three provincial parks, and two provincial nature reserves [Table 8.1].

These core areas constitute over 20% of the biosphere reserve. Together with the buffer areas that add another 20% of the land and water base, this designation forms "...one of the largest corridors of almost continuously protected landscape/waterscape in south-central Ontario" (GBLBR, 2004: 15).

<b>CORE AREAS</b>	<b>SIZE (HA)</b>	<b>STATUS</b>
Georgian Bay Islands National Park	1,263.03	Management Plan (2009)
French River Provincial Park	52,508.83	Waterway
Killbear Provincial Park	1,055.18	Natural Environment
Massasauga Provincial Park	13,533.00	Natural Environment
O'Donnell Point Nature Reserve	802.09	Nature Reserve
Limestone Islands Nature Reserve	35.48	Nature Reserve
<b>Total:</b>	<b>52,508.83</b>	

Table 8.1. Core Areas in the Georgian Bay Littoral Biosphere Reserve

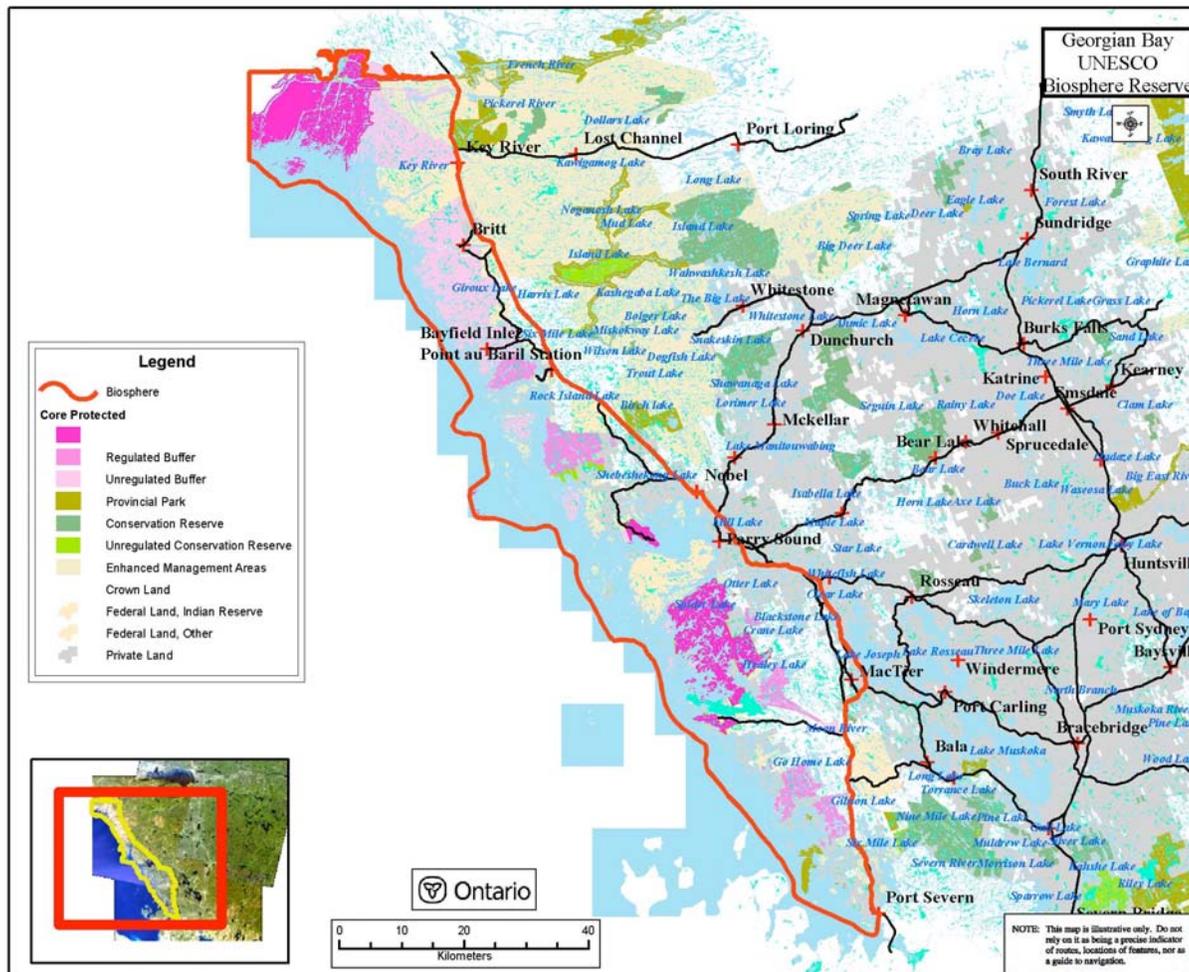


Figure 8.1. Map of core-buffer areas in the Georgian Bay Littoral Biosphere Reserve (OMNR, 2007)

**Georgian Bay Islands National Park** includes 59 islands (or parts of them) along 83 km of the eastern Georgian Bay shore. The largest, Beausoleil Island, contains boat dockage, mooring bays, campgrounds, trails and a visitor centre. Other islands allow for day-use only. The management objective, as per the National Parks Act is: “Maintenance or restoration of ecological integrity, through the protection of natural resources and natural processes” (Parks Canada, 2000) as reflected in the park’s Management Plan (1999) which is at its final stage of review for expected approval by 2009.

Research within the park, and in conjunction with visiting researchers, provides strong support for the conservation and logistics functions of the biosphere reserve. In 2008, for example, the park's research priorities fell into the following nine categories: (1) species inventories and status surveys (e.g., coastal wetlands; invasive species); (2) ecosystem and habitat studies (e.g., remote sensing; land acquisition and protection; population viability and habitat availability studies for threatened species); (3) ecological dynamics (e.g., development and testing of a park ecosystem model to identify system components and interactions and human impacts); (4) long-term monitoring studies; (5) impact assessments of various kinds (e.g., road and urban development in the greater park ecosystem; climate change and lake levels); (6) geological studies; (7) Aboriginal and traditional knowledge studies; (8) social science (e.g., recreation management, economic impacts, and education) and (9) archeological studies in accordance with Parks Canada's Cultural Resource Management Policy (1994).

**French River Provincial Park** is a Waterway Class Provincial Park established in 1989 and expanded in 1999 through Ontario's Living Legacy land use strategy.<sup>21</sup> The park extends 110 km from Lake Nipissing to the extensive island complex at the mouth in Georgian Bay and is popular for fishing and recreational canoeing. Over 50,000 ha of it,

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<sup>21</sup> The Province of Ontario released a land use strategy driven by competing interests for Crown Lands, including the creation of new parks and resource extraction (e.g., logging, mining). As a result, the *Living Legacy* (Government of Ontario, 1999) legislated the protection of 12% of provincial lands in the form of Provincial Parks and Conservation Reserves. (See: Government of Ontario, 1999. Ontario Living Legacy: Land Use Strategy. Queen's Press, Toronto). This planning process also resulted in the designation of the *Great Lakes Heritage Coast*, including eastern Georgian Bay. This initiative combined management plans for protected areas and economic partnerships for tourism. (See: Government of Ontario, 2001. Plotting the Course, Great Lakes Heritage Coast. Queen's Press, Toronto).

from the Highway #69/400 west, is included in the biosphere reserve, which extends to include the river delta, and outer islands as far as the Bustard Islands. The French was designated a Canadian Heritage River in 1986 and a large interpretive centre was constructed in 2005 to showcase the geological and cultural history of the area. The *French River Visitor Centre First Nation and Aboriginal Advisory Committee* works in association with Ontario Parks and the Ministry of Natural Resources to host cultural events and gatherings throughout the region.

**Killbear Provincial Park** opened to the public in 1961 and is one of Ontario's most popular parks with approximately 365,000 visitors in 2007. As a Natural Environment Class park it protects a large, representative, ecologically viable area of the province. Killbear supports high levels of recreational opportunities for swimming, hiking, and boating and has some of the longest natural beaches in eastern Georgian Bay. Although most of the park was logged in the late 1800's and very little of the park remains in its natural state, human use is concentrated to the summer, allowing the park to support large mammals such as black bear, fisher, and wolves. The park's research is mainly on species at risk, especially for the threatened Massasauga Rattlesnake and endangered Eastern Fox Snake.

**Massasauga Provincial Park** is also a Natural Environment Class Park. A lengthy consultation process and a range of conflicts between local cottagers, MNR, and boaters respecting the establishment of camping and recreation restrictions predated the creation of this park in 1999. Stretching more than 13,500 ha along the coast of Georgian Bay

from the Moon River to Parry Sound, this park encompasses hundreds of small islands as well as inland forests and lakes. Accessible only by water, it provides a high level of protection for native and threatened species.

**O'Donnell Point Provincial Nature Reserve** is located 50 km south of Parry Sound and adjacent to Moose Deer Point First Nation. It features undeveloped Georgian Bay shoreline with coastal bedrock, upland and lowland forest, and wetlands. The reserve protects more than 30 species of reptiles and amphibians, some of which are near the northern limit of their range. The park is adjacent to several islands in Georgian Bay Islands National Park. There are no visitor facilities. Camping is prohibited and recreational day-use for walking and nature appreciation is discouraged due to the sensitivity of the reserve's natural values.

#### **Limestone Islands Provincial Nature Reserve**

This 35.48 ha nature reserve includes the North and South Limestone Islands, located approximately 35 km west of Parry Sound. The islands are unlike the others in the region which are typified by granitic bedrock and wind-swept pines. The flat, low-lying shelves of pitted limestone are dominated by shrubby and herbaceous vegetation. The islands provide valuable, undisturbed nesting habitat for several species of colonial waterbirds. There are no visitor facilities and camping is prohibited on the islands. Day-use for walking, photography and nature appreciation is permitted outside of the May 1 – August 1 nesting season with permission from Killbear Park. However, due to the sensitivity of the site, visitation to the islands is generally discouraged.

### 8.2.2 Buffer Zones

The biosphere reserve's buffer is comprised of 13 Conservation Reserves (CR) and two Enhanced Management Areas (EMA) all administered by the Ontario Ministry of Natural Resources (OMNR). Conservation Reserves, originally designated under the Public Lands Act and most recently the updated Provincial Parks Act (Government of Ontario, 2006), combine natural heritage protection with a variety of traditional recreational uses (such as boating, fishing, hiking or hunting) provided the activity poses little threat to the natural ecosystems for which the Conservation Reserve was established. Given the number and total area of Conservation Reserves and given the types of practices permitted in them (such as recreation), the buffer areas in GBBR provide a level of protection akin to core areas.

Enhanced Management Areas are a relatively new designation in Ontario resulting from the Living Legacy (Government of Ontario, 1999) and were established, in part, to buffer adjacent protected areas from the impacts of forestry and mining while supporting tourism opportunities associated with the natural environment. As of October 2007, ten of these 13 areas were officially regulated under the Ontario Public Lands Act. The regulation of the three remaining Conservation Reserves (C120, C127 & C117) has been deferred pending resolution of the Wikwemikong Land Claim.<sup>22</sup>

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<sup>22</sup> In late 1997, the Wikwemikong Indian Band, based on Manitoulin Island in the North Channel of Georgian Bay, brought forward a Statement of Claim with respect to unpatented islands in Georgian Bay in the Territorial Districts of Algoma, Manitoulin and Parry Sound. A protocol on the disposition of interests in land, and the issuance of permits was negotiated between the Province of Ontario and the Wikwemikong. Currently, the governments of Ontario, Canada and Wikwemikong continue to negotiate on the broader issues associated with this action, including a claim on Franklin Island near Parry Sound.

Buffer Areas	Size (ha)	Status
Cognashene Lake	3205.27	C35 – Regulated
Cognashene Point	51.62	C40 – Regulated
Crane Lake Forest	346.51	C27 – Regulated
Franklin Island White Pine Forest	885.87	C120 – Unregulated
Gibson River	220.75	C33 – Regulated
Lower Moon River	3042.30	C90 – Regulated
McCrae Lake	1942.58	C36 – Regulated
Moon River	410.67	C94 – Regulated
Moreau's Bay	356.24	C23 – Regulated
North Georgian Bay Shoreline and Islands	20,127.98	C117 – Unregulated
Point au Baril Forest and Wetlands	2612.62	C302 – Regulated
Shawanaga Island White Pine Forest	916.28	C127 – Unregulated
Upper Shebeshekong Wetlands	5410.94	C115 – Regulated
<b>Total:</b>	<b>21,594.30</b>	

Table 8.2. Buffer Areas within the Georgian Bay Littoral Biosphere Reserve

While these areas in Table 8.2 constitute the formal buffer areas for the biosphere reserve, the Nomination Document prepared for UNESCO notes that: "...the ecological values in the proposed biosphere reserve are further buffered by extensive unused and inaccessible [Crown] lands inland from the Georgian Bay shore. It is also expected that the buffer lands will be enlarged in the future through the addition of private lands under [Georgian Bay Land Trust] stewardship and additions of some provincial Areas of Natural and Scientific Interest (ANSIs) to the protected area system under the Conservation Reserve category" (GBLBR, 2004: 31).

### 8.2.3 Transition Area

As noted, the Georgian Bay Biosphere Reserve stretches from the Severn River in the south, to the mouth of the French River in the north, roughly corresponding with the administrative boundaries of the Districts of Parry Sound and Muskoka. The delineation of the biosphere reserve is "...based on landscape patterns, existing governmental

jurisdictions, and the ‘sense of place’ of the local residents in the eastern Georgian Bay littoral area; at the same time, “...biosphere reserve ‘boundaries’ are viewed as flexible and can vary with the inclusion of other stakeholders depending upon issues being addressed through the biosphere reserve organization” (GBLBR, 2004: 75-76).

The biosphere reserve reflects the local perception of difference between Georgian Bay and Muskoka, in terms of both geography and economy. Muskoka is widely known as a playground for the wealthy, with multi-million dollar summer homes on sheltered inland lakes that are accessible to the larger towns of Gravenhurst, Bracebridge and Huntsville. Georgian Bay is characterized by its islands and shoals and westward white pines and, until recently, more modest cabins and cottages. The largest centre in the biosphere reserve is the small town of Parry Sound, a community of 6,000 people based on a year-round service economy and a seasonal tourism economy.

The transition area surrounding the core-buffer areas of the GBBR is a combination of provincial Crown Lands, private lands that fall within one of six municipalities, and seven First Nation communities [Table 8.3]. While the core-buffer areas constitute 44% of the biosphere reserve, First Nations’ Indian Reserves represent another 24% of the designated area, with additional Crown Lands and municipalities making up the balance.

In addition to the estimated 18,000 permanent residents associated with the biosphere reserve, a large number of summer residents, cruising boaters, and seasonal visitors increase this number three to five times more, and up to 25 times in some more accessible

<b>Municipalities</b>	<b>Population<sup>23</sup></b>
Georgian Bay Township	2340
Seguin Township	4276
McDougall Township	2704
Town of Parry Sound	5818
Carling Township	1123
Township of the Archipelago	576
Unincorporated townships	Unknown
<b>Aboriginal Communities</b>	<b>On Reserve / Off Reserve Population<sup>24</sup></b>
Whata (Mohawk)	168/499
Moose Deer (Pottawatomi)	208
Wasauksing (Ojibway)	396/494
Shawanaga (Ojibway)	193
Magnetawan (Ojibway)	74/150
Henvey Inlet (Ojibway)	165/345
Moon River Métis	178
<b>Total Resident &amp; On-Reserve Pop.</b>	<b>18,041</b>

Table 8.3. Population of local residents and First Nations within the Georgian Bay Biosphere Reserve

localities (GBLBR, 2004). The influx of summer residents supports the local service-based economy, while the transient boaters and visitors support a seasonal tourism economy. The major access points to open water include marinas and municipal boat launches in the communities of Port Severn, Honey Harbour, Mactier, Twelve Mile Bay, Parry Sound and Point au Baril. Two of the many challenges for the biosphere reserve, discussed below, are a diverse constituency (of Aboriginal, permanent and seasonal residents, and transient tourists and boaters) and the pursuit of sustainable development in a region largely defined by seasonal tourism.

### 8.3 Governance Profile of Eastern Georgian Bay

As the following description of governance within the Georgian Bay Biosphere Reserve shows, there is a vast range of governmental and non-governmental organizations

<sup>23</sup> Population data from [Statistics Canada, 2006](#) [Statistics Canada, 2006](#).

<sup>24</sup> Population data from [Statistics Canada, 2006](#) [Statistics Canada, 2006](#); Band Administrators, 2007; and Indian and Northern Affairs Canada, 2007.

involved with regional conservation and sustainable development and the local organization, GBBR Inc., must find its place in the governance landscape and familiarize itself with the many players in order to identify the best collaborative arrangements to fulfill the three functions of the UNESCO model within, across, and often beyond its three defined zones.

As was done for each of the other two case studies, this section briefly describes the jurisdictional arrangements over core and buffer zones that primarily fulfill the conservation and logistic functions of biosphere reserves. Then four examples of governance within the transition area sketch a somewhat broader scope for sustainability, using the examples of fisheries, forestry, First Nations land claims, and municipal land use planning. Since it would be impossible to capture all of the agencies and organizations, across scales, which influence sustainable development in eastern Georgian Bay, these cases merely illustrate the complex sub-systems and cross-scale governance context for the biosphere reserve's work.

Governance of the core areas is determined by two major agencies, Parks Canada and Ontario Parks, both of which are subject to their respective Parks Acts and have their own management plans for each park or nature reserve. For GBBR, they include:

- National Parks Act (2000)
- Georgian Bay Islands National Park Management Plan (pending approval for 2009)
- Ontario Provincial Parks and Conservation Reserves Act (2007)
- Massasauga Provincial Park Management Plan (Government of Ontario, 1993)
- Killbear Provincial Park Management Plan (Government of Ontario, 2000)
- French River Provincial Park Management Plan (Government of Ontario, 1992)

- O'Donnell Point (Government of Ontario, 2007b) and Limestone Islands (Government of Ontario, 1986) Management Plans

As described above, the buffer zones in GBBR are comprised mainly of Conservation Reserves administered by the Ontario Ministry of Natural Resources under the new Provincial Parks and Conservation Reserves Act (2007). The Act legislates that ecological integrity will have first priority when planning and managing provincial parks and conservation reserves, adding further support to the conservation of biodiversity function of UNESCO biosphere reserves in Ontario.

In terms of the transition area, a wider range of governance arrangements are involved. At the time of nomination, 54 distinct organizations, government programs, or broad policy statements were identified (GBLBR, 2004: 2). Several federal agencies, provincial bodies, municipal authorities, and First Nations govern activities across a mosaic of public and private lands and waters. Although civil society organizations and the private sector lack the same formal governance authority as government bodies, it is important to note that they strongly influence the fulfillment of the conservation, development and logistic functions of the biosphere reserve.

A more recent governance profile of GBBR (Pollock and Marshall, 2007) revealed over 200 agencies, organizations and programs related to integrated sustainability, including: seven international organizations; seven federal government departments; five provincial ministries; six municipalities and seven First Nations. Affiliated with each of these levels

of jurisdiction and organizations are dozens of programs, ranging from ecosystem research and remediation to economic development and social services.

From civil society, an additional 35 non-governmental organizations (NGOs) are involved in the region, ranging from international programs, such as the Dark Skies Initiative, to local groups, such as the Georgian Bay Osprey Society. Over 30 economic development programs and services across all government agencies were identified, as well as over 50 specific agencies, organizations, partnerships and programs for Aboriginal people and their communities. This type of profile reveals the rich but fragmented governance landscape within which the biosphere reserve must define its purpose and find a role in advancing sustainability.

To illustrate the types of governance arrangements that overlay the eastern Georgian Bay landscape, four illustrations of governance in complex social-ecological systems are briefly given below: federal fisheries, provincial forest management, Aboriginal self-governance, and municipal planning. Although each of these four domains appears to be located at a particular level of jurisdiction, each one actually demonstrates the extent to which governance is collaborative and cross-scale in nature. Activities in each domain relate to Gibson et al's (2005) principles for sustainability in some respect, whether for ecological integrity of natural resources or for social equity and livelihood opportunities.

Fisheries management in eastern Georgian Bay, for example, is influenced by a number of agencies and organizations. At the international level, the Great Lakes Fisheries

Commission (GLFC) produces broad policy direction for fisheries protection, with a binational Lake Huron Committee reporting to the GLFC for Georgian Bay. At the federal level, the Department of Fisheries and Oceans (DFO) administers the Fisheries Act (1985) to protect fish habitat. Recently, the DFO has greatly reduced on-site inspections through their restructuring of project reviews that may affect fish habitat (i.e., proposals for construction of docks, boathouses, etc.), thus reducing oversight of numerous small-scale impacts to aquatic systems. Provincially, the Ontario Ministry of Natural Resources' (OMNR) Upper Great Lakes Management Unit for Lake Huron manages fish populations in Georgian Bay, mainly through research and policy implementation also importantly, regulations on seasons, catch limits, etc.

Regionally, the Eastern Georgian Bay Stewardship Council<sup>25</sup> (EGBSC) is a quasi-non-governmental organization (quango) involved in fisheries restoration, monitoring and public awareness. Each Stewardship Council in the province is staffed and funded by the MNR (through an organization called Ontario Stewardship) but is made up locally of community members from the commercial and recreational fisheries, environmental organizations, and interested individuals. Based on collaborative research with other agencies, it provides advice to provincial fisheries managers about catch size and quotas, for example, in an effort to increase stocks. The EGBSC is active with the Bass Nest Spawning program, the Moon River Habitat Rehabilitation project, and Invasive Species education.

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<sup>25</sup> Formerly known as the Eastern Georgian Bay/North Channel Fisheries Stewardship Council funded by the Canada-Ontario Agreement and structured by the Great Lakes Fisheries Management Unit. For several decades this group was heavily involved with the successful re-introduction of Lake Trout in Parry Sound.

For forest management in the biosphere reserve, Westwind Forest Stewardship Inc. is a community-based, non-profit organization that facilitates sustainable forest practices on Crown lands in the 880,446 ha French-Severn Forest (which extends over a much larger region than the GBBR and has most of its activity in Muskoka). The Ontario MNR owns the forests but Westwind holds a Sustainable Forest License (SFL) and is funded by the forest industry and charitable foundations to manage the planning, logging operations and compliance under the terms of the Ontario Crown Forests Sustainability Act (1994). Westwind was the first large public forest in Canada to receive international Forest Stewardship Council (FSC) certification in 2002 for sustainable forest management. Their seven-member Board of Directors continues to work with five large timber companies and 24 independent operators, including First Nations.

Meanwhile, Westwind's Local Citizens Committee allows for a diverse representation of interest groups ranging from the forest, mining and tourism industries to field naturalists, cottagers' associations, local municipalities, fur harvesters, labour unions, snowmobile clubs and local First Nations. Attaining local ecological knowledge from these sources allows the protection or exclusion of areas from harvesting due to significant features such as rare species or sensitive landscapes. Integration of knowledge also enables the transfer of place-based and inter-generational knowledge between stakeholders about significant ecological, historical, or heritage values in the management area. Westwind respects First Nations' rights to protect traditional ecological knowledge, such as the location of sacred groves, and draws limits to the exchange of this knowledge in the

public domain. The General Manager of Westwind describes the French-Severn Forest as a “social forest” and underscores the role of public participation in “networking a bank of local knowledge for planning purposes to protect ecological integrity while respecting the rights of First Nations and private landowners” (Munro, pers. comm., 2008).

Indeed, First Nations territories make up almost a quarter of the area designated as a biosphere reserve. Governance in First Nations communities occurs at the level of Band Council, elected every two years, and in cooperation with the federal department of Indian and Northern Affairs Canada (INAC) under the Indian Act and, if First Nations so request, under the terms of a framework agreement enacted by the First Nations Land Management Act. As noted, there are six First Nations plus Métis tribes within the Georgian Bay Biosphere Reserve, four of which have outstanding land claims against the federal and/or provincial governments (not including the Wikwemikong Land Claim).

Specifically, Whata First Nation (Mohawk) has successfully negotiated a Final Agreement for a transfer of public lands in 2009. Moose Deer Point First Nation (Ojibway) is seeking an Addition to Reserve (ATR) of 155 ha of O’Donnell Point Provincial Nature Reserve and 125 ha of additional Crown land, as well as a separate ATR filed in 1993 for 160 ha of land. Wasauksing First Nation (Ojibway) seeks to expand the Parry Island Indian Reserve No. 16 with the addition of several surrounding islands through community ratification of a tripartite Agreement-in-Principle in 2008.

And Henvey Inlet First Nation (Ojibway) filed a land claim in 1994 for 1,112 ha of their former Indian Reserve lands at the mouth of the Key River that is as yet unresolved.<sup>26</sup>

Within First Nations communities are a number of interesting developments in support of local livelihoods. The Whata Mohawks own and operate Ontario's largest cranberry farm (Iroquois Cranberry Growers) as well as a maple syrup operation and a water bottling plant. They have also developed a community Forest Management Plan and have other business ventures in progress. The Moose Deer Point First Nation owns and operates the Niigon injection molding facility that provides on-reserve employment and economic stability to the community. There is also a marina in operation and growing interest in traditional harvesting practices and renewable energy projects. At some point, GBBR Inc. may be invited to participate in the Moose Deer Environmental Protection Group, which approved a Land Use Management Plan with stricter guidelines for the Reserve than currently required by the province.

The community of Wasauksing on Parry Island has a strong interest in renewable energy and received an Indian and Northern Affairs Canada grant for a test wind tower to determine the potential for a wind farm on the reserve. The community also has a maple syrup operation and has developed a Forest Management Plan. Shawanaga First Nation operates a Healing Centre and has an interest in hosting traditional ceremonies and teaching other cultural heritage values. There are several successful resident quill box

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<sup>26</sup> Like other biosphere reserves in Canada, the Georgian Bay Biosphere Reserve is "without prejudice" with respect to whatever land claims or Treaty issues there may be concerning Aboriginal rights in the region (GBLBR, 2004: 75).

artisans and members also offer services in traditional trapping, hunting and fishing techniques. There is some interest in biofuel and wind power developments around Byng Inlet, and an ecotourism resort on the Pickerel River. The small Magnetawan First Nation is also interested in renewable energy (hydro and possibly wind) and has partnered with Contact North to offer distance education. Finally, Henvey Inlet is exploring commercial leasing ventures, including cottage developments along the Key River.

Given the high levels of Crown Lands and Aboriginal territories in the biosphere reserve, only about 12% remains as private property. Most of the resident population (both permanent and seasonal) is distributed among the six municipalities and these local governments have jurisdiction over land use decisions, including responses to development proposals. As in other rural municipalities in Ontario, land use and planning mechanisms are dictated primarily through local municipal official plans and zoning bylaws. The Province of Ontario's Planning Act (Government of Ontario, 1990) guides the adoption of Official Plans by municipalities.

Prior to biosphere reserve designation in 2004, each of the six area townships included statements in their Official Plans acknowledging a common objective for the eastern coast of Georgian Bay of preserving its unique ecology and enhancing opportunities that balance natural and cultural heritage with economic development. Each policy framework reflects a desire for 'planning harmonization' across all coastal municipalities that share the shoreline and waters of Georgian Bay. Three of them engage residents in volunteer water quality monitoring programs and other types of environmental initiatives.

Despite political statements in support of “balancing” the environment with the economy, the pressure for economic growth of almost any kind in these communities is a significant obstacle to more sustainable forms of development. The expansion of the TransCanada Highway #69/400 has exacerbated fragmentation of the landscape (i.e., for species movement) and has been accompanied by the development of several major retail chains. Reducing the travel time from southern Ontario, the highway is projected to increase both seasonal and residential retirement developments, as evidenced by recent proposals for waterfront condominium and golf course development (e.g., the Oak Bay housing development in Port Severn).

At the same time, there are concerns about the long-term viability of smaller downtown businesses and the preservation of small town character. Some see opportunities for the service communities to re-create themselves as “green communities” with, for example, public transportation and cycling options, renewable energy projects, community gardens, and promotion of ecotourism over fossil-fuel based recreational activities.

The UNESCO biosphere reserve designation is often wielded in various public debates. The GBBR Inc. Board of Directors has been asked to take a position on issues ranging from aquaculture and wind power to Great Lakes water levels and invasive species control. For example, just three months after the UNESCO designation of the Georgian Bay Littoral Biosphere Reserve, the MNR invited public comment on an application from WindPower Gen for a one-year wind testing tower on Crown land in Carling Township, within a kilometer of the shore of Georgian Bay. The main conflict was the proposed

location, which some feared could become the site of a wind farm with up to six turbines on 250 acres of Crown land, visible to surrounding residents and cottagers [Box 8.1].

**Box 8.1. Excerpts from Letters to the Editor of the Parry Sound North Star Re: Wind Turbines**

These towers would tear the heart out of the beauty of the 30,000 Islands. They would dominate the landscape for two or three hundred square miles of water and islands. They would make a mockery out of this shoreline's newly acquired **International biosphere status**, and to Carling Township's planning bylaw, with its strict limits to the height of buildings. (09 February 2005).

Not only has the Georgian Bay region been deemed by **the Canadian Biosphere Reserves Association** as a protected area, but [wind power] also contravenes many policies already in place under the Crown Land Use Policy Atlas and Policy Report, and the Great lakes Heritage Coast Policy (02 February 2005).

Georgian Bay is a treasure. The recent designation as a **UNESCO biosphere reserve** recognizes this. One of the concepts this status promotes is sustainable development. Wind power generation is widely recognized as an important component of sustainable development. (19 February 2005).

As far as tourism is concerned, I would think that a windmill would be a significant point of interest and curiosity for any tourist that comes to the area and would enhance our environmental reputation. I for one would be happy to advocate our 'Green' power generation as being completely in sync with beautiful Georgian Bay, Killbear Park and the newly crowned **UNESCO biosphere reserve**. (19 February 2005).

If wind turbines truly are a beautiful symbol of a clean environment that is completely in sync with Georgian Bay, Killbear Park and **the biosphere**, then put the wind turbines in Killbear Park. If MNR can over-ride the intent of the Heritage Coast to install a wind Farm, then why not put them in Provincial Parks? (26 February 2005).

All summer hundreds of boats and yachts pass our door ...and hundreds more Georgian Bay devotees, canoeing, kayaking, camping, boating, fishing, waterskiing, hiking and birdwatching. Others just soak up the natural day and night-time beauty, sights, smells, and sounds of what the United Nations recently designated as the 13th Canadian **Biosphere Reserve** - totally unique. (05 March 2005).

In light of conflicts with provincial planning and the planning of local land use, combined with the fact that our region has been designated as a **UNESCO World Network Biosphere Reserve**, the decision to even consider an application for wind monitoring seems preposterous. (16 March 2005).

Interestingly, both those in favour and those opposed to the proposed wind testing cited the UNESCO biosphere reserve designation in their letters to the editor, demonstrating the moral authority that such a title holds and the wide interpretation that the concept of sustainable development affords. Ultimately, the opposition to wind towers resulted in the MNR's rejection of WindPower Gen's application and Official Plan policy statements restricting the future location of any turbines in Carling Township. For its part, the GBBR Inc. was only becoming established as an organization and was not in a position to host the kind of public forum on this issue that it might have wished.

To what extent the biosphere reserve could or should be involved in these or any other governance arenas is often difficult for the local biosphere organization to determine. GBBR-3 explained that: "A biosphere reserve has no regulatory power. Its power comes from having representatives from key competing user groups working out solutions to common problems and then presenting them to appropriate regulatory agencies with a single voice."

The Board of Directors of GBBR Inc. is currently developing a policy on how it will respond to requests for advocacy or endorsement on particular issues. It is generally agreed that where jurisdiction is clear, the organization defer to those with the power and authority to make decisions in their respective domains. As explored below, the biosphere reserve's preferred role is to facilitate public dialogue on issues related to conservation and sustainable development and to provide a forum for building and enhancing social

capital and social networks (GBBR Inc., 2007), although it has had little opportunity to test that role.

The previous examples of governance, and the more detailed governance profile of organizations that contribute to the biosphere reserve's conservation function [Appendix VII] only begin to capture the jurisdictions that overlay any geographic landscape, and the complexity within which the biosphere reserve is nested and must navigate. In order to assess critically the role of the biosphere reserve using the conceptual framework from Chapter 5 (in terms of integration, collaboration and network formation), the following section explores the evolution of the Georgian Bay Biosphere Reserve both as a model for sustainable development and as a multi-stakeholder organization that aims to facilitate practical sustainability initiatives.

#### **8.4 Organizational Development of GBBR**

Designated by UNESCO in October 2004, the Georgian Bay Littoral Biosphere Reserve was the result of a seven-year nomination process of building support among local politicians, key bureaucrats and various stakeholder groups. Mr. Pat Northey, then president of the Georgian Bay Association<sup>27</sup> (GBA), developed the initial vision for the biosphere reserve when he met Dr. George Francis of the University of Waterloo at a

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<sup>27</sup> The Georgian Bay Association (GBA) was founded in 1916 and is a non-profit umbrella group representing 20 cottagers' associations and approximately 4,200 families on the eastern and northern shores of Georgian Bay and adjacent lakes and water bodies. The GBA engages in public education and advocacy on behalf of water-based communities and other stakeholders to promote stewardship of the greater Georgian Bay environment and its peaceful enjoyment (GBA, 2008).

1996 meeting on the Great Lakes Islands.<sup>28</sup> It was here that Mr. Northey was introduced to the concept of biosphere reserves and felt that the strong sense of place shared by people in eastern Georgian Bay would create new opportunities for continued ecological protection and local sustainable development.

Beginning in 1996, the Greater Bay Area Foundation, a charitable sister organization to the GBA, took the main leadership role in laying the basis for a biosphere reserve nomination and commissioned Dr. Norman Pearson in the development of a new vision for the “Georgian Bay Littoral” as a natural region supporting a diverse mix of users. The driving question for proponents was: “In a time of increasing population densities, government cutbacks and political reorganization, how can we preserve and enhance the unique landscape and culture of the Greater Georgian Bay Area?” (GBA Foundation, 1996). Long-standing concern among cottagers regarding ecosystem protection (including the impacts of recreational boating on water quality and wildlife, cage fish aquaculture, and the decline of recreational fishing) drove proponents of the biosphere reserve concept to conclude that: “the future economic success of the Littoral depends on sustainable tourism.” This has since become a guiding theme for the biosphere reserve’s work (section 8.4.2).

The proposal for a biosphere reserve was also seen to parallel the Ontario Ministry of Natural Resources’ (OMNR) Great Lakes Heritage Coast initiative in its goal of ensuring “the ecological and economic health of the Great Lakes Coast, and its communities for

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<sup>28</sup> See: Vigmostad, K. E. 1998. State of the Great Lakes Islands: An Executive Summary – June 1998, U.S.-Canada Great Lakes Islands Project, Department of Resource Development, Michigan State University.

future generations.” At the same time, Parks Canada was developing an ecosystem management plan<sup>29</sup> for southern Georgian Bay, in consultation with other levels of government and interested NGOs, and the GBA Foundation hired consultants to develop similar plans for the northern portion (Twelve Mile Bay to Killarney). Subsequently, the OMNR and the Nature Conservancy of Canada (NCC) undertook an *Ecological Survey of Eastern Georgian Bay* (Jalava et al., 2005). Proponents of the biosphere reserve proposal anticipated that once these plans from the economic development and conservation communities were complete, they would be included in the UNESCO nomination document and circulated for public comment. A year prior to the successful nomination, 23 people were indeed sent copies of the draft nomination for review and their comments were reflected in the final submission (GBLBR, 2004).

Key to the success of the biosphere reserve nomination process was communicating this vision to various different stakeholder groups. “The Littoral Project is a complex one, involving many independent organizations working together through different committees. ...Exciting and necessary as the Littoral vision is, it will be easy to get bogged down. We need one overarching concept that will unite these projects [noted above], while inspiring public and official support” (GBA Foundation, 1996).

In 1998, the GBA Foundation created a legal entity, the Georgian Bay Biosphere Reserve Incorporated, as a separate non-governmental body that was to coordinate biosphere

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<sup>29</sup> See: Zorn, P., and J. Quirouette. 2000. Design of a core protected areas network in the eastern Georgian Bay Region. In Proceedings of the Fourth International Conference on Science and Management of Protected Areas. Neil Munro et al., eds. Wolfville, N.S.: Science and Management of Protected Areas Association.

reserve activities among four major stakeholder groups: cottagers, boaters, permanent residents and Aboriginals. These groups are often referred to metaphorically by the Board as “keyholder groups” since each member holds a key to “opening doors” in their respective stakeholder communities. According to GBBR Inc. founder and president, Mr. Northey, the biosphere reserve concept and organizational structure brings formerly “warring factions” together. He notes:

The common bond that unites all keyholders and many individuals in the broader community is a shared strong, emotional, even spiritual attachment to the Bay and the need to protect it. The genius of the Biosphere Reserve concept is that it recognizes that the best protectors of a special place are those that earn their living, use the area for recreation, or rely on the ecological resources for survival. It follows that those who depend on the ecological resources of Georgian Bay understand that the primary objective of Georgian Bay Biosphere Reserve Inc. is to preserve and protect its ecological resources. It also follows that to earn a living within the area businesses must be sustainable and therefore environmentally responsible (GBBR, 2008: 5).

While the GBA Foundation financed the seven-year nomination consultation process at a cost of approximately \$250,000, “...it was a coalition of individuals representing Aboriginal people, cruising [transient] boaters, cottagers and permanent residents that was responsible for getting the [UNESCO] designation. Each individual Board member used their influence within their respective communities to expand the original coalition to include motions or letters of support.” (GBBR, 2008: 5). This coalition initiated extensive discussions with government officials at the municipal, provincial and federal levels and with people in community organizations across the four stakeholder groups.

Presentations about the biosphere reserve model were made to local municipalities, where some Councils were supportive of the nomination to UNESCO. Others were skeptical of

what they perceived as the special interests of cottagers interfering with local politics and potential development. A pamphlet of *Frequently Asked Questions* (GBA Foundation, 2003) adapted from materials used in the Frontenac Arch Biosphere Reserve's consultation process helped to dispel fears about the biosphere reserve designation. However, once trusted local champions were brought in to the process, political support was quickly forthcoming. As GBBR-3 recalls: "As soon as [this local resident] walked in to Council chambers, it was all about last night's curling game and the biosphere reserve wasn't really a problem for anyone anymore."

Likewise, support from the Ontario Ministry of Natural Resources (OMNR) was difficult to secure until a former bureaucrat involved with the Great Lakes Heritage Coast initiative was brought in to champion the biosphere reserve concept for eastern Georgian Bay. The personal relationship between this proponent and senior bureaucrats resulted in a swift endorsement by the Ministry. Employees at the local OMNR office in Parry Sound as well as the district office in Bracebridge, however, were strongly supportive of the biosphere reserve nomination and continue to act as advisors to GBBR Inc. in a variety of ways.

Unlike the provincial government's agencies, Parks Canada was able to provide early and enthusiastic support for inclusion of the park as a core area, commenting on the need for integration and multi-stakeholder collaboration across the landscape. In his letter of support, the park superintendent stated:

Co-operative management is essential, and while growth is inevitable in the area, the Biosphere Reserve would advance an integrated approach to land management

in the area, establishing a framework for conservation which complements the economic and social benefits of on-going development.

Stated co-operative management can only be attained when stakeholder groups have been consulted and are offering clear support. To this end, it is essential that proponents of the Biosphere Reserve engage regional and local government as well as affected First Nations, and that this engagement continues throughout the nomination process. (GBLBR, 2004: 42).

An Aboriginal Working Group, initially funded by the GBA Foundation, was formed to support the nomination consultation process. Several presentations were made to area First Nations, however, the personal and pecuniary interests involved failed to secure formal endorsement from any Band Councils. Upon UNESCO designation in October 2004, the GBA Foundation reduced its financial support of the biosphere reserve, and without an established financial base itself, it was impossible for the GBBR Inc. to sustain the consultation process proposed by the Aboriginal Working Group. Invitations to several Band Chiefs to appoint one of their members to the GBBR Inc. were declined. The group was eventually dissolved, leaving two Aboriginal members on the Board of Directors.

Beginning in 2003, several local residents in Parry Sound (the author among them) sought to raise public awareness about the biosphere reserve model and pending UNESCO nomination. A series of meetings was held that brought together small business owners in the recreation and tourism sectors, along with environmental groups, and other interested individuals. In November, a presentation was organized with guests from the Long Point Biosphere Reserve and honorary directors of the Canadian Biosphere

Reserves Association. This group of “permanent residents” eventually elected two representatives for the founding GBBR Inc. volunteer Board of Directors.

During this time historic conflicts between cottagers and boaters, including court cases and other hostilities, were somewhat resolved as the concept of the biosphere reserve spread the common goal of protecting a special landscape for everyone’s equal enjoyment. One boater commented at the time: “Boaters and cottagers have never agreed on anything until now. But this [biosphere reserve nomination] is something that we can all agree on” (GBBR-3). “If the various stakeholder representatives were prepared to start with a common concern, they could work backwards to address the issues that divide the various stakeholders. While overcoming the longstanding issues will not be easy, I suspect that if we start with the common objective of protecting the Bay, we will achieve much more than if we continue on the present track” (GBBR-3).

Gradually, GBBR Inc. received letters of support for the biosphere reserve nomination from Parks Canada and the Ontario Ministry of Natural Resources as noted, from the federal and provincial Members of Parliament, from five of the area municipalities, and from thirteen NGOs including: the World Wildlife Fund, the Nature Conservancy of Canada, the Federation of Ontario Naturalists, Chambers of Commerce and economic development organizations, boating and cottagers’ associations, and one Aboriginal tourism organization. The early attempts to engage First Nations were lost and the benefits of the UNESCO designation with respect to preservation of cultural heritage,

engagement of youth, and sustainable economic development, for example, were never communicated.

In February 2004, nine Directors and four Executive members were appointed to the GBBR Inc. in anticipation of a successful UNESCO designation. Together they confirmed the organization's structure, with two from each of the four stakeholder groups. They also developed membership classes (\$40 for individuals and \$100 for corporations), bylaws and other policies. Advisory members included core or buffer area managers from Parks Canada, the Ontario Ministry of Natural Resources, and the Eastern Georgian Bay Stewardship Council. As GBBR-2 explained: "We have park managers as advisors to our board. I think they may have felt threatened at the beginning, but now they understand us. With Environment Canada and MNR, you're never going to get high enough support – but through partnerships with frontline staff, they've been advocates for us" in terms of providing expertise, credibility, and modest funding.

With regard to the structure of the board, some members were concerned that "by creating an organization to address the warring factions, we are in fact entrenching those factions in perpetuity" (GBBR-1) and that the "keyholder" groups were largely tokenistic rather than an authentic reflection of wider community engagement. Another member felt that "as GBBR board members we are obligated to do what is best for the corporation and not for the organizations we might represent. Ideally we would be liaisons and communicate back to our various affiliations" (GBBR-2). To other members, the overall goal for the founding board was to engage individuals who were credible leaders within

their keyholder groups, to try to define issues in such a way that broad consensus about conservation and development could be achieved (GBBR-3). Board members from 2007 and their broad affiliations are indicated in Table 8.4.

<b>GBBR Board of Directors</b>	<b>Affiliation</b>
Canadian Yachting Association (boater)	Civil society – NGO
Eastern Georgian Bay Stewardship Council (advisor)	Quango
Formerly with Ontario Ministry of Natural Resources	Government – provincial
Formerly with Ontario Parks (advisor)	Government – provincial
G'Nadjiwonki Aboriginal Tourism Association	Aboriginal; Private sector
GBA Foundation (cottager)	Civil society – NGO
Georgian Bay Association (cottager)	Civil society – NGO
Georgian Bay Islands National Park (advisor)	Government – federal
Henvey Inlet First Nation resident	Aboriginal; resident
Ontario Sailing Association (boater)	Civil society – NGO
Parry Sound resident	Civil society – resident
Parry Sound resident	Civil society – resident
Port Severn Chamber of Commerce	Private sector

Table 8.4. Board members for GBBR Inc. and their broad affiliations in 2007

In October 2004, following the successful designation of the Georgian Bay Littoral Biosphere Reserve, the GBBR Inc. undertook a strategic planning workshop that involved: the Seven Grandfather Teachings in Ojibway culture, the three functions of UNESCO biosphere reserves, and lessons from the Frontenac Arch Biosphere Reserve (designated in 2002). The notes from this session revealed a potential role for the GBBR in governance for sustainability:

The GBBR Inc. is non-regulatory in nature. As an “umbrella organization” it will recognize and respect other mandates and relationships that exist within the biosphere reserve and beyond. It will work to facilitate an understanding of the common bond that remains unrecognized through these “areas of interest.” GBBR Inc. will exercise leadership through the power of consensus and moral suasion. This authority is derived from the common emotional attachment to the Bay that is shared by GBBR’s stakeholder groups, and also comes from the unanimous support the UNESCO designation received from other “keyholder” organizations. (Pollock, [field notes](#), 2004).

The next stage of organizational development was communicating an organizational identity and building a presence throughout the region. Information and membership brochures were produced and approximately 10,000 copies of a special 8-page insert (written by the author) explaining the biosphere reserve concept were distributed as a free publication of the Parry Sound North Star newspaper. The official public launch was then held at the end of April 2005, bringing together members of all stakeholder groups, conservation organizations, economic development groups, and all levels of government.

The launch was an occasion to acknowledge the support of the GBA Foundation over the years and to celebrate the international UNESCO designation, with presentations by the Canadian Commission for UNESCO, the Canada/MAB Committee, the federal Member of Parliament, and a keynote slide show about world biosphere reserves delivered by the author. A public workshop the following day engaged a smaller group of people in identifying common areas of concern and opportunities for collaboration, such as the need for education about the high natural capital and high biodiversity of the region, inclusion of youth in sustainable development, and the need for training in the ecotourism sector (Pollock, [fieldnotesfield notes](#), 2005).

In 2006, the GBBR Inc. created its first two committees: a Conservation Committee and an Economic Development Committee. Each one developed preliminary work plans that have become the focus for the biosphere reserve's activities (as described in sections 8.4.1 and 8.4.2). That same year, the biosphere reserve secured a grant from the Ontario Trillium Foundation for conducting workshops with its representative stakeholder groups,

with the intent of building to a public conference on sustainable community development (following the model from Long Point Biosphere Reserve). It also received seed funding from Parks Canada to develop a website. And a provincial job creation program allowed GBBR Inc. to employ three people in the area of tourism research and marketing.

The remainder of 2006 was dedicated to securing grants for 2007-2008, including those from the Ontario Ministry of Natural Resources Species at Risk program, Environment Canada pilot project funding under the Lake Huron Framework for Community Action, MNR project funding, a contract for the GBA Foundation, and a FedNor youth internship. Since 2006, the GBBR Inc. has managed over \$100,000/year from short-term government grants but aims to become financially self-sustaining from three additional sources of revenue: fee for services (e.g., project management, consulting, facilitation); building memberships and sponsorships; and payment for use of the biosphere reserve logo, particularly in the tourism sector. An example of funding received in 2007 appears in Table 8.5.

<b>Year</b>	<b>Funding Source</b>	<b>Purpose</b>	<b>Amount</b>
2007	Parks Canada via CBRA	Ecological integrity; website	\$7,500
2007	OMNR – Species at Risk	Education; posters and DVD	\$69,000
2007	Parks Canada	CBRA conference	\$5,000
2007	Community Business Development Corporation	CBRA conference	\$5,000
2007	Ontario Parks	CBRA conference	\$500
2007	Ontario Trails Council	CBRA conference	\$250
2007	Environment Canada & OMNR - Lake Huron Framework for Community Action	Pilot Project	\$34,000
<b>Total</b>			<b>\$121,250</b>

Table 8.5. Funding sources for GBBR Inc. activities in 2007

In 2007, volunteer directors conducted a second strategic planning session, this time with an outside facilitator, to confirm the identity and purpose of the organization and to bridge its seemingly disparate committees, harmonize potentially conflicting goals, and identify priorities for action [Table 8.6]. The Board adopted the following vision: “To be an international model for sustainability that preserves the values of the Georgian Bay Biosphere Reserve.” And mission: “To contribute to the conservation of biodiversity and sustainable development by fostering a shared responsibility for the Georgian Bay Biosphere Reserve for the next seven generations.” The focus, however, was on the mutually reinforcing activities of network building, program development, and internal operations.

In June 2007, the GBBR Inc. hosted the annual meeting of the Canadian Biosphere Reserves Association with representatives from across Canada and observers from biosphere reserves in Germany, Sweden, and the Czech Republic. Not only was this event used to showcase the biosphere reserve to visitors, but also a public open house, media coverage and website launch each helped to raise the profile of the biosphere reserve for local residents and local, provincial and federal politicians.

Driven only by volunteer board members, the GBBR Inc. struggles with organizational development, especially with regard to financing its programs and operations. To date, the GBBR Inc. has pursued project funding on an opportunistic and ad-hoc basis.

Securing staff and establishing an office is seen as highly desirable as they would provide the capacity needed for networking. A business plan is currently in development to devise a longer-term strategy for diversified revenue streams.

Focus	Goals
Network Building	To establish the presence of GBBR To develop partnerships & linkages To promote consensus To create a communications program To bridge communities of interest
Program Development	To promote healthy communities within the Biosphere Reserve: through the work of the conservation and sustainable development committees and strategies; holding annual meetings with stakeholders and pooling resources for projects with mutual benefits. To encourage the participation of educators and researchers and to assist the work of government and NGOs.
Operations	To establish an effective organizational structure with a home base in Parry Sound; an organizational structure for partnerships; a business plan for revenue generation; and financing of human resources and annual operations.

Table 8.6. The goals of the GBBR Inc. adapted from the 2007-2010 Strategic Plan

As described below, the other challenges for the biosphere reserve are: bridging the goals of its conservation and economic development committees, communicating an integrated vision of sustainability to the public, and collaborating more effectively with potential partners. The following sections summarize the major activity areas of the GBBR Inc. in an effort to identify elements of the conceptual framework related to the role of biosphere reserves in governance in terms of integration, collaboration, and networking.

#### 8.4.1 Conservation Committee

The Georgian Bay Biosphere Reserve Inc. established a five-member conservation committee made up of volunteer directors and advisors to the board. In its first four years, the committee organized or attended annual conservation stakeholder meetings, starting with a technical meeting of government agency representatives and then consulting more widely with non-governmental organizations and community groups to help define the common interests and needs for conservation in eastern Georgian Bay.

A listing of agencies and organizations involved with conservation activities is provided in Appendix VII to help address the research question about the role of the biosphere reserve in governance. As noted in section 3.3.4, it is impossible to capture the full range of players involved in such a complex governance arena; however it is illustrative of this complexity and for the purposes of this research, it is roughly comparable with the other two case studies. It identifies the range of players with which the biosphere reserve interacts and helps to assess the particular role(s) played by the GBBR in advancing the conservation function of biosphere reserves – which is seen to equate with the principle of ecological integrity as an element of governance for sustainability (Gibson et al., 2005; Meadowcroft et al., 2005).

The first meeting of conservation stakeholders was held in Killbear Provincial Park in November 2005. The workshop was hosted by a senior manager of Ontario Parks and facilitated by a GBBR Inc. board member. It brought together 32 participants from 13 government agencies and NGOs to present their current work, activities and areas of interest. Invitation to the meeting from the biosphere reserve said:

Hopefully, increased communication and understanding of the mandates, interests and projects being undertaken by the various resource agencies and NGOs within the biosphere reserve, could contribute to improved integration between projects and initiatives (Pollock, [fieldnotesfield notes](#), 2005).

This workshop made four major contributions. They were: (1) clarifying the concept of the biosphere reserve; (2) exchanging information about current projects and research needs; (3) identifying gaps and needs for the conservation community; and, (4) sharing resources, such as databases and technical tools. As an example, there were five

organizations in attendance involved with wetlands – some of which were unaware of the others. In the closing discussion, the GBBR Inc. solicited suggestions from participants on “priorities for action” and “potential roles” for the biosphere reserve to play. These were distilled in a discussion paper for the meeting held in 2007, summarized below.

The Georgian Bay Islands National Park (GBINP), the Nature Conservancy of Canada (NCC), and the Georgian Bay Land Trust (GBLT) hosted a similar gathering for the conservation community in July 2006. Interestingly, 22 participants from 14 organizations attended this workshop in Honey Harbour, eight of whom had attended the biosphere reserve’s 2005 workshop in Killbear Park. This next workshop met two more specific needs:

- (1) It was a direct response to the Cottagers’ Associations involved in Community Planning that requested “natural heritage values information” for their process to inform municipal Official Plans.
- (2) It provided a forum for the NCC to present, test and refine its *Eastern Georgian Bay Natural Area Plan* – a guiding document for establishing NCC and GBLT conservation priorities.

Although the Georgian Bay Biosphere Reserve Inc. was invited to co-host this event, it had been entirely organized by the leading conservation organizations in the region and was specifically tied to the national and provincial priorities of the NCC. The event was seen to build on and inform current conservation initiatives at a regional scale and to solicit insights from residents and cottagers for local implementation. As the invitation explained:

Many organizations are working within the Eastern Georgian Bay Coast to conserve the important biodiversity of this region, and several planning initiatives are currently in progress. We are hosting a workshop that will provide a forum for

various groups and organizations to review their planning efforts along the Eastern Georgian Bay Coast. It will provide an opportunity to create a shared vision of conservation success, and develop coordinated strategies to protect biodiversity.

The objectives were:

- To share progress of conservation planning projects within the study area and ideas on coordinating our efforts.
- To determine what environmental information is available to make conservation decisions, and how it may be used.
- To review NCC's draft Eastern Georgian Bay Natural Area Conservation Plan.

Following a detailed NCC presentation on natural heritage values, feedback was solicited regarding the validity, accessibility and usability of the data. The resulting recommendations were for conservation organizations to target nine specific areas: (1) native and invasive species (2) old growth forest (3) islands (4) inland wetlands (5) coastal wetlands (6) sand and cobble beaches (7) acidic rock barrens (8) colonial water birds and (9) near-shore tributaries. In addition to these ecological targets, it was widely agreed by participants that the archipelago as a whole should be better understood for its functional dynamics and landscape-scale integrity (Pollock [fieldnotesfield notes](#), 2006).

Participants also noted that active players in research, monitoring and stewardship should communicate their work and progress on a regular basis in order to build partnerships and avoid duplication. Participants provided three strategies for moving this agenda forward within the conservation community: (1) information sharing, (2) networking, and (3) community mapping (i.e., a visioning exercise to develop interactive websites that reflect local knowledge, heritage, conservation and sustainable development projects).

Finally, it was recognized that there is a need for some kind of coordinating or networking body. Participants suggested that, with adequate resources, the Georgian Bay Biosphere Reserve might be able to act as the umbrella for information sharing to help form such a network. Collectively, for example, participants could identify conservation goals and create a “business plan for biodiversity” to show governments, planners, and charitable donors.

In February 2007, the GBBR Inc.’s Conservation Committee held their second meeting at Killbear Provincial Park, with 24 participants from 15 stakeholder organizations, including Moose Deer Point First Nation, with the intention of hearing what their needs and priorities were and what the role of the biosphere reserve should be. As stated in the workshop invitation, the purpose of the meeting was:

To review the Draft Conservation Strategy [discussion paper], establish priorities for conservation in the Georgian Bay Littoral Biosphere Reserve, and advise the GBBR Inc.’s Board of Directors about how to support the conservation community in implementing their priorities.

Six potential roles of the biosphere reserve were presented in the discussion paper (prepared by the author) based on comments received at all the previous workshops [Table 8.7]. The final function identified by stakeholders was described as providing a “big picture perspective” by keeping track of everything going on with relation to conservation and sustainable development across the landscape or region. This perspective reflects Jessop’s (2002+1998) concept of metagovernance and a proposal for biosphere reserves to undertake a type of “governance watch” (Francis, 2007a), as described below.

Potential Roles for the GBBR Inc.	Sample Activities
1. Coordinator	Monitoring, data, workshops, education
2. Broker	A neutral forum, partnerships, funding
3. Node	In a network (communications, outreach)
4. Resource	Models, pilot projects, best practices
5. Voice of the Conservation Community	With UNESCO credibility & obligations
6. Big Picture Perspective	Keeping track of “who’s doing what?”

Table 8.7. Potential Roles for the GBBR Inc. to fulfill UNESCO’s conservation function

According to Francis (2007), the biosphere reserve’s conservation committee, in consultation with stakeholders, could undertake a “governance watch” function to:

“...ascertain [i] the collective “scope” of what’s being done in order to detect possible gaps, i.e. important functions not being performed or geographic areas not covered; and [ii] “depth” of what’s being done, exemplified by the completeness of major implementation programs (i.e. clear policy direction, program funding, stated targets or timetables, periodic progress reports or evaluations, transparency in the sense these are open and available to the public, and coherence of the results). The “Watch” group might then focus more on shortcomings identified in the “what’s being done,” along with major factors that are slowing things down, e.g. governance or process issues, funding problems, opposition for whatever reasons, and/or insufficient scientific understanding of what’s to be “managed.”

In the discussion paper (GBBR, 2007), this “big picture perspective” was explained in two paragraphs as follows:

Groups like the GBBR Inc. have to work within much larger governance arrangements, especially to keep informed about major undertakings in their area that reflect the ideals of a biosphere reserve. Much of what is underway will have its own governing framework with some mix of government agencies and programs, the private sector, and civil society (NGOs) guided by statements of goals and objectives (and sometimes targets) for their collaborative endeavours (e.g., the *Great Lakes Water Quality Agreement*). Within the Georgian Bay Littoral Biosphere Reserve, the 21 core and buffer zones (national, provincial parks and conservation reserves) could be assessed for their extent of formal protection, volunteer stewardship projects, research, education, and monitoring.

Policies, laws and decision-making by stakeholder groups and partners with an interest in the ecosystem also need to be evaluated for their effectiveness, and adjusted as better information and understanding is secured” (Jalava et al., 2005).

This “big picture perspective” would help to assess if biodiversity is being protected throughout the biosphere reserve as a whole. Formal governance documents such as the Ontario Parks and Conservation Reserves Act (2007) could also be used for tracking the breadth and depth of conservation activities within the region. This is already attempted for national parks through *State of the Park* reporting on ecological integrity.

Each of these potential roles gave rise to specific strategies or approaches with which they could be fulfilled: communication and information sharing, research, monitoring, environmental reporting, public education, organization, planning, and project delivery (e.g., mapping, inventories, or modelling). However, “Integrating conservation with sustainable development is the overarching purpose of UNESCO biosphere reserves,” and the biosphere reserve could play a role in governance by supporting Community Sustainability Plans (such as that led by the Severn Sound Environmental Association or those of cottagers’ associations for Official Plans). Along with existing government policy and regulation, these types of community-based governance processes will certainly influence both conservation and development outcomes along the eastern coast of Georgian Bay.

In fact, sustainable development was the theme at the 2007 Conservation Stakeholders’ meeting that sparked the most discussion. It led to a lengthy debate about the role of the biosphere reserve in terms of advocacy for sustainable development, with references to some classic conservation versus development conflicts in the region. One participant felt that “Sustainable development is everything and means nothing. When the rubber hits the road, in terms of an 18-hole golf course and 500 condominiums on 400 acres of land [in

Port Severn], then how do you communicate [the biosphere reserve's] mission and values? How can the biosphere reserve stay silent?" (Pollock [field notes](#), 2007).

Another participant responded with: "Staying neutral can be very powerful, as you [the biosphere reserve] are the only group to bring parties into one room and facilitate, and help them come to an agreement. The biosphere reserve can serve as the one group that is the overarching group; this is a unique opportunity and something that is missing." The previous speaker then acknowledged that: "Taking sides is dangerous. The Ontario Municipal Board may be the ultimate arbiter [of the Port Severn development proposal], and if you [the GBBR Inc.] were called as an expert to give testimony, what would you do?"

To this, a participant from government responded:

The Port Severn case is difficult. The biosphere reserve is in its infancy and so it is hard to expect it to have a well-defined role. Over the longer term it could help municipalities develop their knowledge and vision about long term planning, so we can try and imagine the influence of the biosphere reserve 50 years from now. In the short term, all you can do is bring all the information to the table: gather the relevant information and make it available. The biosphere reserve can help to ensure that the inventory, monitoring, and research that can inform development are being done: this is the true "value-added" to all the projects going on out there.

Another government scientist agreed: "The biosphere reserve can provide credible, unbiased information, frame issues and look at the implications. You can market this coast to the regulators; that's the possible jewel in all this. Getting mired in advocacy, as an organization of such diversity, it is hard to have one voice."

A representative from the Georgian Bay Association (GBA) then urged the GBBR Inc. to craft a set of guiding and operating principles: “In real world situations you are going to have to choose whether to lend your brand name to initiatives or not, then you carry responsibility with that. The GBA was set up to take a brokering role in the past, but it couldn’t do it.” To which a member of the GBBR Inc. responded: “GBA has chosen to be an advocate. The biosphere reserve is better positioned as a neutral forum.”

The most vocal critic eventually concluded that: “a proactive advocate is not appropriate for the biosphere reserve. Instead it can be a broker and provide a forum and the required resources. The biosphere reserve still needs to articulate its mission and values in very functional ways, so the rest of us can use the biosphere reserve in how we articulate the issues. The fact that the biosphere reserve even exists is of huge value to us. It has raised the whole profile of this region and our work to another level.”

Based on this discussion, workshop participants recommended that the GBBR Inc. should:

- Articulate its values and define its terms (e.g., sustainable development);
- Develop clear criteria to determine its involvement in particular issues; and,
- Prepare a communications plan to share these values with the broader conservation community, the public, and decision-makers.

Responding to these requests, the GBBR Inc. pursued a number of joint projects and funding applications between 2006-2008. Building on existing programs for Species at Risk in the region, for example, the biosphere reserve championed proposals for new provincial and federal funding to support a Species at Risk coordinator for 2007-2008.

The coordinator worked closely with multi-stakeholder Species Recovery Teams to produce a number of educational materials, including a DVD on working in Massasauga Rattlesnake habitat that was delivered to several area municipality public works departments, the Ministry of Transportation, Hydro One, and other target groups. The project received a second year of support from the province to work more closely with community groups on practical initiatives to restore habitat.

Over the same period, the biosphere reserve was selected by Environment Canada as one of three projects in the Lake Huron basin for a 2007-2010 pilot project under the Lake Huron-Georgian Bay Canadian Watershed Framework for Community Action (the equivalent of a Lake Management Plan for other Great Lakes). It was recognized that the biosphere reserve could provide an informal governance mechanism for building capacity among its partners for stewardship activities. Based on the outcomes from the 2005-2007 conservation stakeholders' meetings, the coordinator for this project synthesized major scientific and background documents into a "State of the Bay" report, developed a survey of "who's doing what?" as an inventory of conservation activities, began drafting the broad framework for a Conservation Action Plan, and profiled the work of conservation stakeholders' projects on the GBBR Inc. website.

The first pilot year concluded with another GBBR conservation stakeholders' meeting in March 2008, but extended invitations to local environmental groups and youth for a total of 75 participants from 24 organizations, including Shawanaga First Nation. After presenting GBBR's accomplishments to date, the day was dedicated to participants

defining topics of their choice within which to develop an “action plan” – which together would form the basis of the Conservation Action Plan for the GBBR.

The six discussion groups that emerged at this workshop were for: (1) species at risk, (2) environmental reporting (i.e., adapting the State of the Bay report for a public audience), (3) Crown Land stewardship initiatives (such as the multi-stakeholder collaboration for management of Franklin Island), (4) wetlands and water levels, (5) a Biosphere Action Group dedicated to Community Based Social Marketing<sup>30</sup> campaigns (for local food and anti-idling), and (6) sustainable tourism. The GBBR’s Conservation Action Plan to support the work of each of these groups is currently in development.

#### **8.4.2 Economic Development Committee**

Prior to the first board meeting of the GBBR Inc. in 2004, a few individuals with experience in economic development and tourism marketing began to explore the use of the biosphere reserve “brand” as the focus of a sustainable tourism initiative. This later became the GBBR Inc.’s Economic Development committee (called by some Board members, the Business Group, and by others, the Sustainable Development committee). In 2006, the GBBR Inc., in partnership with G’Nadjiwon Ki Aboriginal Tourism Association, secured a grant from the Ministry of Training, Colleges and Universities (formerly Service Canada) under the Employment Ontario Job Creation Partnership to hire three staff. They were to create a database of tourism operators, conduct stakeholder workshops, and to develop a sustainable tourism plan.

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<sup>30</sup> Following McKenzie-Mohr and Smith’s (1999) *Fostering Sustainable Behaviours*.

Like the Frontenac Arch Biosphere Reserve, the GBBR proposed to follow the Ministry of Tourism's Premier Ranked Tourist Destination Framework. Over 350 potential business partners were identified in the areas of: Accommodations, Attractions, Natural Assets, Festivals & Events, Food & Beverage, Marinas and Parks and Trails. And 75,000 brochures, outlining the biosphere reserve concept and as a tourism destination were produced. A number of one-on-one meetings with business owners were held and then a series of small workshops were offered in early 2007, including: a Demand Generator workshop, a Market Readiness workshop, and a Community Arts workshop. The goal of these sessions was to facilitate dialogue among tourism operators and promote eventual collaboration on a regional sustainable tourism plan.

As one member of the Economic Development Committee explained:

The strategy was to bring tourism operators together and let them define the challenges within their industries, find solutions, and then build community consensus around how to proceed. A critical part of the process was to ensure that the operators understood that they must take the lead role in implementing any future program that is created. They also understand that Georgian Bay Biosphere Reserve will not displace existing service providers, such as provincial or regional Tourism Destination Marketing Organizations such as Georgian Bay Country (GBBR-4).

Despite this understanding at the GBBR Inc. board level, several stakeholders withdrew from the consultation process, confused about the role of the biosphere reserve, in what they perceived as duplication of existing government services and marketing agencies. Those in the ecotourism sector, in particular, felt that there was adequate promotion of eastern Georgian Bay as a tourism destination and that the biosphere reserve should be

trying to manage and mitigate its effects – not simply use the biosphere brand to enlarge “demand” (Pollock [fieldnotesfield notes](#), 2006).

Rather than trying to have existing operators, such as boat cruises, sightseeing aircraft, provincial parks, and all-terrain vehicle (ATV) tours develop new tourism packages using the biosphere reserve brand (or logo) by subscribing to a set of sustainable tourism principles that the biosphere reserve had no authority or capacity to oversee, it was felt that the biosphere reserve should act as a facilitator for this industry to become more sustainable, by endorsing national sustainable tourism guidelines and by promoting existing industry accreditation programs, such as the Clean Marine program, developed by the Ontario Marine Operators Association (Pollock, [fieldnotesfield notes](#), 2007).

However, the Economic Development committee continued to pursue the notion that the GBBR Inc. was positioned to develop its own accreditation programs, perhaps in partnership with Canadore College, in order that tourism operators can “deliver the biosphere message before they are permitted to be members” of a proposed Sustainable Tourism Consortium. To this end, a consultant was hired to develop a business model for tourism packages within the biosphere reserve that would accrue membership and marketing fees to GBBR Inc. (Coxworth, 2007).

Based on these projections, the GBBR Inc. met with representatives of the federal economic development funding agency for northern Ontario (FedNor) in October 2007 and explained:

A Sustainable Tourism Consortium (STC) would include various local tourism operators, Group Tours members (GT) such as bus operators, and Fully Independent Traveller (FIT) members which would be typically a business

focused on individual travellers or families. In order to sell tour packages, one must be registered with TICO, the Tourism Industry Council of Ontario. We [the GBBR Inc.] need to investigate where the Consortium would be housed, whether to retain the enterprise in house or to spin it off at some point or to set up an entirely independent operation.

Various tourist operators have expressed support for the role being played by the Biosphere [Reserve]. Seven operators have already agreed to sign Letters of Intent and have agreed to draft guidelines for their operation. These entities would pay a membership fee and be represented by the marketer on the web site, at trade shows and directly through an office. They would start selling packages beginning in 2008 and attending several trade shows over the winter. (Pollock, [fieldnotesfield notes](#), 2007).

In response to this development, other members of the GBBR Inc. Board of Directors reacted very strongly against the signing of agreements with individual business operators. The reasons for this were varied: the board had no policy on entering partnerships with the private sector; only seven of 350 potential partners were engaged in the consultation process; the structure and financing of the proposed Consortium was unclear; and principles for Sustainable Tourism had not been yet been endorsed by the Board. Moreover, the seven operators that were the most keen to use the biosphere reserve brand were perceived as offering some of the least sustainable forms of recreation in the region.

One person with experience in tourism marketing observed that the GBBR Inc. was “getting too involved in a hands-on commercial enterprise; it should be considered as an ‘incubator’ project that will not be kept or permanently expanded as part of GBBR. In the long term, we should be exploring support for a marketing collective with Ontario’s other biosphere reserves. ... This longer term plan would protect GBBR’s role as catalyst [for

economic development] and defend our current short-term involvement in direct tourism sales and marketing” (Pollock [fieldnotesfield notes](#), 2006).

It was widely agreed by the board that the GBBR Inc. could not endorse individual business operators, but would rather focus on endorsing the industry standards and accreditation programs that already existed, and where there lacked such programs, encourage government and industries themselves to have these developed. The general idea was to “raise the bar” across all forms of tourism in the biosphere reserve and to promote the Sustainable Tourism Guidelines developed by Parks Canada and the Tourism Industry Association of Canada in 2005, which were adopted by the GBBR Inc. after much deliberation by the Conservation Committee.

At the same time, a separate community-based initiative was underway to develop a rugged coastal hiking trail along the east coast of Georgian Bay, from north of Pointe au Baril to the French River, as part of a shared vision of sustainable ecotourism within the Georgian Bay Biosphere Reserve. The proposed Georgian Bay Coast Trail would be modelled on the success of the popular West Coast Trail in British Columbia, engaging coastal First Nations in trail development and management, and stimulating a projected \$2 million tourism industry. The GBBR Inc. showed modest support for the initial proposal in 2006, but by the conservation stakeholders meeting in March 2008, members of the Economic Development Committee were enthusiastic about the trail as it represented the integration of conservation and economic development and could become the flagship project for use of the biosphere brand.

### 8.4.3 Education Advisory Committee

The most recent development for the Georgian Bay Biosphere Reserve has been the employment of an intern to support administration, communications, and education. Her passion for “sustainability education” led the GBBR Inc. Board to create an Education Advisory Committee. A preliminary meeting was held in May 2008 with 15 educators from Parry Sound to identify the main themes and opportunities for sustainability education. Participants represented elementary, secondary, and post-secondary levels of education, along with school administrators, adult and Aboriginal educators and people interested in linking ecology and the arts.

Following designation of the biosphere reserve by UNESCO in 2004, several teachers undertook projects with their classes to explore the biosphere reserve concept. The Grade Five elementary students produced a book called “Life by Georgian Bay” which captured their sense of place, the unique ecology of the region, and human activities and livelihoods (e.g., swimming, hunting, ice-fishing, cross-country skiing, snowmobiling, kayaking, camping, etc.). The Grade Twelve secondary students used the concept to explore governance and stewardship of Crown Land through role-playing multi-stakeholder negotiations. In 2008, a senior undergraduate field course on “UNESCO Biosphere Reserves as social-ecological systems” was developed and taught (by the author) for the University of Waterloo.

Others in the community see the biosphere reserve as an opportunity for a cultural celebration of place, and look to artists, authors, songwriters and musicians to “move the

biosphere reserve concept from passive to active” (Pollock [fieldnotesfield notes](#), 2008). Aboriginal educators see the need to reconnect students and their families with nature, use traditional knowledge and skills to build a sense of identity and pride among youth from First Nations communities. Adult educators note that the majority of First Nations in Parry Sound is socially and economically disadvantaged; they argue that the poor and marginalized will not be interested in what they perceive as the biosphere reserve’s environmental agenda.

The group of artists and educators concluded that the biosphere reserve should not only be a celebration of place and culture, and reconnect residents with nature (“the Bush and the Bay”) but also be actively promoted as the reconciliation of ecosystem protection with socio-economic livelihood opportunities. To many of these educators, the biosphere reserve represents a philosophy about lifestyle choices and should become central to the community’s identity. “The biosphere reserve is about rocks and trees *and* windmills” and provides “the best classroom in the world;” “we want it to be a place where our kids will stay or come back to” (Pollock [fieldnotesfield notes](#), 2008) –a strong theme among the rural residents.

These educators identified the GBBR as a funnel for resources (e.g., funding for projects and programs, such as the children’s Water Festival held in May 2008, or the costs of buses for field trips) and as a network to connect people and activities throughout the biosphere reserve. Several people noted that the UNESCO biosphere reserve is a recognized international brand that provides a high degree of credibility for their work.

The GBBR Inc. was then tasked with developing an online list of resources for educators, including programs, curriculum materials, local speakers, and so on.

It was also proposed that materials and models from other biosphere reserves be used locally. Specifically, curriculum from the Niagara Escarpment Biosphere Reserve and the Clayoquot Biosphere Trust plus school board partnerships from the Frontenac Arch Biosphere Reserve will be adapted for use in Georgian Bay. Following a professional development day for teachers in the Near North District School Board, the GBBR Inc. intern will develop and promote new curriculum reflective of local ecological knowledge, starting with elementary schools. Other suggestions included: ecotourism courses at the secondary and college levels; adoption of the biosphere reserve concept by the arts community through existing music festivals, art studio tours, and performing arts centres. And over time, a community information centre and an academic field campus or research institute could be developed to facilitate education, research and training at all levels and across disciplines.

## **8.5 Case Study Analysis**

This section draws on the experiences of the Georgian Bay Biosphere Reserve to reflect on each of the three dimensions of the conceptual framework about environmental governance and the role of biosphere reserves in sustainable development. To what degree the GBBR provides a model for integrated sustainability, uses collaborative modes of governance, and supports governance networks are each explored below.

### 8.5.1 Georgian Bay as a Model for Sustainability

To what extent the Georgian Bay Biosphere Reserve provides a model for integrated sustainability is difficult to assess given the relatively short history of the UNESCO designation and evolution of the local organization. However, it is worth exploring to what extent each component of the framework (numbered in parentheses) is reflected in the Georgian Bay experience. In brief, the GBBR has struggled with (1) the integration of the conservation and sustainable development functions due to its divided constituency and its divisive committee structure, as explained below. However, it does tend towards (2) a cross-scale perspective, particularly in the ecological interpretation of the “Littoral” across the three zones and in the GBBR Inc.’s explicit mission based on Ojibway teachings of protecting Georgian Bay for the next seven generations.

Indeed, this long-term vision is supported by (3) both scientific and cultural interpretations of the landscape: a globally significant ecosystem matched by an enduring sense of place of First Nations and many cottagers, boaters, and local residents. And although the GBBR is committed to sustainability, (4) specific principles and values remain largely undefined and therefore it is difficult for GBBR Inc. to engage others. The biosphere reserve organization has always attempted to engage a wide range of stakeholders, yet it has succeeded only within the fairly closed conservation community; it has failed to engage Aboriginal people in a meaningful way and has played only a marginal role in steering local governments towards sustainable development. Nevertheless, there has been a significant amount of (5) social learning that has resulted

from the nomination process, from consultations with stakeholders, and from teaching people about the biosphere reserve model and its objectives.

To elaborate on integrating conservation and sustainable development, the initial proponents of the biosphere reserve were attracted to the UNESCO ideal of “balancing people and nature.” This privileged group of cottagers foresaw the pressures of development on the ecological integrity of the region and on the “wilderness” character of Georgian Bay. Some were also sensitive to the economic dependence of coastal communities on tourism, noting: “a lot of wealth flows through Parry Sound but none of it seems to stay” (GBBR-3). Proponents were keen to encourage sustainable development because it was recognized that those who live and use the biosphere reserve for recreation are also likely to be its strongest protectors (GBBR, 2008).

At the same time, conservation agencies and organizations were strongly supportive of an international designation that would enhance the credibility of their work (i.e., protecting a globally unique ecosystem in the world’s largest freshwater archipelago), especially with government funding agencies and private donors. The original vision for the “Georgian Bay Littoral” was driven by environmental concerns for protection of the Bay. And the biosphere reserve itself was seen to provide an overarching framework for coastal conservation that could potentially complement economic development, if it were in the form of tourism rather than residential, commercial or industrial development.

Due to the privileged position of the proponents in the GBA Foundation, the biosphere nomination process was widely interpreted by other groups as a NIMBY exercise to restrict development and protect the privileges of an elite group. Bringing other stakeholder groups – boaters, First Nations, and permanent residents – “under one tent” was therefore an essential exercise for integrating perspectives and developing a shared vision for “the Littoral.” It also gave the nomination process the legitimacy that it required by UNESCO, despite the subsequent decline of Aboriginal participation.

To what extent the GBBR Inc.’s own structure supports integration among the three functions of biosphere reserves is debatable. On the one hand, the committees set up by GBBR Inc. for conservation, economic development, and education are a good reflection of how a biosphere reserve organization might fulfill the three functions of the UNESCO model. The conservation committee makes a concerted effort to engage the wide range of government agencies and NGOs within the conservation community, while the economic development group attempts to connect with a diverse private sector. Each committee draws on the expertise and social networks of its members to facilitate dialogue within their respective domains.

On the other hand, the GBBR Inc. may have inadvertently deepened existing silos within the biosphere reserve, particularly in the division of environment and development. Each group has its own language and culture that is difficult for the other to interpret or equate (e.g., the terms “ecological integrity” or “demand generators” that are unique to each domain). The expert-driven nature of these silos is useful for internal networking but

without someone to bridge and harmonize the objectives of the two committees, each has established its own trajectory with rather divergent goals. This risks creating a divisive, rather than a common, vision for the biosphere reserve and may lead to a schizophrenic organizational identity in the eyes of stakeholders, funders, and the public. Promotion of “best practices” among existing industries (e.g., marinas) and new ecotourism initiatives, such as the Coast Trail, offer some possibility of reconciling the two domains and indeed, introduces a new discourse of conservation *as* sustainable development.

Despite regular communication with various organizations and the media, there is still a great deal of uncertainty about what the biosphere reserve “stands for” in terms of its principles and objectives. Likewise, the definition of “sustainable development” and the role of the GBBR Inc. in such developments remains unclear. Although biosphere reserve volunteers and stakeholders may be clear about the three functions of the UNESCO model, their wider interpretation, implementation and integration are not. As GBBR-2 explained: “People are only somewhat familiar with us. They hear about the biosphere reserve but they don’t really understand it. What we do is not concrete enough; there is too much conceptual stuff. People always ask: what do you actually *do*?” While the UNESCO designation is a powerful rhetorical tool, and the desired role of the local organization has been articulated in its strategic plan, it has not had enough time to establish an “umbrella” role for facilitation and networking (detailed in section 8.5.3).

Interestingly, the GBBR Inc.’s turn to tourism marketing is a cause for concern to some members of the GBA Foundation and the Georgian Bay Land Trust. Rather than

providing a governance tool for environmental protection, the GBBR Inc. was seen by some to betray original expectations and therefore abandon its conservation function in favour of a local economic development agenda (Pollock [field notes](#), 2006).

Without an explicit and shared definition of sustainable community development that is distinct from traditional models of economic development, including tourism, the GBBR Inc. may continue to alienate potential partners and current participants.

The 2007-2010 strategic plan was an attempt to integrate the objectives of the two committees, however, the lack of consensus about how to pursue sustainable tourism or what the GBBR Inc.'s role should be has hindered effective progress. As one member observed: "We still do not have enough integration. We think by silos and we act by silos in terms of our two committees. We don't have a matrix or plan. Yet, we are not unlike other organizations in this respect. In sport for example, you have elite athletes, coaches, judges, and so on, each in their own sphere of expertise" (GBBR-2). Perhaps with a more clearly defined purpose and set of principles, and a clearly defined strategy and approach for sustainable tourism, the GBBR Inc. will achieve a higher degree of integration and thus, credibility and effectiveness for influencing governance. Indeed, the common observation from educators was precisely the need to balance an environmental agenda with one that enhances livelihood opportunities and pays attention to questions of social justice and civic engagement.

The broader cross-scale context for economic development in the biosphere reserve is enormous pressure for growth, since the region is considered economically depressed

compared to communities of a similar size in central Ontario. The service economies in the biosphere reserve are supplemented by tourism from May to October, leaving many people seasonally unemployed. While boating, cottaging, cottage rentals and time-share condominiums have grown more popular, traditional family and fishing resorts have suffered major declines (Wiltman, pers. comm., 2003). Popularity with national and provincial parks appears to be rising steadily, with Killbear attracting over 365,000 visitors in 2007. New tourism developments, such as those in Port Severn, include marinas, restaurants and hotel developments, along with waterfront condominiums and golf courses. The “Putting the Port Back in Port Severn” plan indicates a market potential for 26,000 transient boats via the Trent-Severn waterway (GBLBR, 2004).

A number of apparently sustainable developments within First Nations and other communities have not been widely acknowledged by the GBBR Inc. Many First Nations communities wish to establish local businesses and alternative energy sources – some of which reflect principles of sustainability related to resource efficiency, social equity, livelihood opportunity, and ecosystem integrity. Likewise, the Severn Sound Environmental Association (2008) is facilitating a community sustainability plan for nine municipalities in southern Georgian Bay (only one of which is in the biosphere reserve). The plan is highly participatory, supported by multiple levels of government, and is seen as an extension of the successful Remedial Action Plan (which was the first Area of Concern in the Great Lakes designated in 1987 to be delisted by the International Joint Commission in 2003). The Severn Sound Sustainability Plan could thus be a model for

the GBBR Inc. to facilitate a similar plan in terms of scope, goals, and deliberative process.

In terms of sustainable resource management, the region had historically high levels of extraction, including extensive clear-cut logging in the mid-1800s and a fisheries collapse in the 1940s. The resilience of these social-ecological systems is questionable. The fisheries are in a state of recovery but they also face new impacts from invasive species and climate change. Forests, at least in the French-Severn region, are largely Crown lands managed in partnership for sustainable harvests, yet are also vulnerable to the effects of climate change (including invasive species and disease) and shifts in consumer preferences and global markets. Achieving sustainability in each of these traditional resource industries requires integration of conservation objectives with economic imperatives, and, despite some institutional fragmentation (e.g., for species at risk or invasive species control), each has established fairly effective cross-scale, multi-stakeholder collaborative modes of governance for resource management, as noted in section 8.3.

To some extent, cottagers' associations have also embraced sustainability thinking in their community planning processes designed to influence municipal Official Plans. These plans articulate the ecological sensitivity of Georgian Bay and call for specific restrictions on development, so as to protect both the natural heritage values and the cultural character of cottage communities. Eastern Georgian Bay is one of the least developed regions of central Ontario, and while many cottagers fear the high level of

projected growth, permanent residents generally welcome development as increasing their employment opportunities. Not only is the biosphere reserve tasked with defining sustainable development in the context of a tourism-based economy, but it must also reconcile seasonal and permanent residents' visions of appropriate development.

### **8.5.2 Collaborative Modes of Governance in Georgian Bay**

Collaboration has become a new norm. It is widely seen by proponents of sustainable development as the preferred, even the required, approach to governance. Civic participation is required for legitimate decisions and effective action. Complex systems demand more sophisticated forms of sharing power and knowledge. As indicated in the literature, governance is constituted through processes, such as collaboration, and structures, such as networks, and through a mix of formal and informal organizations and institutions. Collaborative modes of governance in the Georgian Bay Biosphere Reserve is explored through the themes of self-organization, place-based governance, and defining collaboration more clearly.

#### **8.5.2.1 Self-Organization**

As described in the organizational history of the GBBR Inc., the biosphere reserve group was incorporated as a non-profit and appointed its own directors to reflect four major stakeholder groups. Government managers of the core protected areas were made advisors to the board and provided moral and financial support for GBBR Inc. Although a membership structure has not yet been developed, it is recognized that members and sponsors will be an important part of building broad-based support and diversified

sources of revenue (see section 5.4.2 on the strengths and weaknesses of this organizational structure according to Francis, 2007b).

In the case of GBBR Inc., it could be said that self-organization was actually organized by one individual that inspired collaboration among a small group of champions from different stakeholder groups to advance the UNESCO nomination. In a press release announcing the designation, it was noted that: “The nomination of this Biosphere Reserve is the result of extraordinary collaboration between regional and local authorities, local business interests, and local communities, including Aboriginal groups” (Canadian Commission for UNESCO, 2004). While this level of collaboration took almost eight years to orchestrate, it was focused around the nomination process itself and was reasonably successful at bringing diverse constituents, sometimes referred to as “the warring factions” “under one tent” (GBBR-3).

Typically the energy required to secure a successful nomination is often spent by the time designated is received. Leading volunteers often burn-out soon after a biosphere reserve is created. But in the case of GBBR Inc., the multi-stakeholder board structure generated a new kind of synergy, as indicated in the early strategic planning phase (2005) and has sustained many of its founding members. At the same time, the board recognizes that they have failed to sustain the participation of Aboriginal communities; they lack champions from within these communities, or the Chiefs themselves, to endorse the GBBR Inc.

In 2008, the Board of Directors agreed to re-structure the organization so that at least one member of each of the four original stakeholder groups is represented, but that having such representatives or liaisons was less important than securing people committed to the biosphere reserve concept. The Board is actively recruiting individuals to increase the participation of First Nations. It is possible that Aboriginal educators will also become engaged through the Education Advisory Committee.

One of the factors for successful collaboration is indeed the process of consultation and engagement of stakeholders. In terms of First Nations' involvement with the biosphere reserve, the initial attempts at engagement were significantly affected by the financial demands of the Aboriginal Working Group in terms of compensation for their consultation services. This model of consultation was not possible to sustain and alternative approaches (such as recruitment) have since been explored.

Some Board members recognize that trust-building is essential and that patience and persistence will be required over a long period of time, before genuine working relationships can be established between cultures (GBBR-1). Others take the position that the organization "will not wait" for Aboriginal participation (GBBR-3). It is widely acknowledged that Aboriginal communities struggle with serious social and economic issues, are involved in lengthy land claims negotiations, typically experience short political cycles, and have limited volunteer capacity. Unless the benefits of participation in biosphere reserve activities are made explicit and concrete, there is actually very little incentive for these communities to participate.

The experience of the GBBR's organizational development to date suggests, firstly, that re-structuring of the Board of Directors is needed to engage people with a high level of personal commitment (i.e., for a volunteer "working Board") and, secondly, that the original structure of having leaders from four distinct stakeholder groups as liaisons has been fulfilled and the board feels that it is no longer required. As GBBR-2 noted: "there has never been a discussion when we've said, 'oh, that's a cottager's perspective or that's a boater's perspective.' Everyone comes to the table as individuals committed to the biosphere reserve's ideals."

Volunteer recruitment will be required to support genuine multi-stakeholder collaboration and to bring specific skills to the organization. A permanent advisory committee has also been proposed for retiring directors and other key people from partner organizations. "It must be made clear that the biosphere reserve is not simply GBBR Inc., but that the biosphere reserve is made up of all the organizations and individuals doing conservation and sustainability work. From wetland mapping to fish habitat restoration, the combined efforts of our partners constitute the biosphere reserve – not just the volunteer Board of Directors" (GBBR-1). To this end, a shared office space for partner organizations has been proposed to promote their work as integration and fulfillment of the three functions of biosphere reserves.

#### **8.5.2.2 Place-Based Governance**

The evidence of this and the other case studies supports the theory common in the literature that the needed governance mechanisms are specific to place but also able to address complex issues that cross scales. Like other biosphere reserves, eastern Georgian

Bay exudes a strong sense of place. Countless historical accounts, photographic collections and personal memoirs, along with local museums and archives capture the many cultural identities of the region. One recent environmental history is aptly titled, *Shaped by the Westwind: Nature and History in Georgian Bay* (Campbell, 2005).

As noted above, the biosphere reserve was formed on the basis of a “common bond that... is a shared strong, emotional, even spiritual attachment to the Bay and the need to protect it” (GBBR, 2008). While this bond may be found among many Aboriginal people, long-time cottagers, dedicated boaters, and local residents, many tensions remain. Among them are the land claims that contest European settlement agreements and government assimilation processes. Deep divides between Aboriginal and non-Aboriginal people persist; racism further acts to marginalize an already disenfranchised people.

Similarly, local residents resent the influence and affluence of seasonal residents in their communities, as they hold significant power over the tax base, while cottagers resent paying taxes for services they do not use. Although one might assume that local people have strong ties to Georgian Bay, many children never experience that environment beyond the town beach, the provincial park, or inland lakes; few have ventured into the 30,000 islands and fewer still are aware of its ecological significance. Access to Crown Land islands is via private marinas, expensive water taxis, or public boat launches (transferred from federal to municipal responsibility in 2003) often with new parking fees. Places that are freely accessible to the public are becoming rare, making more of

Georgian Bay into a private “gated community” and undermining the principle of intra-generational equity.

One of the reasons that the biosphere reserve’s boundaries encompasses the eastern coast of Georgian Bay but excludes the adjacent District of Muskoka is because of the distinct sense of place in each region. However, the GBBR Inc. tends to work across this geographic and jurisdictional boundary. With the exception of the open waters and archipelago on the Great Lakes, eastern Georgian Bay shares many of the same ecosystem types and pressures (e.g., fragmentation, pollution, etc.) as found to the east. And although Parry Sound and surrounding communities are perceived as the “poor cousin” to Muskoka’s ostentatious wealth, the dramatic rise in property values on Georgian Bay make it comparably elite. People aware of this shift have named it “the Muskoka-ization of Georgian Bay” in reference to the wave of recent investment in million-dollar properties and second homes.

Arguably, it is precisely these types of threats to sense of place that motivated the biosphere reserve nomination. The concept of “the Littoral” was used to describe the complex shoreline of Georgian Bay and its ecological pressures. The nomination document to UNESCO (2004:13) noted: “It is advisable to use a locally accepted geographic, descriptive or symbolic name which allows people to identify themselves with the site concerned.” The use of the ecological term “littoral” (normally used for maritime coasts) was introduced during the nomination process but the official name of Georgian Bay Littoral Biosphere Reserve was not retained (except in formal documents)

since the term was deemed too technical and therefore potentially alienating for a public audience. Although the term did present an opportunity for public education, it was felt that explaining the biosphere reserve concept was challenging enough without having to define scientific terms, like “littoral.”

UNESCO permits the local adaptation of biosphere reserve title (particularly where the word “reserve” is also contentious) and encourages place-based names. They also support biosphere reserves’ participation in cross-scale governance arrangements that address context-specific problems (i.e., across and beyond their three zones). In this way, biosphere reserves are “experiments in sustainable development” for both practical multi-stakeholder initiatives and for innovative approaches to governance.

### **8.5.2.3 Defining Collaboration in Eastern Georgian Bay**

Collaboration in governance is defined in this research using Donohue’s (2004: 3) criteria:

First, to count as collaborative governance, a large and even dominant share of the initiative must rest with a player holding a plausible claim to represent the broad public interest... Second, each of the collaborating parties must have some role in setting the goals of the collaboration. Third, the relationship among the parties must be strategic, in the sense that each acts with an eye to the others and anticipates that the others will respond to its own behaviour.

In this case, the biosphere reserve claims to represent the public interest by seeking to play a facilitative role in addressing public concerns. The series of conservation meetings, for example, had stakeholders identify their individual activities, collective goals, and the role that the GBBR Inc. might play to fulfill the conservation function. The resulting strategy (or “Conservation Action Plan”) begins to address Donahue’s third criteria by

conveying relationships (i.e., the “layers” and “players” in the conservation community, Appendix VII) and opportunities for collaboration in the areas of species protection, habitat research and restoration, and public education.

In 2007, Francis reflected on the GBBR’s approach to conservation and identified several roles for the biosphere reserve in governance, including his proposed “governance watch” function:

This process allows for some productive “networking” that leads to cooperative endeavours in which the Conservation Committee plays an informal but important “broker” role. One outcome after just two meetings is a decision to “build a strategic plan for conservation” in the biosphere reserve and “create a plan to guide the GBLBR and a vision for the wider conservation community”.

This initiative exemplifies the special role that a biosphere reserve group can play as the one group that keeps track of the “big picture” about the over-all situation as it unfolds in the biosphere reserve, and indirectly helping this evolve at critical junctures. This role can be called a “governance watch” because it addresses questions about developing the collective capacities of organizations and groups to take on challenges that no one of them can reasonably handle on their own.

Ultimately, participants in these meetings agreed that one of the most important benefits of the biosphere reserve is the stimulus it brings to efforts on Georgian Bay to help network and coordinate related efforts among different organizations. And although positive working relationships currently exist among most conservation organizations in the region, coordination and collaboration and sharing of projects would help to stretch limited resources even further.

One of the ways to do this is for biosphere reserve organizations to participate in place-based governance processes, such as municipal Official Planning. Although the GBBR

has not used Official Plan reviews as an avenue for influencing local governance, it has proposed to facilitate a regional community sustainability plan. As GBBR-2 explains: “I see our role as close to UNESCO’s definition: bringing people together, preparing a sustainability plan, supporting individual initiatives and getting people involved in the process, to be participating in the planning of sustainable development.” “...But we’re not a model [of sustainability] yet. We especially need to work on expanding sustainable employment year-round in these communities... These are local issues that we need to help to address.”

### **8.5.3 Networks in the Georgian Bay Biosphere Reserve**

One way that biosphere reserves contribute to governance is through the formation of informal governance networks. Networks can structure governance processes by linking independent and autonomous actors (organizations) into some collective endeavour. The biosphere reserve model encourages the formation of governance networks by building trust and social capital and by bridging multiple organizations under an umbrella of shared goals, resources and knowledge. “Just by the sheer numbers at our workshops you can see how effectively we are reaching out and building networks. ...It’s just amazing what we’ve done with our limited capacity, in such a short time” (GBBR-2).

The GBBR has initiated network governance structures by facilitating informal collaborative governance processes (e.g., community dialogue, visioning exercises, strategic planning, and partnerships). Preliminary networks have been established within the conservation community but have not developed within the tourism sector. While the conservation committee used an annual meeting as a mechanism for networking, the

economic development committee attempted a similar approach with a much smaller group of participants but could not sustain a significant level of engagement. It is unclear whether this difference is due to the personal leadership and quality of facilitation provided in each process, and thus the level of trust and social capital that resulted, or whether existing relationships within the conservation community helped to structure constructive and sustained interaction. Perhaps collaborative modes of governance have become the norm in the non-profit sector but competitive relationships still reign in the private sector? Yet this discrepancy was not evident in Frontenac Arch where 700 potential partners were contacted and 70 of them then became actively engaged in a sustainable tourism network (section 7.4.3).

Conservation stakeholders helped to define the role for the biosphere reserve as a coordinating node in a network and note that this is a role that few other organizations can sustain. Although the national park has a mandate to consult with stakeholders in the greater park ecosystem, for example, the biosphere reserve covers a much larger geographic area and has a much broader agenda for sustainability than any of the parks. And although the Georgian Bay Association of cottagers intended to take on a brokering role, the perceived need for environmental advocacy was much stronger and has come to define that particular organization. The associated GBA Foundation sought charitable status to support research and education, however, its research is perceived by many as “advocacy science” rather than independent or impartial (Pollock, [fieldnotesfield notes](#), 2005).

Neither of these leading organizations can effectively provide a neutral forum for collaboration for several reasons. First, they represent only a sector of Georgian Bay users – that of cottagers – and have not engaged well with local residents, including First Nations. Second, the perception of wealthy cottagers dictating local development tends to dominate; it plagued the first few years of consultation about the biosphere reserve, as the motive of proponents was highly suspect as a NIMBY exercise. Third, with mandates similar to other conservation organizations (including government agencies, the land trust, stewardship councils, and so on) these organizations compete for resources and are therefore less inclined to collaborate even when opportunities arise (e.g., a coordinated strategy for research, monitoring, and education about wetlands). Finally, there are individuals in each of these organizations that have fueled a history of conflict, especially through public critiques of government and other potential partners, that has reduced trust among stakeholders, limiting the potential for collaboration and network management (Pollock, [fieldnotesfield notes](#), 2006).

Interestingly, the GBBR's potential for building governance capacity was first identified by Environment Canada. They saw the biosphere reserve as an informal governance mechanism that could implement the Lake Huron Framework for Community Action because of its credibility as a non-advocacy organization and its multi-stakeholder approach (described in section 8.4.1). In terms of influencing government, GBBR-2 argues that: "it is more important that we do the social marketing than work to get on political agendas if we are awareness builders. We are more than team builders; we can make collaborations work. And it is safest in the long run to be apolitical. Our main role

is education and social marketing and reaching out to people. Then they (our partners or others) can become politically involved if they wish.”

## 8.6 Conclusions

This chapter shows how the Georgian Bay Biosphere Reserve has evolved to play a role in the structures and processes of governance for sustainability. Its multi-stakeholder structure, established through seven years of community consultation and four years of GBBR Inc. volunteer work, strives to promote integration, collaboration and networking. However, the GBBR has struggled with the integration of the conservation and sustainable development functions due to its divided constituency and its organizational structure. The GBBR Inc. has attempted to engage a wide range of stakeholders, yet it has succeeded only within the fairly closed conservation community; it has failed to engage Aboriginal people in a meaningful way and has played only a marginal role in steering local governments towards sustainable development. Without Aboriginal participation, the biosphere reserve falls short of its own ideals and exacerbates traditional racial divisions and exclusions present in the region.

While strong internal governance of the local biosphere reserve organization has resulted in successful project funding and a growing community presence, the committee structure tends to reinforce the conventional silos of conservation versus development. Enhancing sustainable tourism is seen to be the bridge between them; however, at present, the lack of stakeholder engagement, confusion about duplication of roles (e.g., tourism marketing), and a lack of reflection about the principles of sustainability are barriers to

effective influence of governance in this domain. As noted by conservation stakeholders, the biosphere reserve's principles and values remain largely undefined and therefore it is difficult to engage others in its mission: "To contribute to the conservation of biodiversity and sustainable development by fostering a shared responsibility for the Georgian Bay Biosphere Reserve for the next seven generations."

The GBBR enhances collaboration, as seen within the conservation community, by providing a facilitation and communication role. It attempts to provide a "big picture perspective" about the scope of activities undertaken by stakeholders in order to identify gaps and needs at a regional scale. The four examples of governance given earlier show that government is simply one player among many and that in the cases of federal fisheries, provincial forests, Aboriginal land claims, and municipal land use, the biosphere reserve organization does not have to play a central role for collaborative, cross-scale governance to be successful. Rather, it seeks to enhance the capacity of stakeholders within each of the broad functions of biosphere reserves. To this end, the conservation, sustainable tourism, and education committees will be instrumental.

As the newest biosphere reserve in Ontario, the GBBR Inc. is still assessing the full range of governance layers and players within which it might become a coordinating node for new networks. The best prospects for this appear to be the management of a regional conservation strategy and the creation of a dynamic educational and cultural network to support sustainability through sharing knowledge of ecological integrity, demonstrating

the principles of inter- and intra-generational equity, and actively promoting livelihood opportunities beyond the tourism sector, including alternative energy developments.

The GBBR is evolving as a catalyst for public discourse and collective action. The biosphere reserve is perhaps the only organization that has a broad enough mandate and is sufficiently trusted to coordinate practical sustainability initiatives across different disciplines, domains, and scales. And despite some significant challenges, it aims to foster collaborative approaches that contribute to governance for sustainability. The experience of the Georgian Bay Biosphere Reserve suggests that it is poised to learn from the experiences of Long Point and Frontenac Arch, in particular, and from other community collaborations in general.

## 9. Analysis and Conclusions

### 9.1 Introduction

This chapter first offers a comparative analysis of the case studies and then links research findings to the conceptual framework set out in Chapter 5. The findings reveal an impressive range of potential roles that biosphere reserves could play in governance for sustainability and suggest implications for theory and practice. This chapter completes the fulfillment of the research objectives outlined in Chapter 1:

- i. To develop and apply a conceptual framework for the UNESCO model of biosphere reserves in governance for sustainability;
- ii. To explore the roles of biosphere reserves in governance for sustainability through case study analysis of select biosphere reserves;
- iii. To apply research findings to the conceptual framework in order to draw general conclusions about the contributions of biosphere reserves to governance for sustainability, that it might be strengthened and applied elsewhere; and
- iv. To establish an agenda for future research that elaborates on the conclusions and addresses questions raised about the broader context in which biosphere reserves operate and their specific capacity to advance sustainable development.

## 9.2 Comparative Contexts

The three case studies were selected because they share similar social and economic contexts, yet are each confronted by unique local challenges for sustainability. Long Point Biosphere Reserve (LPBR) and Frontenac Arch Biosphere Reserve (FABR) both contain agricultural areas, but LPBR is responding to the collapse of tobacco production, which has created new opportunities for organic and industrial farming, as well as for agricultural tourism. Georgian Bay Biosphere Reserve (GBBR) and FABR share similar ecological landscapes, but the extensive Crown Lands in eastern Georgian Bay have deterred development of more extensive road networks that would reduce habitat fragmentation. All three case organizations are interested in sustainable tourism, but have used different governance approaches for engaging stakeholders.

The three biosphere reserves have similar governance systems and institutional overlays. Nested within the Great Lakes basin, each one borders on different parts of the system (Lake Erie, Lake Ontario-St. Lawrence, and Lake Huron). They are all located in Ontario and have similar municipal governance arrangements. Each of their rural landscapes is within close proximity of urban centres such as Toronto, Ottawa, and Montreal, and is therefore exposed to similar growth and development pressures from outside their regions. They share western capitalist economies that are tightly integrated with global markets, and are thus comparable with other North American and European biosphere reserves in the EuroMAB network.

Geographically, the three cases differ significantly in size, with the entire LPBR less than the GBBR's core area [Table 9.1]. In population, LPBR is the smallest (due to size and a lack of transition area), while GBBR appears to have the lowest population density, although this estimate only includes permanent residents and does not account for the influx of cottagers, boaters, tourists and seasonal employees. Factors such as population size, density, and diversity raise the question about whether there is an ideal geographic area or population size for biosphere reserves. Frontenac Arch has a significantly larger population and likely higher social capital, which may account for some of its self-organized networks and collaborative initiatives.

<b>Name</b>	<b>Year</b>	<b>Size (ha)</b>	<b>Core</b>	<b>Buffer</b>	<b>Population</b>
Long Point	1986	40,600	6,250	34,000	500
Frontenac Arch (expanded & renamed)	2002 2007	150,000 220,000	3,000 10,000	15,000	65,300
Georgian Bay Littoral	2004	347,270	52,509	39,595	18,000

Table 9.1. Case study characteristics of three biosphere reserves in Ontario, Canada

Clearly, each site contends with a mix of social-ecological systems that exhibit their own unique dynamics. The predominance of agricultural land use varies widely between the cases, yet in each case, citizens were self-organizing around the theme of local food. Forest management is also handled differently in the three sites, with Ontario Power Generation funding reforestation in LPBR, the Eastern Model Forest working collaboratively with FABR, and Westwind Forest Stewardship Inc. using Forest Stewardship Council practices within GBBR. Each case shares pressures that are common to the Great Lakes (e.g., pollution, habitat loss, and invasive species) but each biosphere reserve also has a unique set of local issues to which it must respond.

Likewise, the age and history of each biosphere reserve are important considerations for their organizational development and their influence on governance. LPBR evolved over two decades, moving from a culture of conflict towards collaboration. At six years old, the FABR designation was the extension of long-standing regional collaboration. And now only four years old, the GBBR was the product of seven years of community consultations. Undoubtedly, their particular histories, the timing of new opportunities, their level of social capital, and their creation of social networks have all affected the way that the UNESCO model of biosphere reserves has been applied in each case.

This study has explored the evolution, experiences and sustainability activities of three Canadian biosphere reserves and their role in governance. The case studies show that some factors, such as the age and the particular history of the biosphere reserve, are key, particularly in relation to the evolution of the UNESCO programme and whether the biosphere reserve were established pre-Seville Strategy, before requirements for integrated sustainability across three interrelated zones were established. Although not pursued in this study, the role of individuals also seems key to the organizational vision and capacity of local biosphere reserve organizations. There are special features in each case that influence governance activities by those organizations, such as the lack of transition area in LPBR, the networking ethos in FABR, and the strong distinction between permanent and seasonal constituencies in GBBR. The relative “success” of FABR might be attributed to a combination of (i) a history of regional multi-stakeholder collaboration (as opposed to the history of conflict in LPBR and GBBR), (ii) a higher

level of wealth and education and apparently larger number of social networks, (iii) an Executive Director who has provided organizational leadership and (iv) a commitment to integrated sustainable community development (that rejects simple economic development as a measure of sustainability, but rather looks at an overall package related to environment and culture). The following section provides basic demographic and economic information to support further analysis of biosphere reserves in governance and to highlight other possible factors that influence governance capacity.

### **9.2.1 Demographic and Economic Profiles**

Demographic and economic statistics allow for a contextual comparison of the three cases. Although not aligned with biosphere reserve boundaries per se, Statistics Canada uses census divisions that are sufficiently large to indicate regional social and economic trends to produce “Community Profiles” for each case (Statistics Canada, 2007). The census division for Haldimand Norfolk Regional Municipality (#28) reflects the proposed expansion of the Long Point Carolinian Biosphere Reserve. FABR is represented by two census divisions combined: the Leeds-Grenville United Counties (#07) which takes in the municipalities of Leeds and Thousand Islands, the towns of Gananoque and Merrickville, the Rideau Lakes, and the city of Brockville. And Frontenac County (#10) takes in the Frontenac Islands township, the city of Kingston, and South Frontenac township. Finally, the Parry Sound District (# 49) encompasses almost the entire GBBR, from the Moon River to the French River, but extends east to the boundary of Algonquin Park (Kearney Township) and excludes the Township of Georgian Bay (pop. 2,340) and the Mohawk territory of the Moose Deer Point First Nation (pop. 208).

The populations of these four areas are comparable in terms of their sizes and growth rates [Table 9.2]. Frontenac County includes the city of Kingston (pop. 117,207) and is therefore larger and more ethnically diverse than the other areas. Residency rates are striking, with less than half of all dwellings in the Parry Sound District occupied by permanent residents, indicating a high number of seasonal residents in Muskoka and Georgian Bay. Each of these regions shows a majority of middle-aged residents (as compared with the provincial average), with a significantly higher Aboriginal population in Parry Sound. Education levels are lower than the provincial average in LPBR and GBBR, with significantly higher levels of university education in Frontenac County, where Queen's University is located.

	Ontario	LPBR	FABR	FABR	GBBR
Census Division and Census Division #	-	Haldimand-Norfolk #28	Leeds-Grenville# 07	Frontenac County #10	Parry Sound #49
Population 2006	12.2 million	62,563	99,206	143,865	40,918
Population i2001	11.4 million	60,847	96,680	138,606	39,665
Permanent residents <sup>31</sup>	91.6%	90%	87%	83%	48%
Aboriginal Identity	2%	1.9%	1.8%	2.3%	5.4%
Visible Minority	22.8%	1.7%	1.7%	6.0%	0.8%
Median Age	39	43.4	43.6	40.8	47.9
No Education Certificate <sup>32</sup>	22.2%	31.6%	23.4%	19%	28.4%
University Education	20.5%	8.6%	12%	22%	10%

Table 9.2. Population data (Statistics Canada, 2006)

In terms of economic activities in the three biosphere reserves [Table 9.3], agriculture is among the major industries in Long Point, along with manufacturing (where a new Toyota parts plant in Simcoe is in development). Construction is currently higher in the

<sup>31</sup> This is the percentage of "Private dwellings occupied by usual residents" which refers to a private dwelling in which a person or a group of persons is permanently residing.

<sup>32</sup> No certificate, diploma or degree from secondary school, college, university or other institution.

Parry Sound District, where ~~the~~ highway #69/400 expansion is underway and communities such as Gravenhurst, Huntsville and Parry Sound have chosen major retail or waterfront developments. Other industrial sectors are comparable, but with fewer health and social services in Haldimand-Norfolk (see Edge, 2007). Frontenac County has higher health and education services, likely due to its size and its academic community.

Industry (% of work force)	Ontario	LPBR	FABR	FABR	GBBR
Census Division and Census Division #	-	Haldimand-Norfolk #28	Leeds-Grenville# 07	Frontenac County #10	Parry Sound #49
Agriculture	2.9%	14.2%	3.7%	1.7%	3.4%
Construction	5.9%	6.3%	7.2%	6.0%	11.5%
Manufacturing	13.9%	20.3%	13.5%	5.3%	9.7%
Wholesale Trade	4.7%	3.3%	3.3%	2.3%	2.9%
Retail Trade	11.1%	10.1%	11.7%	12%	13.6%
Finance and Real Estate	6.8%	2.8%	3.5%	4.8%	3.9%
Health and social services	9.4%	9.5%	12.5%	14%	11.8%
Education	6.7%	5%	5.8%	12.8%	6.7%
Business services	19.7%	12.9%	17%	14.3%	14.7%
Other services	18.7%	15.6%	21.7%	26.4%	21.8%

Table 9.3. Industry and work force data (Statistics Canada, 2006)

The income and employment levels are also comparable [Table 9.4]. All the cases have median earnings that fall below the provincial level (of \$29,335) and have approximately half of their labour force engaged in full year, full-time employment. (The other half may include students, retirees, contractors, or part-time workers). Frontenac County shows the most pronounced gap between rich and poor, with the highest earnings as well as the highest rate of low-income families reported. This disparity would likely be even more pronounced for the Parry Sound District, if incomes were reported for seasonal residents.

Census Division and Census Division #	-	Haldimand-Norfolk #28	Leeds-Grenville # 07	Frontenac County #10	Parry Sound #49
Median earnings	\$29,335	\$22,659	\$25,589	\$25,864	\$22,295
Median earnings full year, full time	\$44,748	\$40,048	\$40,122	\$43,648	\$37,349
Employed full year, full time	53%	51%	53%	50%	46%
Low Income (before tax) <sup>33</sup>	14.7%	9.2%	9.2%	13.8%	10.9%
Unemployment	6.8%	6.8%	5.7%	6.7%	6.7%

Table 9.4. Income and employment data (Statistics Canada, 2006)

Unfortunately, these data do not measure seasonal employment directly, nor do they account for tourism as an industry [Table 9.3 above] as an important component of sustainable development in the cases. Information about disposable income and volunteerism would also help to assess available human and financial capital in each site. And information about property taxes and municipal expenditures would also be helpful in assessing the relative wealth and available services in each biosphere reserve.

In summary, demographic and economic census data show that the three biosphere reserves are much alike. The most significant differences in GBBR are with respect to the ratio of permanent and seasonal residents, the higher Aboriginal population, and the slightly lower incomes. FABR has the highest levels of education and income, which is possibly a product of the academic community in Kingston and the civil service in Ottawa. While agriculture is most pronounced in LPBR, the economic structure of the cases is otherwise quite similar. And although census data do not account for tourism as an economic sector, “sustainable tourism” is a major thrust in all the cases.

<sup>33</sup> Income levels at which families or persons not in economic families spend 20% more than average of their before tax income on food, shelter and clothing. According to Statistics Canada (2007), it was arbitrarily estimated that families spending 70% or more of their income (20 percentage points more than the average) on these basic necessities would be in straitened circumstances.

Importantly for this study, the three cases are similar in governance terms, with local and sometimes regional-tier governments (e.g., Haldimand-Norfolk), and provincial and federal agencies as the main “players” operating at different “layers” of jurisdiction that influence sustainability. In addition to this standing structure of government institutions, other important players include civil society organizations (NGOs, community groups, etc.), sometimes First Nations, and a complex corporate sector, ranging from local businesses to global market commodity chains. As explored below, biosphere reserves in Long Point, Frontenac Arch and Georgian Bay have established different governance arrangements to fulfill their three functions – conservation, sustainable development, and logistic support – yet there are strong similarities that emerge in terms of organizational capacity, collaborative approaches, and their interest in governance network structures. As the following analysis of the application of the conceptual framework shows, they have each adopted a number of roles that contribute to the governance capacity required for sustainability.

### 9.3 Application and Implications of the Conceptual Framework

This study developed and applied a conceptual framework to help identify the role of UNESCO biosphere reserves in governance for sustainability using case studies from selected Canadian sites. The framework put forward three propositions that reflect the

[normativeethical](#), procedural, and structural dimensions of governance:

- i. Biosphere reserves provide models for integrated approaches to sustainability;
- ii. Biosphere reserves develop collaborative multi-stakeholder approaches to governance; and,
- iii. Biosphere reserves create governance network structures.

The following discussion is a comparative examination of each proposition as it was applied to Long Point, Frontenac Arch, and Georgian Bay Biosphere Reserves. It provides an analysis of the framework, emergent themes, and implications.

### **9.3.1 Providing Models for Integrated Approaches to Sustainability**

The first proposition about the role of biosphere reserves in governance is that they provide a model for integrated sustainability. 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 (MAB, 2006).

Based on the literature review and extensive personal observations, this research explored the extent to which the cases: (1) integrate sustainability and conservation considerations in their organizational focus and initiatives; (2) address cross-scale dynamics to integrate activities across the core-buffer-transition zones; (3) recognize the significance of both scientific and cultural interpretations of landscape; (4) integrate the principles for sustainability; and (5) foster social learning and adaptation. The following discussion reviews this set of dynamics in each of the cases and ends with a short comparative summary.

In the Long Point Biosphere Reserve, a long history of conservation activities has recently been enhanced with attention to broader sustainability concerns, to help respond to the social and economic impacts of changes in agriculture. These include the collapse of tobacco farming, the lack of employment opportunities for youth in rural areas, and the decline in tourism. 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.

The current proposal for an expanded and renamed “Long Point Carolinian Biosphere Reserve” demonstrates the commitment of the Long Point World Biosphere Reserve Foundation (LPWBRF) to integrate sustainability at a regional scale. One major challenge to this approach is the current development paradigm within the municipality; there is a distinct lack of political leadership at present for “Building a Sustainable Norfolk Community.”<sup>34</sup> Another major challenge – and opportunity – is the possible transformation of agriculture in light of the decline of intensive tobacco farming. The biosphere reserve’s promotion of sustainable agriculture (including organic production, regional food distribution, agrotourism, and payment for ecological land uses) is one area full of possible alternatives.

Not only is the LPWBRF attempting to reconfigure the biosphere reserve physically by adding core areas and introducing a transition zone over the “working landscape” of

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<sup>34</sup> The title of the public conference hosted by the Long Point World Biosphere Reserve Foundation in November 2006. As one interview participant asked rhetorically: “What sustainable Norfolk County?” (LPBR-2).

farms and forests, but they are also changing the way some people think about their place by introducing an integrated sustainability agenda. In other words, Long Point is being reconfigured conceptually as a complex social-ecological system, which underscores the potential influence of the biosphere reserve model and local organization.

Even prior to this, the biosphere reserve had been strongly supportive of two major projects. The long-standing reforestation program with corporate support from Ontario Power Generation demonstrates the multiple benefits of habitat restoration and carbon sequestration. And the Alternative Land Use Services (ALUS) initiative, reflects principles of sustainability in improved agricultural practices and the protection of “ecological goods and services” (MEA, 2005) by compensating farmers for good stewardship practices and non-intensive uses of marginal lands.

Both of these projects have resulted in social learning and are potential examples of adaptive management. In governance, the corporate sector has provided the financial capital for the Conservation Authority to conduct large-scale reforestation to increase habitat and mitigate climate change. However, as in all the biosphere reserves, multi-level government policies and regulations will be required for any comprehensive shift to sustainable energy. Likewise, a shift from industrial agriculture to more sustainable alternatives will require political leadership to ensure compliance and foster innovation. The LPBR projects are therefore consistent with the type of integrated sustainability that is encouraged by the biosphere reserve model and by the literature, but lack sufficient roles for government in their governance structures.

In the Frontenac Arch Biosphere Reserve, a history of regional conservation efforts provided the catalyst for many different stakeholders to think about sustainability across scales. The Algonquin to Adirondacks initiative created a bi-national initiative at the same time as the St. Lawrence Islands National Park was mandated to preserve ecological integrity within a regional framework, referred to as the “greater park ecosystem.” The result is a biosphere reserve with a more complex system of core and buffer areas (known as a “landscape mosaic”) that aims to fulfill the conservation function.

The “Biosphere Network” organization in FABR has articulated a vision for sustainable development and fuelled a parallel public discourse to begin its actualization. Social, economic, and ecological imperatives are seen as fundamentally linked: “where our culture, heritage and healthy natural environment are the foundation of a vibrant community and a robust economy” (FABR, 2007c). Sustainable development is seen by FABR members as urgent – yet achievable regionally – and is demonstrated by events like the “100-Mile Dinner” that illustrate the benefits of eating local food. Practical initiatives, governed by self-organizing networks, experiment with alternatives such as local food systems, coordinated habitat protection, and accreditations for tourism. 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.

In the Georgian Bay Biosphere Reserve, the local organization, GBBR Inc., has struggled during its first few years with how to integrate the themes of conservation and sustainable development. Unlike the LPWBRF that has evolved to embrace a broader sustainability

agenda, or FABR's public discourse about integration, the GBBR Inc. has established separate committees to facilitate sustainability-related initiatives according to the three functions of biosphere reserves. While these distinct "silos" for conservation, economic development, and educational capacity building each contribute to their respective domains, they perhaps risk reproducing the traditional divides between environment and development. Whether a divided organizational structure can produce an integrated model for sustainability is unknown, but these may be bridged and perhaps integrated over time, as trust is created, common objectives are established, and a clearer vision of regional sustainability emerges from wider stakeholder engagement. For now, only some members of GBBR (e.g., board members) have an integrated understanding, and one that they are trying to articulate through demonstration initiatives and the media.

<b>Box 9.1. Elements of integrated sustainability in UNESCO biosphere reserves</b>
<b>I. Integrated Sustainability</b>
<ol style="list-style-type: none"> <li>1. To what extent does the biosphere reserve (BR) integrate sustainability and conservation considerations in its organizational focus and in its broader community initiatives?</li> <li>2. To what extent does the BR address cross-scale dynamics (i.e., multi-level jurisdiction, external drivers, spatial and temporal considerations) across its three distinct zones?</li> <li>3. To what extent does the BR accommodate both scientific and cultural interpretations of place and how does that relate to citizen engagement?</li> <li>4. To what extent does the BR integrate principles for sustainability?</li> <li>5. To what extent does the BR foster social learning and adaptation?</li> </ol>

In summary, the cases as compared do show how biosphere reserves apply each of these five aspects of integration [Box 9.1] in various ways:

First, LPBR has widened the scope of its activities from conservation to include questions of sustainable livelihoods at larger scales. FABR defines “sustainable community development” as an overarching theme for its various network activities. And GBBR has established a committee structure reflective of the three functions of biosphere reserves and includes stakeholders outside its boundaries, at larger scales. This implies that the integration of the three functions of UNESCO biosphere reserves is possible to define and implement in context-specific ways.

Second, all the cases were guided by conservation biology prior to biosphere reserve designation, engaging parks and protected area managers in working across their core-buffer-transition zones (with the exception of LPBR which is currently expanding its boundaries to include a larger transition area). This is important to biosphere reserves because ecological integrity is seen to underpin human development, by providing ecological goods and services (MEA, 2005), especially in the core areas. Human activities are dispersed across a wider landscape (or a “working landscape” – for livelihoods) but are guided by zonation that strongly discourages certain types of development (e.g., mining or urban sprawl). The UNESCO model upholds ecological principles for the protection of core areas, yet is not constrained to the “concentric circle” model of contiguous core-buffer-transition areas. The implication is that biosphere reserve zonation allows communities to pursue context-specific sustainability initiatives, grounded in the reality of complex landscape mosaics, but with tools to influence the governance of competing land uses.

Third, a strong sense of place pervades the cases, with cultural histories, social values, and iconic landscapes reflected in biosphere reserve nominations and subsequent activities. The LPBR symposium engaged both the culture and ecology of fisheries. FABR uses natural and cultural history as the basis for sustainable tourism development. And GBBR mobilized scientific and cultural arguments about a shared sense of place to bind distinct stakeholder groups together under a common landscape identity to support its nomination to UNESCO. The importance of place is consistent with the literature about volunteer motivations and about bioregional stewardship. It also supports the value of local and traditional knowledge in governance for sustainability, although this is an area that might be explored much more through engagement with Aboriginal communities.

Fourth, although not explicitly identified in the UNESCO model of biosphere reserves or in any of the cases, the three biosphere reserves appeared to engage with some of Gibson et al.'s (2005) principles for sustainability. The most visible ones were related to ecological integrity, livelihoods, resource maintenance, and democratic governance. Those receiving less attention were around questions of social justice, precaution and adaptation, and integration – including trade-offs.

One exception to this pattern is perhaps the LPBR sustainability workshops, held in 2006. Participants revealed the depth of personal, social and economic challenges related to the decline of tobacco farming and their interconnections (including depression, debt, and the out-migration of young people). In the workshop discussions, these issues were mainly

related to livelihood opportunities and to inter-generational equity. However, precaution (in terms of new kinds of agriculture competing in global markets) and adaptation (to sustainable alternatives) were both identified as principles to guide future development in Haldimand-Norfolk County. This implies that other biosphere reserves might need to consider a set of explicit sustainability principles – to guide their work (i.e., by facilitating a shared vision and articulating an agenda, as describe below) and to use tools for assessing progress towards sustainability.

Finally, the biosphere reserves were only somewhat focused on acting as “demonstration sites,” “learning laboratories” or “learning platforms” for experiments in sustainable development. It appeared that they were mainly concerned with raising awareness about the biosphere reserve concept locally, and building capacity for demonstration projects more regionally. In LPBR, for example, the ALUS project set up several pilot farms to test the logistics of compensation for ecological goods and services. Forest re-generation in Carolinian Canada is perhaps an opportunity for engaging the corporate sector and helping communities mitigate climate change, and one that might reasonably be shared with other regions in southern Ontario.

In FABR, networks are set up with the intention of expanding social learning. The Local Flavours network, for example, is intended to be more adaptive than are conventional systems of food production and distribution. Bioregional food systems are also considered more resilient, and thus more sustainable, than the alternatives. There is also a focus in FABR on learning exchanges with biosphere reserves in other countries,

including China, where managers are fascinated with FABR's approach to collaborative network governance. However, whether social learning occurs on the scale required for social change within biosphere reserves is an important question for future research.

The newer GBBR has learned from other biosphere reserves in Ontario, Canada, and the EuroMAB network. Sustainable tourism workshops held in LPBR and in FABR that GBBR Inc. members have attended are one example of informal networking and social learning. Annual meetings of the Canadian Biosphere Reserves Association (CBRA) are another opportunity for exchange, nationally and internationally. But as one interview participant from GBBR noted: "we're not a model for sustainability yet." As the experience from the other two cases suggests, perhaps biosphere reserves need to establish local learning platforms first, through additional practical sustainability initiatives, before they are international demonstration sites. This theme points to the importance of history and timing for biosphere reserves to become fully functional, particularly when they are volunteer-based organizations, as is often the case in Canada.

The point about organizational capacity begs questions about the role of biosphere reserves in influencing broader patterns of governance and highlights the need for future research. Although each site has fostered certain sustainability initiatives, and engaged an impressive level of volunteerism, it is unclear that they have enough influence at present to alter unsustainable activities or development trajectories within the biosphere reserve. The ALUS project, for example, is highly desirable from a sustainability standpoint, yet the federal department of agriculture has not endorsed it, so it remains limited to a small

number of pilot farms, rather than potentially transforming the agricultural community in Long Point (and in other parts of Canada). Although public support for compensating farmers for ecological goods and services is present in Long Point, the whole issue is highly controversial, apparently requiring national policy directions to be set before programs can be implemented at the grassroots level. Biosphere reserves might effectively promote these types of programs, but until government is fully engaged, sustainability initiatives cannot be implemented at the scale that is required for broad social and economic change.

Nevertheless, each of these five aspects of integration is seen to support the proposition that biosphere reserves apply the UNESCO model of integrated sustainability. Exactly how that model is applied by individual biosphere reserves varies [Table 9.5].

Governance for sustainability is challenged precisely by the need to integrate conservation with human development, through difficult trade-offs and collective choices. Biosphere reserves may contribute to governance in this respect by helping to define, envision, and fuel public discourse about alternative futures.

The other aspects of the biosphere reserve model are all seen to support the first point, namely, that sustainability requires profound integration in order to be coherent, ethical, lasting, and effective. Modern conservation biology is needed to integrate activities across the core-buffer-transition zones to protect ecological integrity. Yet, scientific understandings must also respect cultural interpretations of landscape or “place” to help biosphere reserves define and pursue context-specific strategies for sustainability.

<b>Integrated Sustainability</b>	<b>Long Point</b>	<b>Frontenac Arch</b>	<b>Georgian Bay</b>
1. Three Functions	Low initial integration; has since evolved; emerging discourse	High integration; network structure; leading discourse	Some integration; silo structure; emerging discourse
2. Cross-scale	Formerly isolated core “down there on the Point.” Proposed expansion to encompass County	Unifying framework for “stepping stones” or “landscape mosaic” across multiple jurisdictions	Vision of “the Littoral” for a diverse group of stakeholders across multiple jurisdictions
3. Interpretation of Place	Strong mix of ecological and cultural	Strong mix of ecological and cultural	Strong mix of ecological and cultural
4. Sustainability Principles	Agenda for regional sustainability becoming defined	Agenda for sustainable communities well defined	Agenda for regional sustainability becoming defined
5. Social Learning	Sectoral workshops and conference for community-defined sustainability	Sectoral networks for community-defined sustainability initiatives (e.g. Local Flavours)	Sectoral workshops for community-defined initiatives (e.g., Species at Risk)

Table 9.5. Summary of how integrated sustainability is applied in the three cases

Moreover, each of the biosphere reserve cases is challenged to integrate distinct – and often competing – sets of cultural values that overlay a common landscape. The specific role of biosphere reserves in fostering public discourse, deliberation and decision-making for resilience and adaptation of social-ecological systems, will require further study.

The overall implication of this dimension of the conceptual framework responds to the question of how biosphere reserves contribute governance capacity for sustainable development. As Francis (2004) noted, the main challenge for biosphere reserves is to address the full scope of sustainable development. Sustainability is a matter of how best

to maintain and enhance fundamental ecological and social processes for change and adaptation, yet the collective governance capacity needed to address these challenges effectively across a bewildering range of spatial and temporal scales remains largely underdeveloped. Biosphere reserves in this study have all been challenged to address the full scope of sustainability, but have also demonstrated their interest and ability in pursuing sustainability in a more integrated way.

In, complex systems, of which biosphere reserves are a part, cross-scale thinking and innovative social institutions for solving problems are both required. While the language of complex systems thinking is not commonly used by volunteers, biosphere reserve initiatives and relevant actors reveal considerable understanding of key concepts. For example, the links among ecological and socio-economic livelihood concerns appear to be increasingly well recognized. Biosphere reserve participants are aware of the different and intersecting scales of, for example, political authority on planning matters (e.g., Frontenac's involvement with Official Plans), ecosystem dynamics and watershed boundaries (e.g., Georgian Bay's conservation planning), and the global market influences on agricultural viability and tourism prospects (as in Long Point).

In response to the complexity of governance systems, the biosphere reserve model and approach helps to overcome fragmentation of institutional arrangements, builds governance capacity through multi-stakeholder engagement, and supports community responses to the vulnerabilities of open systems by addressing sustainability concerns beyond biosphere reserve boundaries. Whether biosphere reserves, given enough time,

could evolve to play an institutional role in setting social norms and influencing behaviours (of individuals and of other institutions) is not clear, but certainly warrants further study.

### 9.3.2 Brokering Multi-Stakeholder Collaboration

The second proposition embedded in the conceptual framework is that biosphere reserves foster collaborative approaches to governance for sustainability. The three considerations for the case studies were: (1) self-organization of biosphere reserves and the formation of local governance arrangements; (2) place-based governance for engaging citizens in context-specific challenges; and (3) characterizing collaborative modes or approaches to governance. Questions for this type of analysis are brought into focus in Box 9.2 and summarized in Table 9.6.

The LPBR was organized during a period of uncertainty over water levels, complex lake changes, and unpredictable fisheries dynamics. It took years to establish a local organization since the initial leadership for collaboration was lost. Personal and inter-organizational conflicts inhibited the wider self-organization of collaborative networks. LPBR developed prior to the current norms of multi-stakeholder and inter-agency collaboration. So although governance arrangements for Lake Erie were well documented at the time (Francis et al., 1985), and institutional fragmentation was seen as the overarching obstacle to an integrated ecosystem approach, the biosphere reserve was ill-equipped to play a role in facilitating collaborative governance.

**Box 9.2. Elements of collaborative governance in UNESCO biosphere reserves**

## II. Collaborative Governance

1. To what extent has/is the BR self-organized? What local governance arrangements are in place and what are their strengths, weaknesses, challenges and opportunities?
2. To what extent is place-based governance used to define and address context-specific sustainability challenges?
3. To what extent does the BR organization engage in collaborative governance and how can it be characterized?

The GBBR was mobilized by a shared sense of place among its “warring factions” of cottagers, boaters, permanent residents and Aboriginal people. Yet, sustaining stakeholder engagement that is representative and meaningful (rather than merely symbolic or tokenistic) at the same time as it is practical, has proved to be a major challenge. In terms of fostering collaborative approaches to governance, the GBBR Inc. has played a significant brokering role within a large and disparate conservation community (both within and beyond its boundaries). However, the Board has not yet established collaborative relationships with Aboriginal communities or with stakeholders in the tourism industry, as they would wish.

Unlike the other two cases, the FABR was preceded by a long history of multi-stakeholder collaboration and integrated programs. What the FABR experience confirms is that the biosphere reserve model requires high levels of multi-stakeholder engagement to generate effective place-based governance arrangements and foster collaboration. Indeed, collaboration is essential to fulfill the three functions of UNESCO biosphere reserves. Since no single agency or organization can “govern” or “manage” sustainable

development in complex social-ecological systems, biosphere reserves facilitate collaboration by defining a common agenda, and sharing knowledge and resources to develop joint projects and collective solutions.

In all three cases local governments are generally viewed as barriers to sustainable development initiatives, because they lack supportive policies and programs in relation to biosphere reserves' interests. None of the sites experienced initial support from municipal governments, but rather had to spend considerable effort "selling" the concept of regional sustainability as part of the biosphere reserve model. In none of the cases have municipalities actively participated in biosphere reserve activities.<sup>35</sup> The LPWBRF has recently sought County council support for the expansion nomination, and it has been difficult to secure (Pollock [fieldnotesfield notes](#), 2008). FABR's extensive involvement in coordinating input from 20 regional organizations into four municipal Official Plans has given it a brokering role for informal, collaborative governance processes.

In LPBR, collaboration with multiple levels of government will be required for the Causeway Improvement project (to restore ecosystem function, reduce species loss, and improve human safety). In FABR, governments at all levels are learning from stakeholders about how to create more sophisticated approaches to conservation biology (the Habitat Availability Partnership and Community Atlas) and criteria for more sustainable tourism. And in GBBR, the fragmented nature of provincial, municipal, First

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<sup>35</sup> Since the time of participant interviews, FABR has been asked by the City of Kingston to help facilitate a Sustainable Community Plan.

Nation, and other jurisdictions and identities (e.g., cottagers, boaters, and permanent residents) have so far impeded collaboration on a common vision.

Three distinct styles of collaboration are present in the case studies, as listed in Table 9.6. The LPWBRF has worked in relative anonymity for decades, contributing to the conservation function rather quietly, while larger organizations (e.g., land trust, conservation authority) take the lead in defining the agenda. Although historic conflicts and low organizational capacity have prevented the LPWBRF from becoming the type of facilitator it now seeks to be, two events indicate a possible change. The Causeway Improvement Project has placed the biosphere reserve organization in the role of brokering collaboration for a high-profile initiative. And the community sustainability workshops and conference allowed the LPWBFR to articulate an agenda for more integrated sustainability *and* reshape their identity as a facilitator of sustainable development. The application to UNESCO for renaming and expansion provides a third opportunity to collaborate with new stakeholders, advance their agenda, and test their desired role.

Unlike in Long Point, where the local biosphere reserve organization has worked from behind the scenes, FABR is in the collaboration business. It actively “starts conversations for sustainable development” and seeks to organize self-organization among potential partners. Both the conservation community and tourism operators have identified the biosphere reserve as an “umbrella” or unifying framework. FABR has had sufficient organizational capacity to develop a clear vision of, and agenda for, building sustainable

communities *through* partnerships, and it communicates this message clearly and consistently. Collaboration is their mode of operation, along with consultation, citizen engagement, and network creation. Evidence of this is how the “Biosphere Network” has entered two major economic domains (agriculture and tourism) in a short period of time, in an attempt to influence governance through multi-stakeholder collaboration.

The GBBR Inc. has sought to connect stakeholders, build trust, and create local governance arrangements primarily by using a shared sense of place. It has attempted to overcome some of the historical divides between different constituencies, but the demographic and economic differences between them persist, making it difficult to engage all groups enough to implement a truly collaborative approach (see Donahue, 2004). Perhaps with time, the biosphere reserve will build trust and become an effective broker. To do this, however, will require greater organizational capacity (in terms of staff and resources) and citizen engagement, to initiate collaborative approaches to governance beyond what has already been established for the conservation community.

One of the themes embedded in the collaborative governance is the question of boundaries, especially for defining issues (or domains) and engaging stakeholders. The scope of issues can be defined by boundaries, and vice versa: biosphere reserve boundaries can define the issues. This dynamic is most visible in the Long Point case. The early focus on conservation of the aquatic system around Long Point and the Inner Bay could be interpreted as simply a reflection of core area boundaries that set the terms of engagement for related governance stakeholders. Changing the boundaries of the

biosphere reserve (i.e., the proposed expansion to the scale of Norfolk County) will require engaging an expanded set of players. The implication of redefining physical boundaries is that it helps to define a broader scope for a sustainability agenda.

<b>Collaborative Approaches</b>	<b>Long Point</b>	<b>Frontenac Arch</b>	<b>Georgian Bay</b>
1. Self-organization	The Long Point World Biosphere Reserve Foundation: emerged from conflict, slow to collaborate	History of collaboration; “The Watershed” organization replaced by “The Biosphere Network” that is highly collaborative	The Georgian Bay Biosphere Reserve Inc: highly collaborative in conservation community, otherwise slow
2. Place-based governance	Early focus on aquatic systems, then forests, expanded to farming	Strong sense of place, culture and history drives community development	Sense of place: a common bond for stakeholders: is there a common vision?
3. Characterizing collaboration	Worked behind the scenes; facilitator of the multi-stakeholder Causeway Project	A “unifying framework” for collaboration across conservation, education & sustainable development	“Voice of the conservation community” but need to engage First Nations and tourism sector

Table 9.6 Summary of collaborative approaches to governance in biosphere reserves

The other implication is that governance for sustainability is collaborative, engaging civil society for legitimacy, accountability, and effectiveness. As one player at the table, governments are called upon to share their resources, knowledge, and power with the other players. As the lists of organizations engaged in conservation activities in each case study show [Appendices V, VI, and VII] there are many potential combinations for collaboration across boundaries, sectors, and disciplinary silos. At the same time, the involvement of civil society raises important governance issues. Biosphere reserves may not be representative or accountable, which poses some challenging questions about who

governs biosphere reserves. UNESCO's 10-year periodic review process aims to determine progress towards the three functions; it might also assess the governance arrangements of biosphere reserves in terms of criteria for good governance [Table 4.1] deliberative democracy and citizen engagement.

In summary, these three cases show that biosphere reserves have the potential to be collaborative governance mechanisms that are flexible and responsive to system changes. Their experiences also confirm reports from the literature that processes of collaborative governance demand and produce mutual respect, trust and other forms of social capital that lead, in turn, to the creation of social networks. The creation of governance networks and the role of biosphere reserves as network managers, make up the final dimension of the conceptual framework, as explored below.

### **9.3.3 Managing Governance Networks**

The final proposition in this study is that biosphere reserves play an important role in creating and maintaining governance networks. Networks are generally considered an effective way of engaging others in defining and pursuing sustainable development objectives. They typically connect individuals and organizations by establishing common goals and collective action. As governance structures, networks are considered more flexible than hierarchies (e.g., bureaucracies) and more able to operate and influence across levels and scales. The conceptual framework emphasizes the potential for local biosphere reserve organizations to facilitate the creation of networks and for them to “manage” those networks, partly by tracking the larger governance system (i.e., the dynamics of metagovernance) for the full scope of sustainability considerations.

In each of the three cases, local organizations used some degree of networking to navigate and establish various governance arrangements to fulfill their biosphere reserve's functions. In every case, stakeholders have been asked to decide upon particular roles and priorities that the biosphere reserve organization should take on. But only in the Frontenac case was the biosphere reserve organization able to perform a network management role, in terms of facilitating communication, building capacity for network members, and tracking progress towards common goals. Specific elements of governance networks [Box 9.3] and their dynamics in each of the cases are summarized below.

**Box 9.3. Elements of governance networks in biosphere reserves**

**III. Governance Networks**

1. To what extent are local BR organizations involved with networks and in what capacity?
2. To what extent do BR participate in network governance as managers?
3. To what extent are BR organizations aware of the dynamics of metagovernance?

In Long Point, the biosphere reserve is involved in very few networks and plays a minimal role in network governance. The series of "Sustainability Workshops" in 2006 engaged citizens and stakeholders in identifying new priorities and projects for the LPWBRF. The community conference supported informal networking activities, but did not appear to generate any self-organizing networks, partly due to the LPWBRF's inability to orchestrate network development or "organize self-organization." The Causeway Improvement Project is a brokerage exercise among network partners to share perspectives about a common goal and to collectively raise necessary resources. The

application to UNESCO for expansion and renaming requires extensive networking activities – activities that may place the biosphere reserve organization in the position of brokering consensus among key actors (e.g., the County Council, the Conservation Authority, the Ontario Ministry of Natural Resources, etc.) and gradually building public awareness and support.

In Frontenac Arch, the biosphere reserve is considered a “network of networks” and the local organization plays a network management role through facilitation and communication. Staff and volunteers strategically broker new organizational relationships and “start conversations” between various players that might stimulate network formation to “fill in the cracks” in governance for sustainability. The Frontenac Arch “Biosphere Network” often plays a convening, bridging, and open forum role for stakeholders to address inter-jurisdictional issues. They do not “duck the issues, but design the forum for them” (FABR-3) to be aired or resolved. Collaborative processes and network structures have helped to integrate many otherwise disparate programs and projects in the areas of conservation and environmental protection, education and sustainable community development. “As a result, progress towards sustainability in this region has been accelerated and enhanced” (FABR, 2007a: 123).

Although FABR has had positive experiences with governance networks, in terms of finding common goals and sharing resources, they have encountered challenges as well. Lateral relationships need to be nurtured – a costly exercise in terms of staff time. “By its very nature, a network is sustained by the act of bringing people together, keeping them

informed, providing them with needed information, support and advice.” (FABR, 2005b: 9). As network membership grows or changes, some continuity is required in terms of sharing a vision, purpose, and objectives. Self-organized networks also require some level of internal leadership otherwise constant network management is impossible for a small organization.

The Georgian Bay Biosphere Reserve has only begun to establish networks for its work. GBBR Inc. has enrolled a growing number of conservation organizations, across scales, to develop a coordinated conservation strategy. The biosphere reserve has been asked by stakeholders to be a node in this network and to provide a “voice for the conservation community.” It is seen to provide a unique and important role in terms of providing an umbrella function and open forum for bringing other organizations together for the purposes of interdisciplinary, cross-scale collaboration and deliberation.

GBBR’s other two committees – tourism and education – have not developed sufficiently to assess their emergent governance structures. Unlike the sustainable tourism initiative established in FABR, there is less clarity about the role of the GBBR Inc. in this domain, which may be one reason why tourism stakeholders have largely failed to remain engaged. By contrast, educators have identified their desire for a network structure, have self-organized with minimal GBBR involvement, and have chosen to use Internet-based tools to share resources and maintain connections. To what extent it will require more active facilitation from the GBBR Inc. is still unknown.

<b>Governance Networks</b>	<b>Long Point</b>	<b>Frontenac Arch</b>	<b>Georgian Bay</b>
1. Network creation	Low. Conservation community in conflict and competition.	High. Eight sub-networks in various stages of development.	Unknown. Preliminary ones for conservation and education.
2. Network management	Low. Sustainability workshops supported networking for stakeholders.	Yes. A network of networks; major coordination and communication role.	Medium management of conservation network; minimal involvement for education network to date.
3. Aware of dynamics of metagovernance	Low, but growing.	High, but difficult to maintain.	Low, but growing.

Table 9.7. Summary of governance networks and network governance in case studies

As illustrated in each of these cases [Table 9.7], there is the need for a central node or body to track the governance arrangements (layers and players) and social-ecological system changes. This function could fall to biosphere reserves in order to track progress and regression in sustainability (in terms of policies, programs, and initiatives). They could also then facilitate strategic collaboration and networks to fulfill their three functions because they would have an overview of what is and what is not being done. Rather than creating a new organization or government institution for this purpose, biosphere reserves could build a culture of collaboration through better communications, coordination, and networking. There is the potential for local biosphere reserve organizations to develop and maintain a “big picture perspective” of relevant activities and changes, as a form of “governance watch” that is not undertaken by any existing parties (Francis, 2007a), but that contributes considerable governance capacity in the form of information, knowledge, and gap analysis.

In the cases where biosphere reserves created governance networks, it was clearly challenging for them to be fully aware of the range of organizations and other networks that influence governance for sustainability. Only in Frontenac Arch was the biosphere reserve organization actively trying to keep abreast of all the layers, players, and system changes in the region, although it lacks any formal recording or tracking mechanism for this activity. In Long Point, the biosphere reserve has embarked on a highly consultative exercise in the UNESCO application for expansion, which may lead to informal network creation (comparable with FABR's open membership structure) and a possible "governance watch" function. Awareness of metagovernance in the Georgian Bay Biosphere Reserve is generally low, but has been introduced as a potential role for the conservation committee. Recently, the GBBR Inc. board of directors proposed gathering information on the social and economic dimensions of the region (including more detailed information about seasonal tourism) in order to track the metagovernance system that they must navigate in order to influence governance for sustainability.

#### **9.4 Leadership: An Emergent Role for Biosphere Reserves**

The conceptual framework explored above was derived from a large interdisciplinary literature related to governance, sustainable development, and UNESCO biosphere reserves and informed by the author's previous experience with biosphere reserves in Canada. In analyzing the application of the conceptual framework, the theme of "leadership" emerged as a cross-cutting theme [Appendix III] and is developed in the following discussion in order to enhance the conceptual framework. This theme is consistent with some of the recent literature on adaptive governance where leadership

was identified as a key factor for trust-building, sense-making, managing conflict, linking key individuals and initiating partnerships among actor groups, compiling and generating knowledge, developing and communicating vision, mobilizing broad support for change, and gaining and maintaining the momentum needed to navigate the transitions and institutionalize new approaches (Olsson et al., 2006; Berkes et al. 2003, Olsson 2004b, Folke et al. 2005).

### ***Leading with a Shared Vision, Clear Agenda, and Assessment Tools***

The leadership theme suggests that biosphere reserve organizations must take greater roles in facilitating and articulating a shared vision of integrated sustainability in order to engage civil society, governments, and the corporate sector in collaborative initiatives. This is especially so in Long Point (where integrated sustainability has only recently been defined) and in Georgian Bay (where integrated sustainability is largely undefined). Frontenac Arch has been quite insistent about “sustainable community development” as the overarching theme for all its work and seeks to match the vision and values it promotes with tangible demonstrations, such as the Local Flavour network for supporting agricultural livelihoods. A clear and collective vision is considered by FABR to be a “driving force” for sustainable development decision-making – and one that could be cultivated by other biosphere reserves and civil society organizations (e.g., Olsson, 2007).

Beyond providing a guiding vision, biosphere reserves need to establish a clear agenda for sustainability. To influence not simply the structures and processes of governance as described in this study, but also to influence sustainability outcomes, biosphere reserves

must participate in setting an agenda for sustainable development. In Frontenac Arch, the agenda for sustainability that has been articulated by the biosphere reserve has guided a variety of organizations, including government agencies, to pursue different parts of that agenda and to expand it as opportunities arise.

Biosphere reserves might also provide leadership by assessing sustainability in key decision areas, such as food production, energy alternatives, transportation options, and land use policies. They might effectively apply sustainability criteria or resilience analysis as tools to various governance domains and arrangements (e.g., for fisheries, agriculture and forestry) or to government policies and programs to assess where different sub-systems in the biosphere reserve fall on the vulnerability-to-resilience spectrum and whether progress is being made toward sustainability. Biosphere reserves might play a critical role in guiding social-ecological systems towards sustainability by using systems thinking and tools from Gunderson and Holling's (2002) panarchy theory. They might view their biosphere reserve in terms of adaptive phase cycles in order to assess particular threshold points (or vulnerabilities), anticipate collapse, and intervene in the system to create or seize new opportunities for re-organization toward sustainability.

For example, in Long Point, where tobacco production is on the verge of collapse, the biosphere reserve has observed this shift, and has engaged their communities in planning and implementing economic alternatives, such as organic production, niche markets, ecotourism and agrotourism. Clearly, a much larger-scale plan endorsed by the municipality along with the agricultural and economic development sectors (e.g.,

chambers of commerce, tourism marketing, etc.) is needed, but the biosphere reserve organization might well provide the early warning for social-ecological system changes and catalyze collective responses.

### ***Facilitating Conflict and Collaboration in an Open Forum***

The theme of leadership is confounded by the apparent desire of biosphere reserves to be politically neutral. There is a tension between biosphere reserves advancing a model and agenda for sustainability yet avoiding an advocacy role. All the biosphere reserves in this study emphasized the extent to which they were “non-advocacy” organizations. Although UNESCO biosphere reserves have no regulatory powers, they wield a certain amount of moral authority, social privilege, and accrue power through networks and connections.

Arguably, the normative dimensions of sustainability make it impossible for a biosphere reserve to claim the role as a completely neutral forum. Rather, providing an open forum for democratic deliberation, where multiple perspectives might be exchanged, values clash, and difficult choices made, is perhaps a more realistic and a desirable contribution of biosphere reserves to governance for sustainability. This role is most reflective of the type of “innovative governance mechanisms” (NRTEE, 2003<sup>2</sup>) that has been identified for biosphere reserves and holds enormous potential for environmental mediation if such a role can be fulfilled by these organizations.

For biosphere reserves to play a stronger role as models for sustainable development, they must articulate and advance an agenda that is sufficiently broad so as not to become

mired in parochial controversies, yet sufficiently precise so as to account for context-specific issues and challenges. The three functions of UNESCO biosphere reserves are abstract concepts that are better communicated with place-based examples. Although biosphere reserves are intended to work across scales, the ones in this study often struggled with selecting a particular scale of governance at which to focus operations and influence. For example, the Long Point World Biosphere Reserve Foundation debated whether taking action on a local pesticide use would portray them as an environmental advocacy organization and thus reduce their credibility as brokers for regional sustainability initiatives (Pollock [fieldnotesfield notes](#), 2007).

Similarly, the Georgian Bay Biosphere Reserve refrained from participating in the deliberations about the Port Severn development because it threatened their perceived neutrality. Yet the GBBR Inc. signed a petition about federal treatment of ballast water to control the spread of invasive species into the Great Lakes because it was seen as a higher level, less controversial and therefore “safe” issue. While biosphere reserves need to identify their core values and “stand for something,” they do not want to be seen as “taking sides” as this would jeopardize their role as facilitators and brokers.

Biosphere reserves thus face a dilemma in how to articulate their particular agendas – internationally-guided by UNESCO’s three functions for biosphere reserves yet locally-determined by particular issues – and their roles. Biosphere reserves struggle to uphold core principles yet act as “neutral” facilitators, removed from controversy. It is argued in this study that biosphere reserves have a unique and powerful role to play as facilitators.

Biosphere reserves can potentially advocate a broad agenda for sustainable development by facilitating contentious issues and decision-making processes. The classic example is development of wind power (described in section 8.3 and Box 8.1 for Georgian Bay but is an issue facing many other communities), where the Ontario Ministry of Natural Resources and municipalities in Ontario govern land use, and are thus open to public persuasion. Providing an open forum to define issues, air concerns, exchange perspectives, and make trade-offs is indeed a unique role for biosphere reserves, and one that few other organizations can play.

### ***Fostering Social Innovation***

All the cases reveal the significance of leadership for organizational development. The renewal of the LPWBRF Board at several points in its history, for example, relates the theme of individual leadership to organizational effectiveness. Frontenac Arch is “blessed” by good leadership in people who promote a collaborative culture and actively nurture network formation. The founder of GBBR Inc. spent seven years involved with community consultations to support biosphere reserve nomination.

Donahue (2004) underscores the importance of organizational leadership – where the initiator (i.e., the biosphere reserve) represents the public interest and where partner organizations work strategically to align their goals and contributions. As brokers and managers of network governance, biosphere reserves “lead from behind” by enhancing the capacity of network partners to achieve collective goals, rather than imposing their

own agenda. These are examples of the kind of innovative, non-traditional leadership roles that biosphere reserves might play.

Patterns of organizational development, maturity, collapse and renewal have been documented by Westley et al. (2007) who use complex systems thinking and Holling's adaptive cycle to point to the role of "social innovators" for anticipating change and aligning new opportunities. Social innovation requires collaborative enterprise; the social sector, public sector and private sector must work together to create transformative change (Social Innovation Generation, 2008). In the case of biosphere reserves, social innovation relates to the themes of "organizing self-organization," creating adaptive organizational structures, and engaging citizens at the right time. Indeed, the theme of timing (i.e., being in the right place at the right time; an alignment of the stars, and windows of opportunity) emerged in all the cases and invites further study as biosphere reserves evolve.

### ***Engaging Government in Collaborative Governance***

One of the final, and most perplexing, emergent themes related to the leadership role of biosphere reserves, is about the role of government. As noted earlier, biosphere reserves spend considerable time promoting sustainability initiatives, but until government is fully engaged (through policies, regulations, incentives, and funding programs), sustainability initiatives cannot be implemented at the scale that is perhaps required for broad social and economic change. As civil society organizations, biosphere reserves receive only minimal, and then inconsistent, support from governments. Most receive no long-term

core funding for their work and rely on insufficient membership fees, donations, and short-term project grants. They cannot sustain their organizations by citizen engagement alone. They risk volunteer burn-out and organizational collapse.

Most biosphere reserves in Canada are effectively, if not entirely, operated by volunteers. The cases in this study underscore the intensive effort of volunteers to create organizations capable of coordinating biosphere reserve activities. Board members, committee members, fundraisers, and sometimes staff, work in a volunteer capacity, and often do so for years. The Long Point Biosphere Reserve has struggled for 22 years to establish a functional organization based almost entirely on volunteer contributions (and some short-term project staff). Although FABR has a full-time executive director, he volunteers much of his time in order to redirect his salary to support other staff positions. All the cases are reliant on project grants for short-term contract staff – an arrangement that rarely provides the continuity and organizational capacity that sustainability programs require. Only FABR has realized that “networks sustain programs” but even they lack the financial resources needed to be fully operational.

The UNESCO model does not require government participation beyond the legal protection of core areas and national MAB committee endorsement of new nominations (which in Canada, flows through the Canadian Commission for UNESCO and the Department of Foreign Affairs). UNESCO is rather silent on the role of national governments, and understandably so, given the intergovernmental nature of the MAB program and the respect for national sovereignty embedded in the biosphere reserve

model. Lack of requirements for government support of biosphere reserves leaves some with little national support (such as those in France, Russia, Sweden, and Canada) and all vulnerable to total government withdrawal.

Only recently, and only after a decade of lobbying by the Canadian Biosphere Reserves Association (CBRA), has the federal Department of Environment announced basic funding for biosphere reserves – a fraction of what national parks receive – and then only for two years (2008-2010). As of January 2009, however, the funds have not been forthcoming and would now be for a much shorter period of time (12-15 months) and therefore local organizations will be unable to create new programs and initiatives. Whether biosphere reserves will receive the funding that was promised, or be able to sustain or increase that level of support in future years, is unknown.

### ***Institutionalizing Biosphere Reserves***

The volunteer nature of Canadian biosphere reserves directly affects their ability to pursue sustainability in a concerted or strategic way (due to volunteer turn-over and volunteer burn-out, for example) and therefore fundamentally affects their ability to influence governance. Institutionalization of biosphere reserve organizations would likely require core government funding but would allow permanent staff to coordinate volunteer efforts, facilitate collaborative processes, and “manage” various governance networks to fulfil the three functions of biosphere reserves. In turn, biosphere reserves might become valuable advisors to government, as they are community-based and “closer to the ground” in terms of assessing regional sustainability in a national context.

Institutionalization of biosphere reserves, to the point that they become familiar “household names” and fixtures on the governance landscape (comparable to national parks), would require a sustained financial base, and a commitment from various levels of government to support the biosphere reserve model. Within CBRA, there is interest in establishing an arms’ length secretariat for biosphere reserves (similar to the Heritage Rivers Secretariat within Parks Canada, the Model Forest program supported by Natural Resources Canada, or Environment Canada’s Atlantic Coastal Action Program) to avoid possible co-optation by government yet to enhance the network with stable resources. This arrangement would also hold the Canadian government more accountable for supporting biosphere reserves that they nominate to UNESCO.

However, any top-down approach would need to be reconciled with the spirit of the biosphere reserve model. That is to say, the community-based and self-organizing phenomenon of biosphere reserves – a process that is truly spontaneous – must be preserved. It cannot be replaced with a centralized plan to control the development of a certain number of biosphere reserves that are representative of particular parts of the country, for example. European biosphere reserves that are embedded in government agencies and other quasi-governmental arrangements would provide some insight into the role of government in biosphere reserve development and activities. Other countries in the World Network would have much to offer the Canadian experience, as noted by Ishwaran et al. (2008) and others.

The question of whether biosphere reserves in Canada would be better served by a

dedicated government agency is difficult to answer. On the one hand, biosphere reserves are desperate for the resources they need to fulfil basic functions (e.g., communications, education, and informal networking through workshops, for example). With government management of biosphere reserves, like parks, the capacity to undertake sustainability initiatives would be substantially greater. On the other hand, it is unlikely that a government body could generate quite the same level of trust, social capital, collaboration and networks required for these types of initiatives to be widely successful in communities. Indeed, this study found that collaboration is essential for sustainable development since no single organization can generate or govern sustainable development and all that it entails.

### *Steering Governance for Sustainability*

People in biosphere reserves are also beginning to see governance as a fluid process to which they can contribute by steering collaborative governance arrangements towards particular decision making priorities and objectives (e.g., habitat protection, local food production, sustainability plans, etc.). This and related research suggests that biosphere reserves need to assess critically the potential for strategic governance arrangements with organizations and agencies within and outside their boundaries (Pollock et al., 2008). Where government does not engage with biosphere reserves, then biosphere reserve organizations may seek to influence governance by setting agendas, monitoring social-ecological system change (in terms of resilience, for example), measuring and reporting progress towards sustainability, and holding governments accountable.

**Box 9.4. Elements of leadership roles available to biosphere reserve organizations**

**IV. Leadership for Sustainable Development**

1. To what extent do local BR organizations facilitate and articulate a shared vision?
2. To what extent do BRs promote a substantive agenda for sustainability?
3. To what extent do BRs use sustainability assessment or resilience analysis tools?
4. In what ways do BR organizations provide an open forum for deliberation of trade-offs, or act as informal governance mechanisms for collective decisions?
5. How are social innovators involved and how do they affect the leadership capacity of the local BR organization?
6. What is the role of government? Does it enable or constrain BR effectiveness?
7. To what extent have BR organizations institutionalized, and how?
8. To what extent do biosphere reserve communities appear to be steering governance towards sustainability?

The Sustainable Norfolk conference in Long Point, the development of national models for sustainable tourism in Frontenac Arch, and creation a coastal conservation strategy for Georgian Bay are examples of leadership. They are neither advocacy activities nor politically neutral. To steer governance for sustainability, biosphere reserves must play a variety of creative leadership roles to address the complex and cross-scale challenges of sustainable development [Box 9.4].

This research suggests that biosphere reserves could expand their governance influence and effectiveness for sustainability by building organizational capacity and exercising leadership of the kinds described above. The emergent theme of leadership promises to

enhance the conceptual framework as it is applied in future. It poses a set of challenging questions about the biosphere reserve model, its organization and its effectiveness, and raises questions for future research.

The relationships among the four dimensions of the conceptual framework are not well understood. The scope of this research is limited to discovering the roles of biosphere reserves in governance. However, it appears that the roles are linked: a biosphere reserve's integrated model of sustainability inspires people and organizations to participate in collaborative modes of governance, where the biosphere reserve facilitates a shared vision and establishes common goals, which gives rise to self-organized governance networks.

In this organic process, biosphere reserves provide leadership by articulating an agenda for integrated sustainability, brokering collaborative modes of governance and providing network management, in terms of supporting communication and coordination where needed and tracking the "big picture" to see what gaps need to be filled. To fulfill these many roles, biosphere reserves require the capacity for leadership, i.e., organizational capacity, a clear purpose, and strong facilitation skills to foster democratic dialogue about the future.

Reflecting on their contributions to governance, the Frontenac Arch Biosphere Reserve (2007: 123) explains the powerful connection among their roles:

An established strength of the Frontenac Arch Biosphere Reserve has been to broker and facilitate partnerships and collaboration between many of the

government, non-government and First Nations of the region. This collaboration has led to integration of many otherwise disparate programs and projects in the many avenues of environmental protection, education and sustainable community development. As a result, progress towards sustainability in this region has been accelerated and enhanced. This is a strong contribution by biosphere reserves both regionally and globally.

The experience of Frontenac Arch in performing multiple and mutually reinforcing roles is striking. It suggests that the conceptual framework components are more deeply linked than they first appear. It also suggests that this type of influence in governance is available to other biosphere reserves, given the right conditions and combinations of human capital, social innovation, cultural acceptance, and organizational leadership. Each of these criteria in turn depends on many other factors: another part of the agenda for future research.

## **9.5 Research Conclusions**

For almost 40 years, UNESCO's biosphere reserve model has provided a set of high ideals to which biosphere reserve organizations and their communities strive. It is a powerful model of community-based sustainable development because it integrates theoretical, scientific, and cultural perspectives on sustainability across whole landscapes, empowering people to experiment with its implementation in their special place, and to share what they learn with others around the world.

The driving question in this research is about the contributions of UNESCO biosphere reserves to governance for sustainability. The conceptual framework, revised above, helps to convey the interpretation used in this work, that biosphere reserves are at once

models for integrated sustainability, collaborative multi-stakeholder processes, and innovative governance structures, and provide leadership to fulfill each of these roles in a variety of ways. They are simultaneously international demonstration sites and local organizations that must navigate the layers and players of complex governance systems in order to influence governance for sustainability.

These research findings support this dissertation's guiding argument that governance is an imperative for sustainable development; that collaborative and integrative models of governance for sustainability are especially needed; and that UNESCO world biosphere reserves provide one such model. The conceptual framework is enhanced by a leadership dimension that highlights the role of facilitation (for visioning, agenda setting, sustainability assessment, providing an open forum), the role of social innovators, the role of government and possible institutionalization, and the prospects for steering governance systems towards sustainable pathways.

In over 20 years, the Long Point Biosphere Reserve has had little influence on governance for sustainability because it was involved in conflict rather than collaboration, it had little organizational capacity to articulate its purpose or to facilitate a shared vision, and focused on conservation activities rather than more integrated principles of sustainability, such as livelihood opportunities. The Long Point World Biosphere Reserve Foundation has since evolved to broaden its mandate and organizational presence, inject a sustainability agenda into the political landscape, and

broker more collaborative initiatives, especially through the proposed expansion to encompass Norfolk County.

In only six years, the Frontenac Arch Biosphere Reserve has witnessed an explosion of network activity. It benefited from a history and culture of collaboration, was willing to experiment with network structures, claim an integrative role, articulate its vision, and build its organizational capacity to become “a network of networks.” Frontenac Arch illustrates the process of using an integrated model of sustainability to generate social capital and broker collaborative processes that establish shared goals and emergent network structures. It has provided a leadership role in governance for sustainability by actively facilitating governance networks and supporting a wide range of sustainable development initiatives.

For the past four years, the Georgian Bay Littoral Biosphere Reserve has made tentative steps towards integration, collaboration, and network formation. The GBBR Inc. organization has built considerable capacity and established committees concerned with each of the three functions of biosphere reserves: conservation, sustainable development, and education. It has attempted to engage a diverse group of stakeholders in order to collaborate on a shared vision and joint initiatives.

From only three case studies, this research reveals a significant number of potential roles for biosphere reserves in governance for sustainability [Table 9.8]. These roles are distilled from the literature and from empirical data analysis and require much further

exploration to confirm which roles are actively performed by biosphere reserves, in what contexts; which roles have the most influence on governance and which build governance capacity for sustainability. Some roles, like moral authority, are embedded in the biosphere reserve model; others, such as the bridging and brokering functions need to be learned and practiced.

Clearly, different roles for biosphere reserves will be required in different places and situations. For example in Long Point, mediation was needed in an open forum over disputes between commercial and recreational fishing. In Frontenac Arch, a large number of conservation initiatives needed to be woven together under a unifying framework. In Georgian Bay, conflict resolution was needed by biosphere reserve proponents prior to designation to bridge historic tensions between boaters and cottagers, cottagers and

<b>Potential Roles for Biosphere Reserves in Governance for Sustainability</b>	
1.	Integrative/unifying framework for sustainable development
2.	Innovative mechanism for involving communities in whole-landscape approaches
3.	Flexible template for defining context-specific sustainability challenges and solutions
4.	Catalyst for place-based governance: citizen engagement and building social capital
5.	Moral authority carrying international recognition and responsibility
6.	Facilitator of multi-stakeholder collaboration
7.	Organizer of self-organization
8.	Experiments for social learning and adaptive governance
9.	Bridge for building trust and social capital
10.	Broker for creating inter-organizational domains and governance networks
11.	Boundary organization for translation and mediation across disciplines/sectors
12.	Network manager or node in the network; tracking the big picture; metagovernance
13.	Facilitator and articulator of a shared vision
14.	Agenda setter – of a substantive platform for sustainable development
15.	Monitor of substantive sustainability advances and system vulnerability/resilience
16.	Provider of an open forum for democratic deliberation, decisions and trade-offs
17.	Leader of social innovation and inter-organizational leadership i
18.	Institutionalization for organizational capacity, social institutions, setting norms

Table 9.8. Potential roles for Biosphere Reserves in Governance for Sustainability

seasonal residents, and to reach out to First Nations. Roles may be combined or change over time, and only some roles will actually be granted by other governance players.

Although not the focus of this study, it appears that there are many factors that influence the roles of biosphere reserves. They range from the historical period of designation, social-ecological-system context, and external drivers, to organizational development, timing, levels of capacity and conflict. Other factors include the level of citizen engagement, volunteer activity, membership structure and funding availability. In terms of their substantive contribution to sustainability, “[t]he mismatch between policy and practice may be attributable to information, data or knowledge gaps. But more often, it is due to the absence or lack of human or institutional resources...” (Ishwaran et al., 2008: 127). This is noted above in terms of the role of government in supporting community-led efforts and the possibilities for institutionalizing biosphere reserve organizations.

The role of biosphere reserves may also be affected by public values in relation to the environment and the economy, the level of discourse about sustainability, and public awareness about the biosphere reserve concept and the organization’s purpose. The cross-scale activities of biosphere reserves raise important questions about their ideal size and their prospects for mobilizing social capital and creating social networks. Is there a minimum and maximum size for biosphere reserves that local organizations can reasonably manage? Is there a clearly defined space, place, and set of governance structures that they can effectively navigate and influence?

The internal governance capacity of the local organization is often constrained by the external governance context, including political climate, government policy directions, economic state, and demographics. Jurisdictional fragmentation, cultural divides, and diverse constituencies also have an enormous bearing on the ability of any biosphere reserve organization to facilitate a shared vision, broker collaborative processes, or manage effective networks. Each of these areas certainly has its own implications for governance and would benefit from further study.

The main contributions of this research are:

- i. The development and application of a conceptual framework about environmental governance and the role of biosphere reserves in sustainable development;
- ii. A fine-grained analysis of biosphere reserve organization, evolution, and sustainability activities in Ontario;
- iii. A comparative analysis of three Canadian sites that might inform the Canadian Biosphere Reserves Association and World Network of Biosphere Reserves;
- iv. Implications of complex systems thinking for collaborative governance and governance networks, and,
- v. An empirical study of biosphere reserves to contribute to the literature on governance for sustainability.

In conclusion, UNESCO biosphere reserves have the potential to play a unique role in providing facilitation, coordination, and communication services for networks of other actors. Few other organizations have the explicit mandate to be “experiments” or “demonstration sites” for sustainable development, or have gained sufficient trust to broker collaborative processes, encourage self-organization, or become network managers. In these respects, biosphere reserves have the potential to influence governance processes and structures that ultimately affect sustainability outcomes. They provide powerful models for integrated sustainability, that when combined with informal

governance structures and processes, contribute significant capacity for social change.

Ultimately, these organizations have shown the potential to influence governance, yet the process requirements are enormously challenging and the outcomes are always unpredictable.

## **9.6 Research Implications**

The case studies have shown how biosphere reserve organizations are embedded in a much larger governance context that can enhance or constrain movement toward sustainability. Yet, this research suggests that as local organizations begin to navigate the jurisdictional layers that influence “their place” and network to negotiate the complex governance systems of which they are a part, they have the potential to provide a leadership role in governance for sustainability. The most significant finding of this study is that biosphere reserves play a unique and important role as facilitators in governance for sustainability.

There are broader questions here for the role of other civil society organizations in steering governance towards sustainability. Although the UNESCO biosphere reserve model provides a powerful framework for community-based sustainable development, other non-governmental organizations inspired by particular places, with similar sustainability mandates, might endeavour to emulate the role of biosphere reserve organizations in terms of facilitating collaborative, cross-scale, and multi-stakeholder governance arrangements. With a clear identity and a legitimate claim to represent the public interest (at present and for future generations), they might informally nurture self-

organization, governance networks, and collaborative initiatives. Arguably, greater participation from civil society, government, and the corporate sector are required to advance sustainable development. The findings from this study suggest a potentially powerful role for those organizations that can broker and mobilize collective efforts to that end.

The findings from the case studies also confirm the value of the following themes from the literature review in Chapter 4 and the conceptual framework in Chapter 5 that relate to sustainable development, complex systems, citizen engagement, collaboration, and network governance, and are organized below as such.

***Fostering a Culture of Sustainability:***

- i. The UNESCO biosphere reserve model has persisted for 40 years and has evolved to reflect integrated sustainability in the three functions of biosphere reserves. The model is intended to produce “a balance between people and nature” through the integration of conservation, sustainable development and capacity building (or logistic support). This guiding framework has the flexibility for local organizations to establish context-specific sustainability initiatives, to foster a wider culture of sustainability through demonstration projects, and to share their experiences regionally, nationally, and internationally.

- ii. Biosphere reserve organizations can promote integrated sustainability thinking and practice so that communities improve livelihood opportunities and establish economic sufficiency; ensure social inclusiveness and protect social entitlements (such as human and ecosystem health),;maintain ecological integrity and the protection of biodiversity in the face of resource use; and promote social equity within and across groups and generations. These principles should be effected by democratic governance structures and processes, using a precautionary approach, and resulting in adaptive learning. As noted by Gibson et al. (2005), these requirements are not individual targets but are an obligatory and mutually supporting set of considerations for sustainability decisions. The cases each have sustainability initiatives that produce mutual benefits: the Causeway Improvement in Long Point aims to restore ecological function and improve human safety and create opportunities for recreation and tourism. The project has introduced a far-reaching collaborative approach that may create new norms for governance. The Local Flavours network in Frontenac Arch supports agricultural livelihoods through an inclusive marketing program that links producers (organic and non-organic) with consumers, while building public awareness and new social norms. The Conservation Strategy for eastern Georgian Bay is a coordinated initiative to protect ecological integrity, through monitoring, communication, and stewardship among dozens of agencies and organizations that might not otherwise integrate their activities, identify conservation-related needs, or share their common concerns with policy-makers.

- iii. Despite a clear articulation of the integration ideal, biosphere reserves are faced with enormous challenges to implement integrated activities, across sectors and across scales. They must navigate complex governance arrangements, use moral suasion to establish a common vision and common goals among divergent interest groups, and facilitate consensus among competing values. The organizations in this study indicate potential for environmental mediation through collaboration, outreach, education, increasing social capital, and creating integrated understandings (e.g., through FABR's "sustainable community" concept or GBBR's mission for "seven generations") and practices.

***Responding to Complex Systems and Cross-Scale Issues:***

- i. Biosphere reserves constitute complex social-ecological systems. An applied complex systems approach offers the most appropriate perspective for understanding the social, ecological, economic and governance dynamics of the sustainable development challenge.
- ii. The UNESCO biosphere reserve model and local biosphere reserve organizations can be seen as responses to increasingly complex issues of public concern that transcend political jurisdictions and traditional management approaches. Since "No single actor, public or private, has all the knowledge and information required to solve complex, dynamic and diversified problems" (Kooiman, 1993: 657); therefore, biosphere reserves play a facilitation role for collaborative

governance where stakeholders share perspectives, knowledge and resources for collective decisions and solutions.

- iii. The fluid boundaries of biosphere reserves make them well positioned to address the cross-scale sustainability challenges characteristic of complex systems (Cash et al., 2006). They create informal institutions with fluid boundaries to integrate and transcend established jurisdictions through collaborative governance. One of the strengths of biosphere reserves, therefore, is that they are umbrella organizations that “do not comfortably fit into the established framework of local, [provincial] and federal governments,” (McKinney et al., 2002: 2).
- iv. The flexibility of biosphere reserve boundaries (around core, buffer, and transition areas) allows a wide range of sustainability problems to be addressed, depending on how various stakeholders frame the issues.
- v. Biosphere reserves are further challenged to be aware of metagovernance dynamics or the complexity, plurality and tangled hierarchies (Jessop, 2002) involved in governance. The case studies confirm that this is a unique role that few other organizations can play.
- vi. “Finding ways to ensure that all these players act coherently, effectively and with some efficiency in the pursuit of sustainability... underlines the crucial role of

informal institutions” (Kemp et al., 2005: 18) and informal governance mechanisms, such as biosphere reserves.

***Engaging Citizens and Stakeholders in Collaborative Governance:***

- i. Citizen engagement is critical to governance for sustainable development and can be invited, mandated, or self-organizing. Where common goals are established and social capital and trust develop, collaborative social networks often result.
- ii. Collaborative governance, however, raises questions about the accountability of civil society organizations and the appropriate role of the state.
- iii. If governance is about power, relationships, and accountability, then biosphere reserves may engage government and other powerful actors in collaborative arrangements that share power (i.e., knowledge and resources) and establish relationships that demand accountability.
- iv. Sense of place is strongly related to volunteer motivation and stewardship ethics; iconic landscapes and the prospects of bioregionalism are catalysts for self-organization of biosphere reserve nomination and development.
- v. Place-based governance is the most appropriate way of addressing context-specific challenges and local values (McAllister and Edge, 2007; Bradford, 2002).

- vi. The open forum and facilitation of collaboration roles of biosphere reserves is seen to support democratic deliberation and the expansion of a green political sphere (Torgerson, 1999). Although sustainability outcomes are not guaranteed, this type of forum allows competing values to clash, difficult trade-offs to be made, and preferred scenarios for sustainability to be articulated and pursued.
- vii. Although untested in this study, the findings imply that biosphere reserves may have potential to be “boundary organizations” (Hahn et al., 2006) and fulfill their role as “theatres of reconciliation” (UNESCO, 2002) for mediation, conflict resolution, and “translation” across different disciplines and sectors.

***Governance Networks and Network Governance:***

- i. As noted above, biosphere reserves are seen as informal governance mechanisms (Rosenau, 1995), which are not endowed with formal authority but are imbued with moral authority by other governance players, including government.
- ii. Biosphere reserves are generally able to interpret local sustainability concerns and scenarios in light of global trends. Institutionalization of biosphere reserves could capitalize on this role for informing policies and decisions in various arenas.

- iii. Biosphere reserves are largely self-organized and often aim to foster self-organization in turn: they seek to preserve the autonomy of network participants within a framework of shared goals and resources, as per network theory (e.g., Rhodes, 1996).
- iv. Network effectiveness is measured by the attainment of network-level outcomes that cannot be achieved by individual organizations acting independently (Marcussen and Torfing, 2003). The Causeway Improvement Project, the Local Flavours network, and the Conservation Action Plan are each examples of network-level outcomes.
- v. Case study analysis supports the emergent theory that network effectiveness is enhanced by network governance (Provan and Kenis, 2007), something exemplified by the role of the Frontenac Arch Biosphere Reserve. Effective network managers play a facilitative role, empowering others to fulfill their own objectives, rather than their own (Rhodes, 1996).

## 9.7 Recommendations

This section provides some modest recommendations for the biosphere reserve organizations in this study and for UNESCO's biosphere reserve [programme](#), based on the findings from this dissertation work.

### **9.7.1 Long Point World Biosphere Reserve**

Through the identification of community priorities (such as sustainable agriculture) and growing political support for the expansion of the biosphere reserve to include new core areas, the LPWBRF may help to broker much larger, cross-scale and cross-sector initiatives. This remains to be seen. It is recommended that the proponents of the nomination pay close attention to sense of place and aim to incorporate the strong ties to agriculture in their proposal. As it builds organizational capacity, the biosphere reserve should consider taking on a “governance watch” function, to track and report on changes in the social-ecological systems around Long Point, including shifts in the demographic and economic context (e.g., due to in-migration of urban retirees, the development of new industries). Trends could be communicated to the public and to decision-makers in a State of the Environment type of report. This type of information might also provide the basis for crafting a series of future scenarios to which sustainability assessment might be applied and to which stakeholders could then design collaborative initiatives to advance their preferred scenarios.

The new board of directors has begun to articulate their agenda for sustainable development. The LPWBRF may wish to facilitate further discussions about how to build a “Sustainable Norfolk County” in order to establish a common vision and a more strategic plan. The consultations about a proposed expansion application to UNESCO that are currently underway have met with some resistance from stakeholders, including local and provincial government. Clear communication about the biosphere reserve’s proposed boundaries and purpose, the UNESCO model of integrated sustainability, and

LPWBRF's facilitative (non-regulatory) role will be essential for public support. Linking the proposed expansion to the values embedded in the Official Plan, using a sense of place and local pride in having international recognition, and identifying possible social and economic benefits may also enhance support.

Engaging local government and other key players in visioning and strategic planning may help to build the bridges that have been lacking in the past. The biosphere reserve has contributed incrementally to sustainability around Long Point over the past 20 years. Taking a leadership role may propel the biosphere reserve towards greater influence in terms of collaborative and network governance, across the whole regional municipality.

### **9.7.2 Frontenac Arch Biosphere Reserve**

In many ways, Frontenac Arch provides a model for other biosphere reserves in Canada. It has effectively brokered collaboration to establish networks for a variety of sustainability initiatives and has provided a powerful unifying framework for regional governance. Perhaps the "Biosphere Network" will discover a limit to the number of networks that can be reasonably managed without the organization losing identity or focus. Indeed, leadership from other players appears to be needed to protect the facilitative role of FABR itself. The Community Atlas and the Sustainable Tourism projects are both seen as overarching initiatives to link conservation, history, education, and sustainable economic development. However, they will require better articulation of their purpose (and in the case of tourism, clear criteria) to engage enough people and organizations in these large-scale and long-term developments.

It is recommended that FABR continue to produce models of integration and outreach for other biosphere reserves and communities to adapt. In this sense, FABR fulfills the intent of the UNESCO program by providing a “learning platform” for sustainable development. Their openness in sharing successes and failures, and exchanging lessons learned is to be commended. Finally, a new role for FABR appears to be emerging as it works more closely with governments to facilitate sustainability visions and plans, including the city of Kingston that recently invited members of FABR to advise them in that regard. There is the opportunity to engage governments at all levels, using the experience from Frontenac Arch to illustrate the potential of all biosphere reserves in Canada as community-based governance mechanisms.

### **9.7.3 Georgian Bay Littoral Biosphere Reserve**

As the newest biosphere reserve in Ontario, Georgian Bay Littoral Biosphere Reserve is poised to learn from the others in this study. The major recommendation for the GBBR Inc. is that it engage stakeholders in identifying common values (such as the shared sense of place) to guide the creation of a common vision. A clear vision for regional sustainable community development in eastern Georgian Bay, that integrates municipalities and First Nations is needed and is a unique role for the biosphere reserve to play.

Indeed, the cross-scale perspective provided by the “Littoral” concept could bring ecological and cultural landscape interpretations to bear in planning for sustainability. Specifying principles for sustainability, envisioning trade-offs, and defining elements of an integrated approach to community development should be roles for the GBBR Inc. to play. Practical initiatives, viewed as experiments in sustainable development, would

certainly generate public awareness and opportunities for social learning if they were mobilized by a sustainability discourse such as those established in FABR and recently introduced in LPBR.

Next steps to enhance collaboration in GBBR might include policy harmonization among coastal municipalities, authentic engagement with Aboriginal people, and continued support from provincial and federal agencies. Once a clear identity, purpose and vision for GBBR is established, it would enhance existing collaborative endeavours and nurture the preliminary networks that have emerged.

#### 9.7.4 **UNESCO's Biosphere Reserve Programme**

Although principles for sustainability are not specified under the UNESCO model, biosphere reserves must adopt, promote and implement some kind of criteria for sustainability to reinforce their agenda and their approach. The comprehensive set of principles developed by Gibson et al. (2005) for example, is well suited for this purpose. They include socio-ecological system integrity, livelihood sufficiency and opportunity, intra- and inter-generational equity, maintenance and efficient use of resources, democratic governance, precaution and adaptation. The overarching principle – and one that fits the mandate of biosphere reserves best – is that of immediate and long-term integration of all these principles simultaneously.

Each of the biosphere reserve organizations studied struggles to define a set of principles that they can use in their own work. Therefore, [the the-UNESCO/MAB -biosphere](#)

reserve programme might consider the development or adoption of a set of universally guiding principles to complement and contextualize the three basic functions that have already been established. Likewise, a more formal sustainability assessment as a component of the Periodic Review process would be helpful in gauging the substantive contributions of biosphere reserves to sustainability.

## 9.8 Directions for Future Research

Directions for future research are provided for each of the main theme areas of investigation including governance for sustainability in the context of complex systems, citizen engagement, integration, collaboration, networks, and leadership.

- i. Apply the conceptual framework designed to guide this research [Appendix VIII] to other biosphere reserves in Canada and in the world network to further elaborate on the transferability of these research findings;
- ii. Apply the conceptual framework to other civil society organizations, particularly those working at a landscape scale (and cross-scales) concerned with bioregional sustainability to test their roles in governance;
- iii. Explore the extent to which the conceptual framework components (integration, collaboration, networks, and leadership) are linked and influence one another to produce mutual benefits for governance;

- iv. Carry out comprehensive sustainability assessments and resilience analyses of the three cases used in this study at periodic intervals to measure progress towards sustainability, threats to it and responses;
- v. Assess whether social learning within biosphere reserves occurs at the scale required for adaptation or social change;
- vi. Further address the question of “governance watch” for biosphere reserves and test it in select biosphere reserves to identify possible approaches, challenges, and outcomes;
- vii. Further address the role of government in biosphere reserves in Canada, in Europe, and more generally for sustainable community development; examine the implications of institutionalizing biosphere reserves, including as quasi-non-governmental organizations with core funding but community-based autonomy;
- viii. Critically assess the possibilities for sustainable development (including tourism, agriculture, etc.) using sustainability criteria and the literature on “quality economies” from European biosphere reserves;
- ix. Investigate the factors that enhance and constrain the roles of biosphere reserves in governance identified above, including human capital, social innovation,

cultural norms, and organizational leadership; isolate major external and internal drivers to enhance the predictive capacity of the conceptual framework;

- x. Determine whether there is a minimum or maximum size for biosphere reserves that local organizations can reasonably manage: is there a clearly defined space, place, population base and set of governance structures that they can effectively navigate and influence? Is there sufficient social capital to create the conditions for multi-stakeholder collaboration and governance networks?
- xi. Using meta-analysis of empirical studies about biosphere reserves in other countries, develop a substantive theory about the UNESCO biosphere reserve model in terms of governance for sustainability;
- xii. Enhance the social and economic data available for biosphere reserves to support understandings related to livelihoods, income levels, wealth disparities and to support possible responses to issues of class, ethnicity, and social justice;
- xiii. Explore whether biosphere reserves, given enough time, could evolve to play an institutional role in terms of setting social norms and influencing behaviours of individuals and other institutions. As Kemp et al. (2005: 7) observe: “The challenge will be to find ways of establishing governance regimes that have reasonable coherence of vision and commitment, enjoy trust and are accountable, and have sufficient capacity for coordination.”

- xiv. Using specific sustainability decisions as examples, explore the role of biosphere reserves in fostering public discourse and social learning to influence collective decision-making;
  
- xv. Assess the role of resilience analysis and scenario building for biosphere reserve organizations and their communities to anticipate thresholds and make adjustments for desired change towards preferred sustainability scenarios.

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## APPENDIX I

### Types and Frequency of Participant Observation

#### 1. Academic Research Meetings/Presentations

19-Jan-05	Waterloo	BSP Research Meeting
10-May-05	Waterloo	BSP Research Meeting
30-May-05	Waterloo	BSP Research Meeting
27-Jul-05	Waterloo	Long Point Sustainability Workshops Meeting
15-Sep-05	Waterloo	BSP Research Meeting
13-Oct-05	Waterloo	BSP Research Meeting
14-Nov-05	Waterloo	BSP Research Meeting
19-Jan-06	Waterloo	BSP Research Meeting
20-Feb-06	Montreal	Meeting with A. Hanson
27-Feb-06	Waterloo	BSP Research Meeting
21-Mar-06	Waterloo	BSP Research Meeting
10-Apr-06	Waterloo	BSP Research Meeting
23-Apr-06	Quebec City	Meeting with D. Morley
9-May-06	Waterloo	BSP Research Meeting
24-May-06	Waterloo	BSP Research Meeting
25-May-06	Waterloo	Governance Seminar presentation
7-Jun-06	Winnipeg	Meeting with A. Hanson
26-Jun-06	Waterloo	BSP Research Meeting
27-Jun-06	Waterloo	Meeting with G. Francis
10-Aug-06	Waterloo	BSP Research Meeting
22-Sep-06	Waterloo	BSP Research Meeting
2-Nov-06	Waterloo	BSP Research Meeting
21-Nov-06	Waterloo	Meeting with G. Francis and R. Gibson
23-Jan-07	Waterloo	BSP Research Meeting
27-Feb-07	Waterloo	BSP Research Meeting
21-Mar-07	Waterloo	BSP Research Meeting
11-Apr-07	Waterloo	BSP Research Meeting
24-Apr-07	Waterloo	BSP Research Meeting
31-May-07	Parry Sound	BSP Research Meeting
7-Aug-07	Waterloo	Meeting with S.Slocombe and G. Francis
9-Aug-07	Waterloo	Meeting with G. Michelenko, M-L. McAllister
9-Aug-07	Waterloo	BSP Research Meeting
7-Sep-07	Waterloo	Meeting with G. Francis and R. Gibson
9-Oct-07	Waterloo	BSP Research Meeting
6-Dec-07	Waterloo	BSP Research Meeting
8-Jan-08	Waterloo	BSP Research Meeting

#### 2. Local Meetings and Workshops in the Georgian Bay Biosphere Reserve

8-Mar-05	Barrie	GBBR Inc. Board Meeting
29-Apr-05	Parry Sound	Georgian Bay Littoral Launch keynote
30-Apr-05	Parry Sound	GBBR Inc. Community Workshop
15-Nov-05	Killbear Park	Conservation Stakeholders Meeting
30-Jan-06	Barrie	GBBR Inc. Board Meeting
28-May-06	Carling	Franklin Island Stewardship Meeting
1-Jun-06	Barrie	GBBR Inc. Board Meeting
16-Jun-06	Parry Sound	Westwind Foundation Meeting
23-Jun-06	Parry Sound	GBBR Inc. Board Meeting

23 - 25 Jun-06	Parry Sound	Great Lakes Mayors and Reeves Meeting
23-Jun-06	Parry Sound	Conservation Committee Meeting
27-Jun-06	Midland	Georgian Bay Islands National Park research
12-Jul-06	Parry Sound	Georgian Bay Coast Trail Steering Committee
20-Jul-06	Franklin Island	Recreation impact monitoring
27-Jul-06	Honey Harbour	Conservation Stakeholders Meeting (2)
29-Jul-06	Freddy Channel	Cognashene Community Planning Session
13-Sep-06	Barrie	GBBR Inc. Board Meeting
14-Nov-06	Conference Call	Conservation Committee Meeting
13-Nov-06	Parry Sound	Canadore College-GBBR Inc. meeting
21-Nov-06	Conference Call	GBBR Inc. Board Meeting
19-Dec-06	Conference Call	Conservation Committee Meeting
19-Dec-06	Conference Call	GBBR Inc. Board Meeting
17-Jan-07	Midland	Conservation Committee Meeting
8-Feb-07	Burlington	Lake Huron Framework Pilot Project Meeting
21-Feb-07	Killbear Park	Conservation Stakeholders Meeting (3)
28-Feb-07	Barrie	GBBR Inc. Board Meeting
7-Mar-07	Parry Sound	Georgian Bay Coast Trail Steering Committee
4-Apr-07	Conference Call	GBBR Inc. Board Meeting
11-Apr-07	Parry Sound	Georgian Bay Coast Trail Steering Committee
23-Apr-07	Whata First Nation	Economic Development Committee Meeting
2-May-07	Parry Sound	Georgian Bay Coast Trail Steering Committee
11-May-07	Retreat	GBBR Inc. Strategic Planning Workshop
19-Jun-07	Parry Sound	GBBR Inc. Board Meeting
20-Jun-07	Parry Sound	Lake Huron Bi-National Partnership
23-Sep-07	Barrie	GBBR Inc. Board Meeting
11-Oct-07	Nottawasaga	Lake Huron Framework Pilot Project Meeting
23-Oct-07	Barrie	GBBR Inc. Board Meeting
29-Oct-07	Parry Sound	GBBR Inc. Conservation Committee Meeting
23-Nov-07	Parry Sound	Lake Huron Framework Pilot Project Meeting

### 3. Presentations about Biosphere Reserves &/or the GBBR

17-Feb-05	Parry Sound	Ducks Unlimited Open House
7-Mar-05	Parry Sound	Environmental Advisory Committee
15-Apr-05	Parry Sound	North Star: 6000 copies of Life in the Biosphere
11-Jun-05	Parry Sound	Display, 2nd annual Green Festival
28-Jul-05	Carling	Carling Ratepayers Association
23-28 Aug-05	Georgian Bay	White Squall Ecology Trip with Dr. G. Courtin
2-Sep-05	Blind Bay	GBA Forest Plot Monitoring
9-Sep-05	Parry Sound	Environmental Advisory Committee
19-Sep-05	Parry Sound	Canada World Youth
3-Oct-05	Parry Sound	Environmental Advisory Committee
23-Nov-05	Parry Sound	Active Transportation Workshop
20-Jan-06	Parry Sound	Georgian Bay Country Tourism Marketing Meeting
26-Jan-06	Humphrey School	Grade 5 class
31-Jan-06	Toronto	Georgian Bay Land Trust
3-May-06	Point au Baril	Chamber of Commerce
6-May-06	Nobel	White Squall Symposium
15-May-06	Parry Sound	Rotary Club
31-May-06	Parry Sound	Grade 12 geography class
20-Jun-06	Parry Sound	Parry Sound Town Council
21-Jun-06	Parry Sound	Township of The Archipelago
7-Aug-06	Go Home Bay	Go Home Bay Environment Day
16-Jun-06	Parry Sound	Westwind Inc. Foundation meeting

20-Jun-06	Parry Sound	Presentation to Town Council
21-Jun-06	Parry Sound	Township of the Archipelago
23-Jun-06	Parry Sound	Great Lakes Mayors and Reeves Travel Display
21-Sep-06	Blind Bay	Forest Plot Monitoring, GBA
6-Nov-06	Parry Sound	Grade 12 geography class
31-Oct-07	Parry Sound	Grade 12 geography class

#### 4. Conference Workshops, Presentations & Papers

4-Nov-05	Peterborough	Canadian Studies Graduate Conference
23-Mar-06	Toronto	Nature Conservancy of Canada strategic planning
26 - 31 Mar-06	Paris	Trudeau Foundation: Terroire et Mémoire Seminar
4-6 Oct 2006	Burlington	Leading Edge Conference
11 - 13 Oct 2006	Honey Harbour	State of Lake Huron Conference
26-28 Jan-07	Victoria, BC	Trudeau Foundation: Governance for Sustainability
12-13 Feb-07	Markham	Oak Ridges Moraine Symposium
28-Apr-07	Sheppard's Bush	Save The Oak Ridges Moraine Retreat
22-May-07	Barrie	Students Effecting Change Conference
28-May-07	Banff, AB	Trudeau Foundation Summer Institute

#### 5. National biosphere reserve activities

16-18 Jun-05	Thousand Islands	CBRA Annual General Meeting
30-Jun-05	Conference Call	CBRA Executive
16-Sep-05	Waterloo	CBRA Advisors Meeting
19-Sep-05	Conference Call	CBRA Executive
18-Oct-05	Conference Call	CBRA Executive
14-Nov-05	Conference Call	CBRA Executive
30-Nov-05	Ottawa	Agriculture Canada Rural Secretariat Meeting
12-Dec-05	Conference Call	CBRA Executive
25-Jan-06	Conference Call	CBRA Executive
28-Feb-06	Conference Call	CBRA Executive
2-May-06	Conference Call	CBRA Executive
29-Jun-06	Conference Call	CBRA Executive
10-Aug-06	Ottawa	CBRA Meetings with MPs
30-May-06	Conference Call	CBRA Executive
8-12 Jun-06	Redberry Lake, SK	CBRA Annual General Meeting
29-Jun-06	Conference Call	CBRA Executive
11-Aug-06	Georgetown	CBRA Advisors Meeting
14-Sep-06	Parry Sound	Host Canal Évasion, documentary filmmakers
3-Oct-06	Burlington	CBRA-Core Area Managers Meeting
12-Oct-06	Conference Call	CBRA Executive
15-Nov-06	Conference Call	CBRA Executive
29-Nov-06	Conference Call	CBRA Executive
13-Dec-06	Conference Call	CBRA Executive
11-Jan-07	Conference Call	CBRA Executive
22-Feb-07	Conference Call	CBRA Executive
22-Mar-07	Conference Call	CBRA Executive
12-Apr-07	Conference Call	CBRA Executive
10-May-07	Conference Call	CBRA Executive
30 May to 3 Jun-07	Parry Sound	CBRA Annual General Meeting
3-5 Jun-07	Franklin	AGM Kayak Trip
18-Sep-07	Conference Call	CBRA Executive
23-Oct-07	Conference Call	CBRA Executive
20-Nov-07	Conference Call	CBRA Executive

**6. International biosphere reserve events**

2-Jun-05	Ottawa	Canadian Commission for UNESCO
1-Dec-05	Ottawa	Canadian Commission for UNESCO
15-Jul-05	Parry Sound	Host Australian researcher
24-30 Oct-05	Vienna, Austria	EuroMAB Meeting
10-May-06	Ottawa	Canadian Commission for UNESCO
11-May-06	Ottawa	Revitalization of MAB Canada Meeting
12-13 Jun-06	Niagara Escarpment	Host German delegation from the Rhon BR
13-15 Jun-06	Georgian Bay	Host German delegation from the Rhon BR
13-23 Aug-06	George River, QC	Northern Aboriginal Seminar
16-18 Sep-06	Georgian Bay	Host Latvian delegation on Franklin Island
23-24 Sep-06	Parry Sound	Host British team from Braunton Burrows BR
1-10 Oct-06	Parry Sound	Host UNESCO Paris HQ staff
14-21 Oct-06	Rhon, Germany	German-Canadian Learning Tour
22-28 Oct-06	Paris, France	19th ICC-MAB meeting, UNESCO
14-Mar-06	Ottawa	CCU Peer Review of new Nominations
15-16 Mar 2006	Ottawa	Canadian Commission for UNESCO
30 May-Jun 3-07	Parry Sound	Host Swedish, German and Czech representatives
15-19 Nov-07	Waterton, Alberta	UNESCO Periodic Review
11-16 Nov-07	Antalya, Turkey	EuroMAB Meeting

**7. Long Point Case Study**

14-Nov-05	Simcoe County	Long Point Sustainability Workshops
3-5 Nov-06	Simcoe County	Long Point Sustainability Conference
8-Feb-07	Hagersville	Meeting with LPWBRF members
6-Mar-07	Simcoe	LPWBRF Board Meeting
3-Apr-07	Simcoe	LPWBRF Board Meeting
16-18 May-07	St Williams	Annual General Meeting - Presentation on CBRA
10-Oct-07	Simcoe	Norfolk Field Naturalists Meeting
10-11 Oct-07	Long Point	Field Work: research interviews

**8. Frontenac Arch Case Study**

17-Apr-07	Brockville	FABR Tour - Model Forest Meeting
18-Apr-07	Gananoque	FABR Tour - field research
19-Apr-07	Landsdowne	FABR Board Meeting
20-24 Aug-07	Merrickville	FABR Tour - field research
24-27 Oct-07	Frontenac Arch	Field work; research interviews

## APPENDIX II

### The Role of UNESCO Biosphere Reserves in Governance for Sustainability: *Semi-Structured Interview Questions & Prompts*

1. What is your connection to the biosphere reserve?
  - How did you become involved? How are you involved now?
  - What attracted you to it? How does it affect you?
2. How is the biosphere reserve set up?
  - Structure: Organization? Partners? Volunteers? Projects?
  - Has its structure evolved over time? In what ways? Why?
  - Do think the current structure works well?
3. How would you say that people in your area perceive the biosphere reserve?
  - Are they aware of/proud of the UNESCO designation?
  - Do they relate to the biosphere reserve? Does it create/reflect a sense of place?
4. Biosphere reserves are supposed to help out with conservation and stewardship and support community well being. Does the biosphere reserve try to help out in this way or does it just pick one or two issues at any given time?
  - Is conservation being *integrated* with sustainable development? How?
  - Does the biosphere reserve look at social, ecological *and* economic issues?
  - Do you think that other people share your perspective?
5. Do you think that sustainability is being achieved in this region? How so?
6. How does the biosphere reserve work with your/other groups? With government?
  - Networks? Coalitions? Facilitator? Advocate? Researcher? Organizer?
  - Is the biosphere reserve a leader? (How) has its role changed over time?
7. Do you think that the biosphere reserve has any influence in the area? What kind?
  - Does the biosphere reserve ever get issues onto the political agenda? How?
  - When was it most successful? When did it fail? What happened?
  - Who would get involved in these things if the biosphere reserve didn't?
8. Has the biosphere reserve dealt with conflict or other complex issues in the community? Could you give me an example? (How) was it resolved?
9. What do you think is the biggest challenge for a biosphere reserve?
10. What do you think are the biggest opportunities?
11. What do you think is the most important role of the biosphere reserve?
12. Finally, is there anything you would recommend to a new biosphere reserve?
  - Any lessons learned? Pitfalls? Secrets to success? Advice for others?

## APPENDIX III

### Data Analysis Codes and Emergent Themes

#### 1. Integration

agenda setting  
 boundaries  
 cross-scale  
 culture & history  
 demonstration sites  
 evolution of agenda  
 examples needed  
 external drivers  
 fixture on landscape  
 fluid boundaries  
 funding  
 future scenarios  
 incremental greening  
 institutional fragmentation  
 institutionalization  
 jurisdictional fragmentation  
 landscape-scale  
 leadership transfer  
 livelihoods focus  
 multiple perspectives  
**needs leadership**  
 non-advocacy  
 open systems  
 organizational history  
 quality of life  
 raising the bar  
 resilience assessment  
 role model  
 shared vision  
 shift norms  
 silo structure  
 social equity  
 social privilege  
 sustainable communities  
 tangled jurisdictions  
 trade-offs needed  
 unifying framework  
 volunteer motivations

#### 2. Collaboration

aboriginal participation  
 civil society picks up slack  
 civil society role is huge  
 common values  
 communication  
 competition  
 conflict  
 coordination  
 cross-scale  
 culture of collaboration  
 decision-making processes  
 deliberation  
 divided constituencies  
 federal funding absent  
 government cut-backs  
 government downloading  
 informal governance mechanism  
 institutional arrangements  
**leadership**  
 legitimacy, credibility  
 membership  
 municipalities - building trust  
 no single organization...  
 not another organization  
 organizational capacity  
 organizational structure  
 overarching, open forum  
 principles of participation  
 private-public partnerships  
 provincial agencies - learning  
 represent public interest (Donahue)  
 representation  
 response to vulnerability  
 role of government??  
 sense of place  
 share resources, knowledge, power  
 volunteers/burn-out/turn-over  
 warring factions

### 3. Networks

big picture perspective  
 boundaries, fluid  
 build capacity of others  
 collective decision/action  
 coordination vs. self-org  
 horizontal integration  
 influence transitions  
 informal networks  
 integrated model  
 keep their autonomy  
 meet objectives of others  
 metagovernance function

#### need leadership

network brokers  
 network managers  
 networks sustain projects  
 node in network  
 organizing framework  
 reduce sectoral conflict  
 self-organization  
 silos vs. networks  
 start conversations  
 the right people  
 timing - the right time  
 umbrella organization  
 windows of opportunity

### 4. Roles for BRs

advocacy role vs. neutrality  
 broker  
 build capacity  
 build trust  
 communicate purpose  
 consensus  
 empowerment  
 engage citizens  
 facilitator  
 fill gaps  
 funnel resources  
 incentive  
 incremental change  
 inspiration

#### leadership

metagovernance  
 moral authority  
 moral suasion  
 network governance/management  
 network node  
 normative shift  
 Official Plan consultant  
 open forum  
 place-based governance  
 public discourse  
 role model  
 set agenda  
 shared vision  
 social capital  
 social innovation  
 social learning  
 steer government  
 sustainability assessment  
 sustainability planning  
 sustainability principles

## APPENDIX IV

Researcher: Rebecca Pollock  
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### LETTER OF INFORMED CONSENT

For research participants in the study called:  
“The Role of Biosphere Reserves in Governance for Sustainability”

(Date)

Dear (Participant),

You are being invited to participate in a research study about UNESCO biosphere reserves. This project is trying to understand how biosphere reserves work – how they are organized and what roles the biosphere reserve plays in your region. The specific purpose of the study is to understand the structure, roles and functions of biosphere reserves in governance for sustainability.

This study, titled “The Role of UNESCO biosphere reserves in Governance for Sustainability” is being conducted by Ph.D. student Rebecca Pollock under the supervision of Professor Robert Paehlke of the Department of Environment and Resource Studies at Trent University, Peterborough, Ontario. I am supported by a scholarship from the Trudeau Foundation.

The study involves three biosphere reserves in Ontario: Long Point, Georgian Bay, and Frontenac Arch - each designated by UNESCO as demonstration sites for conservation and sustainable development. The main methods are interviews with participants in these three regions. Participation in the interviews is entirely voluntary.

As a participant in this study, you will be asked questions such as:

- What is your connection to the biosphere reserve?
- How does the biosphere reserve work with other groups?
- Do you think the biosphere reserve has any influence in your region?

I will be the only researcher present at the interview. Our conversation will be digitally recorded to ensure accurate recording of your responses. I will also be taking a few notes

during the interview to help me follow my research questions in a logical order. Interviews will be transcribed from the recordings, but no names or other identifying information will be on the transcripts. The raw data (transcripts and CD) and this signed consent form will then be kept in a locked filing cabinet in my office. Only I will have access to that data and it will be retained by me for five (5) years to refer to for future studies and then the raw data will be destroyed. You will be invited to review direct quotes from our interview before they are used anonymously in publications.

Your name will not be disclosed in this study in any way. In the thesis or subsequent publications, none of the remarks you make will be attributed to you. Your name will not appear in any report, publication or presentation resulting from this study. However, all interview participants will have some connection to, or knowledge of, the biosphere reserve in their area. Therefore, although every effort will be made to protect your identity, the research cannot guarantee that it may not be guessed by others.

The information obtained from this research may help to better understand the role of biosphere reserves in advancing sustainability. Results will be published as part of my doctoral thesis and I would be happy to provide you with a copy of the thesis or any publications resulting from this work. The results of the study will also be shared with the Canadian Biosphere Reserve Association, the Canadian Biosphere Research Network, and the UNESCO World Network of Biosphere Reserves.

This study is deemed to have minimal risks. However, as a participant in this study, you should be aware of the possible risks and costs to you, especially in terms of the time commitment of **1 to 2 hours** spent with the interviewer that will be scheduled at your convenience. You may refuse to answer any particular question or withdraw from the study at any time without penalty by simply advising the researcher. If you decide to withdraw part way through the interview, the data collected from our conversation will not be used in any way and will be destroyed.

This project has been reviewed by, and received ethics clearance through, the Research Ethics Board of Trent University. In the event that you have any comments or concerns about your participation in this study, please contact me or my supervisor Dr. Robert Paehlke at (705) 748-1011 ext. 7199.

Yours sincerely,

Rebecca Pollock  
Phone: (705) 746-2204  
Email: [rebeccapollock@trentu.ca](mailto:rebeccapollock@trentu.ca)

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#### Statement of Consent to Participate in this Research

I am fully informed about this research project as described above and have had the opportunity to ask any questions or make clarifications related to this study.

I agree to have my interview recorded to ensure an accurate recording of my responses. I agree to the use of anonymous quotations in any thesis or publication that comes from this research and understand that I will be invited to review them prior to publication.

I was informed that I may withdraw my consent at any time and without penalty by simply advising the researcher. I have received a copy of this form for my records.

I hereby freely give my consent to participate in the study.

Printed Name: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## APPENDIX V

### Governance Profile of Conservation Organizations in Long Point

#### [1] International Conservation Organizations and Programs

Bird Life International (Nature Canada & Bird Studies Canada co-partners)  
 Important Bird Areas  
     IBA Communities in Action Fund  
 Commission for Environmental Cooperation  
     Monarch Butterfly Conservation Initiative  
 Great Lakes Fisheries Commission  
     Lake Erie Committee  
 International Joint Commission  
     Great Lakes Water Quality Agreement  
     Lake Erie Lake-wide Management Plan  
     North American Waterfowl Management Plan  
 North American Bird Conservation Initiative – Partners in Flight  
     Eastern Habitat Joint Venture Program  
 RAMSAR Wetlands

Federal-Provincial Agreements  
     Strategic Plan for Ontario Fisheries  
     Canada-Ontario Agreement Respecting Great Lakes Water Quality  
     Canada-Ontario Accord for Protection and Enhancement of Environmental Quality

#### [2] Federal Conservation Agencies and Programs

Canadian Coast Guard  
 Department of Fisheries and Oceans  
 Environment Canada  
     Canadian Wildlife Service  
         Long Point National Wildlife Area  
         Big Creek Wildlife Area  
         Habitat Stewardship Program  
     Committee on the Status of Endangered Wildlife in Canada (COSEWIC)  
         Species at Risk Act & Species Recovery Plans  
     Ecological Monitoring and Assessment Network  
         Forest Plot Monitoring  
         Salamander Monitoring  
     Ecological Gifts Program

#### [3] Provincial Conservation Agencies and Programs

Ontario Ministry of Natural Resources  
     St. Williams Conservation Reserve Crown Forest (former Provincial Forestry Station) Nature Reserve  
     Long Point Waterfowl Management Unit  
     Normandale Fish Hatchery  
     Community Fisheries/Wildlife Involvement Project  
     Managed Forest Tax Incentive Program  
     Conservation Land Tax Incentive Program

Ontario Ministry of the Environment  
 Ontario Parks  
     Long Point Provincial Park  
     Turkey Point Provincial Park

## Governance Profile of Conservation Organizations in Long Point – cont'd

### [4] Municipal Conservation Initiatives

Norfolk County Official Land Use Plan  
 Norfolk County Strategic Action Plan  
 Norfolk Tobacco Community Action Plan

### [5] Quasi-Non-Governmental Organizations

Ontario Stewardship (affiliated with the Ontario Ministry of Natural Resources)  
     Haldimand Stewardship Council  
     Norfolk Stewardship Council  
         Norfolk Environmental Stewardship Team  
 Carolinian Canada (a coalition of 40 government and NGO conservation groups)  
 Conservation Ontario  
     Long Point Regional Conservation Authority  
         Lee Brown Waterfowl Management Area  
         Backus Woods  
 Wildlife Habitat Canada  
     Landbird Habitat Program  
     Wetland Habitat Fund

### [6] Non-Governmental Organizations

Bird Studies Canada  
 Canadian Forestry Association  
     Forest Capital of Canada program  
 Delta Waterfowl Foundation  
 Ducks Unlimited  
 Flight Club  
 Friends of Backus Woods  
 Long Point Anglers Association  
 Long Point Area Fish and Game Club  
 Long Point Bird Observatory  
 Long Point Company  
 Long Point Foundation for Conservation  
 Long Point Waterfowl and Wetlands Research Fund  
 Long Point World Biosphere Reserve Foundation  
 Lynn Valley Trail Association  
 National Wild Turkey Federation  
 Nature Conservancy of Canada  
     Conservation Blueprints for the Great Lakes Region  
         James Property  
         Konrad Property  
 Norfolk County Soil & Crop Improvement Association  
 Norfolk Federation of Agriculture  
 Norfolk Woodlot Owner's Association  
 Ontario Federation of Anglers and Hunters  
 Ontario Forestry Association  
 Ontario Heritage Trust  
     Rowanwood Sanctuary  
 Ontario Land Trust Alliance  
     Long Point Basin Land Trust  
         Jackson Gunn Old Growth Forest  
 Ontario Nature (formerly the Federation of Ontario Naturalists)  
     Norfolk Field Naturalists  
 Ontario Wildlife Foundation  
 Ruffed Grouse Society of Canada  
 Tallgrass Ontario (the Ontario Tallgrass Prairie and Savanna Association)  
 TD-Canada Trust Friends of the Environment Foundation

## **Appendix VI**

### **Governance Profile of Conservation Organizations in Frontenac Arch**

#### **[1] International Conservation Organizations and Programs**

Forest Stewardship Council  
 Great Lakes Fisheries Commission  
 International Joint Commission  
     Great Lakes Water Quality Agreement  
     North American Waterfowl Management Plan  
 U.S Fish and Wildlife Services  
 New York State Department of Environmental Conservation

#### **[2] Federal Conservation Agencies and Programs**

Canadian Coast Guard  
 Department of Fisheries and Oceans  
 Environment Canada  
     Canadian Wildlife Service  
         Wildlife Habitat Canada  
             Landbird Habitat Program  
             Wetland Habitat Fund  
     Committee on the Status of Endangered Wildlife in Canada (COSEWIC)  
         Species at Risk Act & Species Recovery Plans  
     Ecological Monitoring and Assessment Network  
 Federal-Provincial Agreements  
     Strategic Plan for Ontario Fisheries  
     Canada-Ontario Agreement Respecting Great Lakes Water Quality  
     Canada-Ontario Accord for Protection and Enhancement of Environmental Quality  
 Parks Canada  
     Rideau Canal - National Historic Site  
     St. Lawrence Islands National Park

#### **[3] Provincial Conservation Agencies and Programs**

Ontario Ministry of the Environment  
 Ontario Ministry of Natural Resources  
 Ontario Parks  
     Charleston Lake Provincial Park  
     Frontenac Provincial Park  
 Ontario Ministry of Tourism and Recreation

#### **[4] Municipal Conservation Initiatives**

City of Brockville  
 Lanark and Leeds Green Community  
 Frontenac Community Futures Development Corporation  
 South Frontenac Sustainability Group  
 St. Lawrence County Planning Office, New York State  
 Thousand Islands Area Residents' Association  
 South Frontenac Township  
 Thousand Islands Community Development Corporation  
 Township of Athens  
 Township of Elizabethtown – Kitley  
 Town of Gananoque  
 Township of Leeds and the Thousand Islands  
 Township of Front of Yonge  
 Township of Rideau Lakes

**Governance Profile of Conservation Organizations in Frontenac Arch cont'd**

Village of Westport  
United Counties of Leeds and Grenville

**[5] Quasi-Non-Governmental Organizations**

Canada's Model Forest Network (affiliated with Natural Resources Canada)  
Eastern Ontario Model Forest  
Ontario Managed Forest Tax Incentive Program

Conservation Ontario (provincially appointed agency of 38 Conservation Authorities)  
Cataraqui Region Conservation Authority  
Rideau Valley Conservation Authority  
Foley Mountain Conservation Area

Ontario Stewardship (affiliated with the Ontario Ministry of Natural Resources)  
Frontenac Stewardship Council  
Leeds County Stewardship Council  
Grenville Land Stewardship Council

St. Lawrence Parks Commission (an agency of the Government of Ontario)

**[6] Non-Governmental Organizations**

Algonquin to Adirondack Conservation Association  
Arthur Child Heritage Centre of the 1000 Islands  
Barbara Heck Foundation (Landon Bay)  
Canadian Parks and Wilderness Society  
Centre for Sustainable Watersheds  
Charleston Lake Association  
Charleston Lake Environmental Association  
Ducks Unlimited  
Eastern Lake Ontario - St. Lawrence River Waterfront Working Group  
Environmental Connections  
Friends of Mac Johnson Wildlife Area  
Friends of Charleston Lake Park  
Frontenac Arch Biosphere Reserve  
Gananoque Forestry Advisory Committee  
Friends of Foley Mountain  
Gananoque River Waterways Association  
Gananoque Waterfront Development Committee  
Lower Beverley Lake Association  
Manotick Landowner and Resource Centre  
Muskies Canada  
Ontario Federation of Agriculture – Leeds County  
Ontario Land Trust Alliance  
The Thousand Islands Watershed Land Trust (formerly Canadian Thousand Islands Heritage Conservancy)  
The Land Conservancy of Kingston, Frontenac, Lennox and Addington  
The Rideau Waterway Land Trust  
Ontario Nature (formerly the Federation of Ontario Naturalists)  
Brockville Field Naturalists  
Kingston Field Naturalists  
Ontario Woodlot Association  
Queens University Biological Station  
Rideau Thousand Islands Master Gardeners  
Save the River  
Thousand Islands River Heritage Committee

## Appendix VII

### Governance Profile of Conservation Organizations in Eastern Georgian Bay

#### [1] International Conservation Organizations and Programs

BirdLife International  
     Canadian Nature Federation and Bird Studies Canada  
     Important Bird Area: The Limestone Islands Nature Reserve

Dark Skies Initiatives

International Joint Commission  
     Great Lakes Water Quality Agreement  
     Great Lakes Binational Partnership  
     State of the Lakes Ecosystem Conferences  
     Areas of Concern  
     Remedial Action Plans  
     Severn Sound Remedial Action Plan

International Watershed Initiative  
     Air Quality Agreement  
     International Upper Great Lakes Study (IUGLS)  
     Public Interest Advisory Group (PIAG)

Great Lakes Fishery Commission  
     Lake Huron Committee (reports to GLFC for Georgian Bay)

Forest Stewardship Council (FSC)  
     Westwind Forest Stewardship Inc.

United Nations Educational, Scientific and Cultural Organization (UNESCO)  
     MAB Programme for World Biosphere Reserves

#### [2] Federal Conservation Agencies and Programs

Department of Fisheries and Oceans  
     Canadian Coast Guard

Environment Canada  
     Canada-Ontario Agreement Great Lakes Innovation Committee  
     Canadian Wildlife Service  
     Committee on the Status of Endangered Wildlife in Canada (COSEWIC)  
     Species at Risk Act & Species Recovery Plans  
     Ecological Monitoring and Assessment Network  
     Wye Marsh Wildlife Centre  
     Great Lakes and Corporate Affairs Branch  
     Our Great Lakes Program

Fed-Nor (Youth Internship program)  
     Community Business Development Corporations

Federal-Provincial Agreements  
     Strategic Plan for Ontario Fisheries  
     Canada-Ontario Agreement Respecting Great Lakes Water Quality  
     Canada-Ontario Accord for Protection and Enhancement of Environmental Quality

Indian and Northern Affairs Canada  
     First Nations Forestry Program  
     First Nations Water Management Strategy Progress Report March 22, 2007  
     Sustainable Development Strategy 2007-2010

Natural Resources Canada

Parks Canada  
     Georgian Bay Islands National Park  
     Ecological Integrity Monitoring

## Governance Profile of Conservation Organizations in Eastern Georgian Bay cont'd

### [3] Provincial Conservation Agencies and Programs

Ontario Ministry of Environment  
 Ontario Ministry of Natural Resources
 

- Ontario Forest Research Institute
- Ontario Natural Heritage Information Centre
- Ontario Stewardship Network
- Conservation Reserves
- Ontario Forest Accord
- Ontario Managed Forest Tax Incentive Program
- Sustainable Forestry Licenses
- Resource Stewardship Agreements

 Ontario Parks
 

- Ontario's Living Legacy
- Great Lakes Heritage Coast designation
- Parks Research Forum of Ontario

 Ontario Ministry of Northern Development and Mines  
 Ontario Ministry of Tourism and Recreation

### [4] Municipal and Aboriginal Conservation Initiatives

Carling Township  
 Georgian Bay Township  
 McDougall Township  
 Seguin Township  
 Township of Parry Sound  
 Township of the Archipelago

Wahta Mohawk First Nation  
 Moose Deer Point First Nation
 

- Environmental Protection Group

 Wasauksing First Nation  
 Shawanaga First Nation  
 Magnetawan First Nation  
 Henvey Inlet First Nation
 

- French River Cultural Advisory Committee

### [5] Quasi-Non-Governmental Organizations

Conservation Ontario (provincially appointed agency of 38 Conservation Authorities)
 

- North Bay-Mattawa Conservation Authority

 Ontario Stewardship (affiliated with the Ontario Ministry of Natural Resources)
 

- Eastern Georgian Bay Stewardship Council
- Parry Sound – Muskoka Stewardship Council

### [6] Non-Governmental Organizations

Alliance of Boaters and Cottagers  
 Anishnabek-Ontario Fisheries Resource Centre  
 Bird Studies Canada  
 Canadian Heritage Rivers  
 Canadian Nature Federation  
 Canadian Biosphere Reserves Association  
 Canadian Model Forest Network: Enhanced Aboriginal Involvement  
 Centre for Indigenous Environmental Resources
 

- Taking Action on Climate Change

**Governance Profile of Conservation Organizations in Eastern Georgian Bay cont'd**

Clean Energy for First Nations  
 Planning Adaptations to Climate Change  
 Building Sustainable Communities  
 Protecting Lands and Water  
 Conserving Biodiversity  
 Council of Outdoor Educators of Ontario  
 Federation of Ontario Naturalists  
 Parry Sound Nature Club  
 Six Mile Lake Conservationists Club  
 First Nations Environmental Network  
 Friends of Killbear  
 Friends of the Environment Parry Sound  
 G'Nadjiwan Ki Aboriginal Tourism Association  
 Georgian Bay Association  
 GBA Foundation  
 Georgian Bay BayKeeper  
 Georgian Bay Biosphere Reserve Inc.  
 Georgian Bay Osprey Society  
 Great Lakes United  
 Greater Georgian Bay Reptile Awareness Program  
 Huronia Communities Foundation  
 National Aboriginal Forestry Association  
 National Aboriginal Land Managers Association  
 Nature Conservancy of Canada  
 North Simcoe Action Team  
 Ontario Boating Forum  
     Georgian Bay Boaters and Cottagers Code, available through the GBA  
 Ontario Land Trust Alliance  
     Georgian Bay Land Trust  
 Ontario Marine Operators Association  
 Parry Sound-Muskoka Stewardship Network  
 Parry Sound Au Naturel  
     Parry Sound Green Festival; Kite Festival  
 Science North  
 Severn Sound Environmental Association  
 Schad Foundation

## APPENDIX VIII

### CONCEPTUAL FRAMEWORK FOR THE ROLE OF BIOSPHERE RESERVES IN GOVERNANCE FOR SUSTAINABILITY

#### ***INTEGRATED SUSTAINABILITY***

1. To what extent does the biosphere reserve (BR) integrate sustainable livelihoods and conservation considerations in its organizational focus and in its broader community initiatives?
2. To what extent does the BR address cross-scale dynamics (i.e., multi-level jurisdiction, external drivers, spatial and temporal considerations) across its three distinct zones?
3. To what extent does the BR accommodate both scientific and cultural interpretations of place and how does that relate to citizen engagement?
4. To what extent does the BR integrate principles for sustainability?
5. To what extent does the BR foster social learning and adaptation?

#### ***COLLABORATIVE GOVERNANCE***

6. To what extent has/is the BR self-organized? What local governance arrangements are in place and what are their strengths, weaknesses, challenges and opportunities?
7. To what extent is place-based governance used to define and address context-specific sustainability challenges?
8. To what extent does the BR organization engage in collaborative governance and how can it be characterized?

#### ***GOVERNANCE NETWORKS***

9. To what extent are local BR organizations involved with networks and in what capacity?
10. To what extent do BR participate in network governance as managers?
11. To what extent are BR organizations aware of the dynamics of metagovernance?

#### ***LEADERSHIP***

12. To what extent do local BR organizations facilitate and articulate a shared vision?
13. To what extent do BRs promote a substantive agenda for sustainability?
14. To what extent do BRs use sustainability assessment or resilience analysis tools?
15. In what ways do BR organizations provide an open forum for deliberation of trade-offs, or act as informal governance mechanisms for collective decisions?
16. How are social innovators involved and how do they affect the leadership capacity of the local BR organization?
17. What is the role of government? Does it enable or constrain BR effectiveness?
18. To what extent have BR organizations institutionalized, and how?
19. To what extent do biosphere reserve communities appear to be steering governance towards sustainability?